Name of the Scientist : Name of the Award : Instituted by :	Shri Mani Krishna Venkata Karri, Materials Science Division INSA Medal for Young Scientists, 2014 Indian National Science Academy Has been working on phase transformations and deformation of h.c.p materials. A unique feature of his work is the combination of experiment and computer simulations to address issues that are of both academic and industrial significance.				
Name of the Scientist :	Shri Prakash Chandra Rout, Nuclear Physics Division				
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy For his significant contribution in developing a large area scintillator detector for the measurement of fast neutrons using the time of flight technique and for his studies on the damping of nuclear shell effect in the doubly magic 208Pb region.				
Name of the Scientist :	Dr. Ashish Kumar Srivastava, Nuclear Agriculture and Biotechnology Division				
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy His work emphasizes that thio urea supplementation upregulates the expression of sulphate transporters that improve sulphur assimilation associated with redox signaling.				

Name of the Scientist : Name of the Award : Instituted by :	Shri Mani Krishna Venkata Karri, Materials Science Division INSA Medal for Young Scientists, 2014 Indian National Science Academy Has been working on phase transformations and deformation of h.c.p materials. A unique feature of his work is the combination of experiment and computer simulations to address issues that are of both academic and industrial significance.
Name of the Scientist:	<mark>Shri Prakash Chandra Rout</mark> , Nuclear Physics Division
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy For his significant contribution in developing a large area scintillator detector for the measurement of fast neutrons using the time of flight technique and for his studies on the damping of nuclear shell effect in the doubly magic 208Pb region.
Name of the Scientist:	Dr. Ashish Kumar Srivastava, Nuclear Agriculture and Biotechnology Division
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy His work emphasizes that thio urea supplementation upregulates the expression of sulphate transporters that improve sulphur assimilation associated with redox signaling.

Name of the Scientist : Name of the Award : Instituted by :	Shri Mani Krishna Venkata Karri, Materials Science Division INSA Medal for Young Scientists, 2014 Indian National Science Academy Has been working on phase transformations and deformation of h.c.p materials. A unique feature of his work is the combination of experiment and computer simulations to address issues that are of both academic and industrial significance.			
Name of the Scientist :	Shri Prakash Chandra Rout, Nuclear Physics Division			
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy For his significant contribution in developing a large area scintillator detector for the measurement of fast neutrons using the time of flight technique and for his studies on the damping of nuclear shell effect in the doubly magic 208Pb region.			
Name of the Scientist:	Dr. Ashish Kumar Srivastava, Nuclear Agriculture and Biotechnology Division			
Name of the Award : Instituted by :	INSA Medal for Young Scientists, 2014 Indian National Science Academy His work emphasizes that thio urea supplementation upregulates the expression of sulphate transporters that improve sulphur assimilation associated with redox signaling.			

#### BARC NEWSLETTER

Name of the Scientist Affiliation Name of Award/Honour	<ul> <li>Kinshuk Dasgupta</li> <li>Rare Earths Development Section, Materials Group, BARC</li> <li>Ambuja Cement Best PhD (Tech.) Thesis Award instituted by the Institute of Chemical Technology, Mumbai</li> </ul>
Title of the thesis	: "Studies in Synthesis and Characterization of Carbon Nanotubes by Catalytic Chemical Vapor Deposition"
Name of the Scientist	: Saurav Kumar Guin
Affiliation	: Fuel Chemistry Division, BARC
Name of Award/Honour	: 1st Poster Prize
Title of the Paper	: An Insights into the Electrocatalysis of U(VI) on Gold
	Nanoparticles (AuNPs)
Presented at	: "ECHEMS 2014: Electrochemistry in Molecular Understanding" held at Wells in United Kingdom during June 17-20, 2014
Name of the Scientist	: P. Suprasanna
Affiliation	: Nuclear Agriculture & Biotechnology Division, BARC
Name of Award/Honour	: Prof. H.S. Srivastava Memorial Lecture Award
Presented at	: Doon University, Dehradun

Name of the Scientist Affiliation Award/Honour	:	<b>S.M. Yusuf</b> Solid State Physics Division Elected as a Fellow of the National Academy of Sciences, India in the year 2014
Name of the Scientists	:	N.S.Rawat, M.S.Kulkarni, D.R.Mishra,
		B.C.Bhatt and D.A.R.Babu
Affiliation	:	Radiological Physics & Advisory Division
Award/Honour	:	Best poster paper award
Title of the Paper	:	An attempt to correlate shift in TL peak with heating rate and black-body radiation
Presented at	:	31 <sup>th</sup> National Conference on Advances in Radiation Measurement Systems and Techniques; organized by the Indian Association for Radiation Protection (IARP) and held at BARC, Mumbai during March 19-21, 2014.

Name of the Scientist/s	:	K.P. Muthe, S.M. Tripathi, D.R. Mishra, S.D. Sharma, D.A.R. Babu and D.N. Sharma
Title of the Paper	:	Studies on $\alpha$ -Al <sub>2</sub> O <sub>3</sub> :C based OSL badge for eye lens monitoring in India
Name of the Award	:	
Presented at	:	31 <sup>st</sup> National Conference on Advances in Radiation Measurement Systems and Techniques, Organized by Indian Association for Radiation Protection (IARP) held at Bhabha Atomic Research Centre (BARC), Mumbai during March 19-21, 2014
Name of the Event	:	Academy conference on "Science and Technology for sustainable
		development" held at Indian Institute for Information Technology, Design
		and Manufacturing (IIITDM) Jabalpur, 20 <sup>th</sup> March, 2014
Name of the Scientists	:	Rahul Singh, Ashwani Kumar, Biplab Ghosh, Sahayog Jamdar*, Ravindra Makde and S.M. Sharma
Affiliation	:	High Pressure & Synchrotron Radiation Physics Division, *Food Technology Division
Name of the Award	:	Best poster award
Title of the Paper	:	Crystal structure of mitochondrial intermediate peptidase (Icp55) from S. cerevisiae
Presented at	:	International Symposium-cum-Workshop on Frontiers of Structural Biology:
		New advances in X-ray diffraction and Cryo-electron Microscopy. Organized
		by Indian National Science Academy, New Delhi & Regional Centre for
		Biotechnolgy, UNESCO, New Delhi and held at Indian National Science
		Academy, New Delhi, 15-17 Dec. 2014.

Name of the Scientist/s	:	Munish Kumar, M.S. Kulkarni, Ratna P., Amit Bhatnagar, N. Gaikwad, K.P. Muthe, S.M. Tripathi, D.R. Mishra, S.D. Sharma, D.A.R. Babu and D.N. Sharma
Title of the Paper	:	Studies on $\alpha$ -Al <sub>2</sub> O <sub>3</sub> :C based OSL badge for eye lens monitoring in India
Name of the Award	:	Best poster paper award
Presented at	:	31 <sup>st</sup> National Conference on Advances in Radiation Measurement Systems and Techniques, Organized by Indian Association for Radiation Protection (IARP) held at Bhabha Atomic Research Centre (BARC), Mumbai during March 19-21, 2014
Name of the Event	:	Academy conference on "Science and Technology for sustainable development" held at Indian Institute for Information Technology, Design and Manufacturing (IIITDM) Jabalpur, 20 <sup>th</sup> March, 2014
Name of the Scientists	:	<mark>Rahul Singh</mark> , Ashwani Kumar, Biplab Ghosh, Sahayog Jamdar*, Ravindra Makde and S.M. Sharma
Affiliation	:	High Pressure & Synchrotron Radiation Physics Division, *Food Technology Division
Name of the Award	:	Best poster award
Title of the Paper	:	Crystal structure of mitochondrial intermediate peptidase (Icp55) from S. cerevisiae
Presented at	:	International Symposium-cum-Workshop on Frontiers of Structural Biology: New advances in X-ray diffraction and Cryo-electron Microscopy. Organized by Indian National Science Academy, New Delhi & Regional Centre for Biotechnolgy, UNESCO, New Delhi and held at Indian National Science Academy, New Delhi, 15-17 Dec. 2014.

Name of the Scientist/s	:	Munish Kumar, M.S. Kulkarni, Ratna P., Amit Bhatnagar, N. Gaikwad, K.P. Muthe, S.M. Tripathi, D.R. Mishra, S.D. Sharma, D.A.R. Babu and D.N. Sharma
Title of the Paper	:	Studies on $\alpha$ -Al <sub>2</sub> O <sub>3</sub> :C based OSL badge for eye lens monitoring in India
Name of the Award	:	Best poster paper award
Presented at	:	31 <sup>st</sup> National Conference on Advances in Radiation Measurement Systems and Techniques, Organized by Indian Association for Radiation Protection (IARP) held at Bhabha Atomic Research Centre (BARC), Mumbai during March 19-21, 2014
Name of the Event	:	Academy conference on "Science and Technology for sustainable
		development" held at Indian Institute for Information Technology, Design
		and Manufacturing (IIITDM) Jabalpur, 20 <sup>th</sup> March, 2014
Name of the Scientists	:	Rahul Singh, <mark>Ashwani Kumar,</mark> Biplab Ghosh, Sahayog Jamdar*, Ravindra Makde and S.M. Sharma
Affiliation	:	High Pressure & Synchrotron Radiation Physics Division, *Food Technology Division
Name of the Award	:	Best poster award
Title of the Paper	:	Crystal structure of mitochondrial intermediate peptidase (Icp55) from S. cerevisiae

#### **BARC Celebrates Founder's Day**

- 66. Shri R.R. Bhingare, SO/D, RP&AD, HS&EG, BARC
- 67. Shri Mridulendu Pandey, SO/C, HPD, HS&EG, BARC
- 68. Shri Praveen Dubey, SO/C, IHSS, HS&EG, BARC
- 69. Shri S.S. Deolekar, SO/C, BSCS, Strategic Group, BARC
- 70. Shri J.D. Sharma, SO/E, IHSS, HS&EG, BARC
- 71. Shri M.T. Valvi, SA/D, RSSD, HS&EG, BARC
- 72. Shri M.V.R. Narsaiah, SO/C, RSSD, HS&SG, BARC
- 73. Shri D.G. Mishra, SA/E, HPD, HS&EG, BARC
- 74. Shri Kamlesh, SA/E, HPD, HS&EG, BARC
- 75. Shri M.T. Saify, SO/F, AFD, NFG, BARC
- 76. Shri D.B. Sathe, SO/G, AFFF, Tarapur, NFG, BARC
- 77. Shri A.J. Mane, F/B, AFD, NFG, BARC
- 78. Shri R.K. Singh, F/C, MFD, NFG, BARC

**H. Meritorious Technical Service Award** carries a Cash award of Rs 20,000/-, Citation and a Medal. There were Twenty Eight award winners; Eighteen from BARC, Four each IGCAR and RRCAT and One each from Kalpakkam and VECC.

- 1. Shri K.S. Munankar, Sr.T/J, RB&HSD, BMG, BARC
- 2. Shri P.S. Adhikari, SA/E, N&XPF PG, BARC
- 3. Shri Ajaj Husain, SA/E, TSD, ESG, BARC
- 4. Shri Suryakant N. Mahajan, Sr.T/H, RSSD, HS&EG, BARC
- 5. Shri P.A. Bhaskaran, F/C, PRPD, RPG, BARC
- 6. Shri A.J. Almeida, Sr.T/J, L&PTD, BTDG, BARC
- 7. Shri Mohan Singh Dhapola, Sr.T/H, CDM, DM&AG, BARC
- 8. Shri Manohar Lal, T/G, CED, ESG, BARC
- 9. Shri S.P. Mhatre, F/C, MPD, MG, BARC
- 10. Shri B.S. Nair, F/D, PMD, MG, BARC
- 11. Shri U.R. Ram, Sr.T/H, Cryo-Tech.Div., MRG, BARC
- 12. Shri G.S. Nagrale, SA/E, TRP, NRB, BARC
- 13. Shri Clement Ambrose, F/B, TRP, NRB, BARC
- 14. Shri K. Venkatasubramanian, F/C, FRD, NRG, BARC
- 15. Shri S.B. Sharma, T/H, MD&PDD, PG, BARC
- 16. Shri R.R. Dahivalkar, Sr.T/H, RRMD, RG, BARC
- 17. Shri K.S. More, Sr.T/J, AFFF/Tarapur, NFG, BARC
- 18. Shri M. Sivadasan, F/B, Conversion Facility, RMP/ BARC

#### BARC NEWSLETTER

**I. Group Achievement Award winners** received a medal, a Citation and suitable cash awards for each group commensurate with the group size and its overall achievement. A total number of Forty Two Groups received these awards. Out of these, Twenty Five (plus one jointly with IGCAR) were from BARC, Five from IGCAR, Four from RRCAT, Two each from HWB and VECC and One each from NFC, DAE Secretariat, AMD and BRIT.

Following were the Group Leaders from BARC, who received the awards for their groups:

- 1. Smt. Shailaja Prakasam, DEO, Admn. Group, BARC
- Shri K. Srinivas, Head, CED, ESG, BARC & Shri R.K. Mishra, SO/F, FRD, NRG, BARC.
- Dr. S.J. Jambhulkar, SO/G, & Dr. P. K. Mukherjee, SO/G, NA&BTD, BSG, BARC
- 4. Shri R.P. Hans, SO/H, BSCS, BSC, BARC
- 5. Dr. B.N. Jagatap, DS & Director, Chem. Gr., BARC.
- 6. Shri S.K. Gupta, SO/F, UED, ChEG, BARC.
- 7. Shri A. Shriniwas Rao, Head, MDS, ChTD/ChTG, BARC.
- Shri K.C. Guha, OS & Project Manager (PO&M), ChTG, BARC, Mysuru.
- 9. Shri A.K. Sinha, OS, Head, CDM, DM&AG & Shri K.K. Abdulla, OS & Ex-Head, AFD, NFG, BARC.
- 10. Shri R.C. Sharma, Director, RG,BARC & Shri K.N. Vyas, A.D., RPG, BARC.
- 11. Shri A.K. Sinha, OS, Head, CDM, DM&AG, BARC.
- Dr. Raj Mangal Tripathi, SO/H+, Head, HPD/ HS&EG, BARC & Dr. R.B. Oza, SO/G, RSSD, HS&EG BARC
- Shri P. Chaudhury, SO/G, Head, RMS&MS, RSSD, HS&EG, BARC & Dr (Kum) Pramilla Damodar Sawant, SO/G, RSSD, HS&EG, BARC.
- 14. Dr. J. K. Chakravartty, OS, Director, MG, BARC.
- 15. Dr. Satish C. Gupta, Assoc. Director, MRG, BARC.
- 16. Shri P. Nagaraju, SO/H+, Head, HLU&ESS, NFG, BARC.
- 17. Shri Sunil Gulati, SO/F, Suptd (Op), TRP, NRB, BARC/Tarapur.

#### BARC NEWSLETTER

- 18. Shri I. Vishwaraj, Plant Supdt., TWMP, TNRPO, NRB, BARC.
- 19. Shri R. S. Soni, Former Head, TDD, NRG, BARC & Shri N. J. Shukla, Foreman/C, FRD, NRG, BARC.
- 20. Dr. Amar Sinha, OS & Head, NXPD, PG, BARC.
- 21. Dr. N.K. Sahoo, OS, & Head, A&MPD, PG, BARC.
- 22. Dr. Ashutosh Dash, Head, IP&AD, BARC. &
- Dr. Sharmila Banerjee, Head, RPhCS, RC&IG, BARC.
- 23. Shri R. J. Patel, DS & Head, RTD, RD&DG, BARC & Shri S. Raghupathy, SO/H+, Head, CH&MD/RDG, IGCAR.
- 24. Shri B.S.V.G. Sharma, OS, Head TT&CD, BARC &
- Dr. A.K. Nayak, Head, ThHS, RED, RD&DG, BARC
- 25. Dr. M.G.R. Rajan (OS) & Head, RMC, BARC.
- 26. Shri K.V. Ravi, OS, Head, PRPD, RPG, BARC Facilities

J. Meritorious Service Award carries a cash prize of Rs. 20,000/-, a citation and a medal. There were Thirty one Award winners. Twenty five were from BARC, Two from IGCAR and each from DAE, RRCAT, VECC and AMD. Following were the award winners from BARC:

- 1. Shri Kishorilal Rana, Dr.Gr.I, RC&IG, BARC
- 2. Smt. N. Lakshmi, AAO, AD, Adm., BARC
- 3. Shri K.A.R. Bhounsle, Dr.SG, RMP/BARC
- 4. Smt. M.S. Pushpa, Sr.PS, RMP/BARC
- 5. Shri Suresh A. Karande, Dr.Gr.I, BARC

#### BARC Celebrates Founder's Day

- 6. Shri Punaram D. Thapa, T/B, PD, Adm., BARC
- 7. Shri P.D. Shringi, Sr. AO, Accounts, Adm., BARC
- 8. Shri Ashok P. Lad, S.Guard, PD, Adm., BARC
- 9. Shri Malkit Chand S. Bhanwal, Dr.Gr.I, PD, Adm., BARC
- 10. Shri A. Unnikrishnan, Sr.PS., E&IG, BARC
- 11. Shri Rupendra S. Palwankar, Asstt., Medical, BARC
- 12. Smt. Rajni M. Mirchandani, Sr.Clerk, LWRD, RPG, BARC
- 13. Shri A.G. Sudheendra, APO, RMP/BARC
- 14. Shri R.L. Mungekar, Asstt., PD, Adm., BARC
- 15. Smt. Ragini R. Patange, UDC, PD, Adm., BARC
- 16. Shri T. Vallinayagam, Dr. SG, Traffic/PD, Adm., BARC
- 17. Shri Bhaurao D. Yewale, Traffic/PD, Adm., BARC
- 18. Shri Sunil K. Telkar, Asstt., PD, Adm., BARC
- 19. Smt. Anita Ramachandran, Asstt., PD, Adm., BARC
- 20. Shri Mahadev D. Rane, Sec.Guard, PD, Adm., BARC
- 21. Shri I. Murugesan, Security Guard, PD, Adm., BARC
- 22. Shri Natarajan Srinivasan, Sr.PS, Controller's Office, Adm., BARC
- 23. Smt. Ankita Sunil Utekar, Steno Gr.II., P&CD, BARC
- 24. Shri Kartar Singh Rana, T/F, PD, Adm., BARC
- 25. Sh Dnyandeo N. Datir T/F, PD, Adm., BARC

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
	Atindra Mohan				Post-Doctoral Fellowship, University of
	Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Banerjee Atindra Mohan	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award ITAS (Indian Thermal Analysis Society)
100	Banerjee	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award The Japanese Photochemistry Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Eikobshaby Japanese Photochemistry
	Dr. A. C. Bhasikuttan	2017	NA		and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Strategy and Contract Strategy Sectors Strategy and Contract Strategy Sectors Strategy Sectors S

Rahu Tripathi       2014       ADQPT0065K       Scientific Officer G       award         Dr. Subir Kumar Ghosh       2015       ABXPG3302K       Associate Professor       DAE-Science Research Council Outstanding Investigator Award , DAE         Dr. Subir Kumar Ghosh       2017       Yene Science Research Council Outstanding Investigator Award , DAE         Dr. Subir Kumar Ghosh       2017       Yene Science Research Council Outstanding Investigator Award , DAE         Dr. Subir Kumar Ghosh       2017       Professor       DAE-Group Achievement Award, DE         Dr. Subir Kumar Ghosh       2019       Professor       Nd Sampat Award, Electrochemical Society of India, IISC Bangalore         Dr. Ratikanta Misha       Sciences       Samistah Duta Academy of       Samistah Duta Society of India, National Young Academy of Science (INYAS)         Dr. Ratikanta Misha       2013-2016       AMAPD9408P       Assistant Professor       Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty Mehanty       Giscore (INYAS)         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       IMAPD9408P       Assistant Professor       Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty Mehanty       Giscore (INYAS)         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       IMAPD9408P       Assistant Professor       Avit Fellowship for Experienced Researchers       Avit Fellowship for Experienced (INAS)<		Dr. Virendra Kumar	2016		SO/G	Dr. Tarun Dutta Memroral Award-2016 DAE Scientific & Technical Excellence
Dr. Subir Kumar Ghosh 2015 ABXPG9302K Associate Professor Outstanding Investigator Award, DAE   Dr. Subir Kumar Ghosh 2017 Kasociate Professor DAE-Group Achievement Award, DAE   Dr. Subir Kumar Ghosh 2019 Professor N M Sampat Award, Electrochemical Society of India, IISC Bangalore   Dr. Subir Kumar Ghosh 2019 Professor N M Sampat Award, Electrochemical Society of India, IISC Bangalore   Dr. Ratikanta Mishra Sciences NMAPD9408P Assistant Professor   Sharmistha Dutta Choudhury 2013-2016 AMAPD9408P Assistant Professor   Dr. (Mrs.) Jyotirmayee Mohanty 2013-2016 AMAPD9408P   Dr. (M		Rahul Tripathi	2014	ADQPT0065K	Scientific Officer G	Construction and American Construction and American Construction and American Construction and American Constru
Dr. Subir Kumar Ghosh     2017     Associate Professor     DAE-Group Achievement Award, DAE       Dr. Subir Kumar Ghosh     2019     Professor     N M Sampat Award, Electrochemical       Dr. Subir Kumar Ghosh     2019     Professor     Maharashtra Academy of Sciences       Academy of     Sciences     Maharashtra Academy of Sciences       Sharmistha Dutta     Choudhury     2013-2016     AMAPD9408P       Choudhury     2016     AMAPD9408P     Assistant Professor       Sharmistha Dutta     Choudhury     2016     AMAPD9408P       Dr. (Mrs.) Jyotirmayee     Q117		Dr. Subir Kumar Chash	2015	ARVECODODE	Accoriate Drafaccor	
Dr. Subir Kumar Ghosh     2019     Professor     N M Sampat Award, Electrochemical       Fellow of     Society of India, IISC Bangalore     Society of India, IISC Bangalore       Dr. Ratikanta Mishra     Sciences     Maharashtra Academy of Sciences       Sharmistha Dutta     Choudhury     2013-2016     AMAPD9408P     Assistant Professor     Maharashtra Academy of Sciences       Sharmistha Dutta     Choudhury     2016     AMAPD9408P     Assistant Professor     Award       Sharmistha Dutta     Choudhury     2016     AMAPD9408P     Assistant Professor     Academy of Science (INVAS)       Dr.(Mrs.) Jyotirmayee     Dr.(Mrs.) Jyotirmayee     2017     'Associate Editor' of the Editorial Board of Supramolecular Chemistry.       Dr.(Mrs.) Jyotirmayee     2017     'Bronze Medal-2017' by Chemical Research Society of India (CRS)       Dr.(Mrs.) Jyotirmayee     2013-2016     Av4 Fellowship for Experienced Research Society of India (CRS)       Dr.(Mrs.) Jyotirmayee     2013-2016     Av4 Fellowship for Experienced Research society of India (CRS)       Dr.(Mrs.) Jyotirmayee     2013-2016     Av4 Fellowship for Experienced Research society of India (CRS)       Dr.(Mrs.) Jyotirmayee     Fellow of National Academy of Sciences     Fellow of National Academy of Sciences		Dr. Subir Kumar Griosn	2013	ADAPO9302K	Associate Professor	Outstanding investigator Award , DAE
Dr. Subir Kumar Ghosh 2019 Professor Sciency of India, IISC Bangalore   Fellow of Maharashtra   Academy of Sciences   Dr. Ratikanta Mishra Sciences   Sharmistha Dutta Choudhury   Choudhury 2013-2016   AMAPD9408P Assistant Professor   Amarbership of Indian National Young   Choudhury 2016   AMAPD9408P   Assistant Professor   Academy of Sciences   Sharmistha Dutta   Choudhury   2016   AMAPD9408P   Assistant Professor   Academy of Science (INYAS)               Dr. (Mrs.) Jyotirmayee   Mohanty   Dr. (Mrs.) Jyotirmayee   Mohanty   2013-2016               Dr. (Mrs.) Jyotirmayee   Mohanty   2017            Dr. (Mrs.) Jyotirmayee   Mohanty   2013-2016            Dr. (Mrs.) Jyotirmayee   Mohanty               Dr. (Mrs.) Jyotirmayee   Mohanty               Dr. (Mrs.) Jyotirmayee      Dr. (Mrs.) Jyotirmayee Dr. (Mrs.) Jyotirmayee Dr. (Mrs.) Jyotirmayee Dr. (Mrs.) Jyotirmayee Dr. (Mrs.) J		Dr. Subir Kumar Ghosh	2017		Associate Professor	DAE-Group Achievement Award, DAE
Fellow of Maharashtra Academy of       Maharashtra Academy of         Dr. Ratikanta Mishra       Sciences         Sharmistha Dutta       Choudhury         2013-2016       AMAPD9408P         Assistant Professor       Award 						N M Sampat Award, Electrochemical
Maharashtra Academy of       Maharashtra Academy of       Maharashtra Academy of Sciences SERB Women Excellence Research Grant         Dr. Ratikanta Mishra Sharmistha Dutta Choudhury       2013-2016       AMAPD9408P       Assistant Professor       Maharashtra Academy of Sciences SERB Women Excellence Research Grant         Sharmistha Dutta Sharmistha Dutta Choudhury       2016       AMAPD9408P       Assistant Professor       Award Membership of Indian National Young Academy of Science (INYAS)         Dr. (Mrs.) Jyotirmayee Mohanty       2019		Dr. Subir Kumar Ghosh	2019		Professor	Society of India, IISC Bangalore
Academy of   Dr. Ratikanta Mishra   Sharmistha Dutta   Choudhury   Starmistha Dutta   Choudhury   Starmista Dutta   Starmista   Starmista Dutta   Starmista   Starmista   Starmista   Starmista   Starmista   Starmista   Starmista   Starmista						
Dr. Ratikanta Mishra Sciences Maharashtra Academy of Sciences   Sharmistha Dutta 2013-2016 AMAPD9408P Assistant Professor   Choudhury 2016 AMAPD9408P Assistant Professor   Sharmistha Dutta 2016 AMAPD9408P Assistant Professor   Choudhury 2016 AMAPD9408P Assistant Professor   Dr. (Mrs.) Jyotirmayee 2019						
Sharmistha Dutta Choudhury Sharmistha Dutta Choudhury       2013-2016       AMAPD9408P       Assistant Professor       Award Award Membership of Indian National Young Academy of Science (INYAS)         Dr. (Mrs.) Jyotirmayee Mohanty       2019       'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a speciality of Frontiers in Chemistry.       'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a speciality of Frontiers in Chemistry.         Dr. (Mrs.) Jyotirmayee Mohanty       2017       'Associate Editor' of India (CRSI)         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellowship for Experienced Researchers         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellowship for Experienced Researchers         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       Event         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellowship for Experienced Researchers         Dr. (Mrs.) Jyotirmayee Mohanty       2013-2016       Fellow of National Academy of Sciences         Dr. (Mrs.) Jyotirmayee       2013-2016       Fellow of National Academy of Sciences			CIPERCONTROLLING ACTORNEYSING D			
Choudhury Sharmistha Dutta Choudhury       2013-2016       AMAPD9408P       Assistant Professor       Award Membership of Indian National Young Academy of Science (INYAS)         Dr.(Mrs.) Jyotirmayee Mohanty       2019			Sciences			
Sharmistha Dutta Choudhury       2016       AMAPD9408P       Assistant Professor       Membership of Indian National Young Academy of Science (INYAS)         Dr.(Mrs.) Jyotirmayee Mohanty       2019       'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty of Frontiers in Chemistry.         Dr.(Mrs.) Jyotirmayee Mohanty       2017       'Bronze Medal-2017' by Chemical Research Society of India (CRSI)         Dr.(Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellowship for Experienced Researchers         Dr.(Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellow of National Academy of Sciences			2013-2016	AMAPD9408P	Assistant Professor	
Choudhury       2016       AMAPD9408P       Assistant Professor       Academy of Science (INYAS)         Dr.(Mrs.) Jyotirmayee Mohanty       2019       'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty of Frontiers in Chemistry.       'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty of Frontiers in Chemistry.         Dr.(Mrs.) Jyotirmayee Mohanty       2017       'Bronze Medal-2017' by Chemical Research Society of India (CRSI)         Dr.(Mrs.) Jyotirmayee Mohanty       2013-2016       AvH Fellowship for Experienced Researchers         Dr.(Mrs.) Jyotirmayee Mohanty       2013-2016       Fellow of National Academy of Sciences		2.	2015 2010		Assistant i foressor	
Dr.(Mrs.) Jyotirmayee     2019     of Supramolecular Chemistry, a specialty       Dr.(Mrs.) Jyotirmayee     2017     'Bronze Medal-2017' by Chemical       Mohanty     2017     'Bronze Medal-2017' by Chemical       Dr.(Mrs.) Jyotirmayee     2017     AvH Fellowship for Experienced       Mohanty     2013-2016     AvH Fellowship for Experienced       Dr.(Mrs.) Jyotirmayee     Eelow of National Academy of Sciences     Eelow of National Academy of Sciences			2016	AMAPD9408P	Assistant Professor	
Mohanty     2019     of Frontiers in Chemistry.       Dr.(Mrs.) Jyotirmayee Mohanty     2017     'Bronze Medal-2017' by Chemical Research Society of India (CRSI)       Dr.(Mrs.) Jyotirmayee Mohanty     2013-2016     AvH Fellowship for Experienced Researchers       Dr.(Mrs.) Jyotirmayee Mohanty     2013-2016						'Associate Editor' of the Editorial Board
Dr.(Mrs.) Jyotirmayee Mohanty     2017     'Bronze Medal-2017' by Chemical Research Society of India (CRSI)       Dr.(Mrs.) Jyotirmayee Mohanty     2013-2016     AvH Fellowship for Experienced Researchers       Dr.(Mrs.) Jyotirmayee     AvH Fellowship for Experienced Researchers       Dr.(Mrs.) Jyotirmayee     Fellow of National Academy of Sciences		Dr.(Mrs.) Jyotirmayee				of Supramolecular Chemistry, a specialty
A ST CALL AND A ST AN		Mohanty	2019			of Frontiers in Chemistry.
A ST CALL AND A ST AN		Dr.(Mrs.) Jyotirmayee				'Bronze Medal-2017' by Chemical
A ST CALL AND A ST AN	â	Mohanty	2017			Research Society of India (CRSI)
A ST CALL AND A ST AN		Dr.(Mrs.) Jyotirmayee				AvH Fellowship for Experienced
A ST CALL AND A ST AN		Mohanty	2013-2016			Researchers Tapan Kumur antennes
A ST CALL AND A ST AN	Starte -	1 5/2		72		SIZI I U. S.
Bean rest to the transmit of the second seco	161.2 212 La	Dr.(Mrs.) Jyotirmayee	2014			1 3
the state lake, tromover	Ch3	would the second	2014			(F.N.A.SC.)
1680; AT		and the second				and states theoretical ISARC, Tromus
		B P sy.				1080, AT 4

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
	Atindra Mohan				Post-Doctoral Fellowship, University of
	Banerjee	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Atindra Mohan				
	Banerjee	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award
	Atindra Mohan				ITAS (Indian Thermal Analysis Society)
	Banerjee	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award
					The Japanese Photochemistry
					Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry
No.					and Oceanian Photochemist Sponsored
"ADIE ST. A	E has high				by Eikohshaby Japanese Photochemistry
Dr.	Dr. A. C. Bhasikuttan	2017	NA		Association, 2017
25	transfer and street of				UT 3" ILL (W. Q.C.) Church Mator
	and the second second second				Si danic Homi England Securin
	1000				and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Association, 2017 Associatio
					A BORBACI

Name of full time teacl Chemical Sciences	he Year of Award	PAN	Designation	Name of the award, fellowship, received from Goverr Link for the
Dr. A. K. Tyagi	2017	AADPT5519N	Senior Professor	Metallurgist of the year, Ministry of steel, GOI
Dr. S. N. Achary				MAHSc Scientific & Technical Excellence of DAE-
Dr. G. Kedarnath	2013	AEQPG1382R	Scientific Officer (F)	2013
Dr. R. K. Vatsa	2017	AAGPY0445H	SO(H)	Bronze Medalof CRSI
				DAE Scientific & Technical Excellence
Dr. Shilpa N. Sawant	2016	AAVPT4103G	Associate Professor	Award
Dr. Prabhat Kumar				Department of Atomic Energy (DAE)
Singh	2013	BFBPS0644R	Assistant Professor	Young Scientist Award
Dr. Prabhat Kumar				Indian Science Congress Association
Singh	2013	BFBPS0644R	Assistant Professor	(ISCA) Young Scientist Award
Dr. Prabhat Kumar				Selected as Member of Indian National
Singh	2017	BFBPS0644R	Assistant Professor	
Singh	2017	BFBF50044K	Assistant Professor	Young Academy of Sciences (INYAS-INSA)
Dr. Prabhat Kumar				Selected as Associate of Indian Academy
Singh	2017	BFBPS0644R	Assistant Professor	of Sciences (IASc), Bangalore
Dr. Prabhat Kumar				National Academy of Science, India
Singh	2017	BFBPS0644R	Assistant Professor	(NASI) Young Scientist Award
Dr. Prabhat Kumar				Scientific Planet Society (SPS) Young
SIngh	2018	BFBPS0644R	Assistant Professor	Scientist Award
Dr. Prabhat Kumar				Selected as Member, National Academy
Singh	2018	BFBPS0644R	Assistant Professor	of Science, India (NASI) – 2018
				Selected as Young Associate,
Dr. Prabhat Kumar				Maharashtra Academy of Science (MASc)
Singh	2019	BFBPS0644R	Assistant Professor	- 2018
De La Cart and				- Jeel ( all Dr. a. c.)
Chiranjib Majumder	2014	AAIPM3082A	SO/G	Science and Technical excellence award
a all a share the state of the				Science and Technical excellence award
and the second	7			Dean statistical Crombal
·				the statistich

	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
	Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA GROUP ACHIEVMENT AWARD DEPT OF
	Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	ATOMIC ENERGY GOVT OF INDIA Young Associate of Maharashtra
	Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Academy of Sciences
	Dr. Ashis Kumar Satpati Dr. S.N. Jha	2019 2016	AYHPS0448K NA	Assistant Professor SO/H	Member of NASI DAE Group Achievement Award DAE Young Scientist award for Excellence
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	in Science, Engineering and Technology for the year 2015. INSA fellowship for International
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Bilateral Exchange Program 2015 with Poland Academy of Science.
	Dr. Salil Varma	2010		Assistant Professor	DAE Group Achievement Award
	Dr. Salil Varma	2012		Assistant Professor	DAE Special Contributions Award
	Dr. Salil Varma	2014		Assistant Professor	
hog.	Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
Non-	Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	
	And the second s	-			Academy of sciences
					ST. 2017 9 Starter (BARC). Str. Webstreen (BARC). an Academic (BARC). an Academic (Homi Bhabha Na an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC).
					anertes, and an

Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
Atindra Mohan				Post-Doctoral Fellowship, University of
Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
Banerjee Atindra Mohan	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award ITAS (Indian Thermal Analysis Society)
Banerjee	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award The Japanese Photochemistry
Dr. A. C. Bhasikuttan	2017	NA		Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Association, 2017 Associ

	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALIPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	ALIPM0787E		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	"Group Achievement Award" from DAE, GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	Fellowship in Respiratory Medicine" from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA "Archives of Biochemistry and Biophysics
	D. A. SK	2007	1000VE117/		Young Investigator Award" from SFRR,
17-345	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	India DAE-Scientific & Technical Excellence
St. State of the	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	DAE-Scientific & Technical Excellence Award- 2016
ALL CALL	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Transfirme (AL, G, A, C, Chamical Sciences) an Academic (AL, G, A, C,
	dia ante			~	Storage Theore

Name of full time teachers receiving awards from state level, national level, international level

Year of Award

PAN

Designation

Name of the award, fellowship, received from Government or recognised bodies

**BARC Life Sciences** 

		Associate	Secretary, Asian Ass
Dr B. N. Pandey	2017 AGCPP6643E	Professor	of Radiation Resear
The conservation of the provided second se			National Recognitio
		Associate	Secretary, Society f
Dr B. N. Pandey	2018 AGCPP6643E	Professor	<b>Radiation Research</b>
			Fulbright-Nehru Ser
Prof. Hari Sharan Misra	2013 AACPM0813H	Professor	Scholarship
			Homi Bhabha Scien
Prof. Hari Sharan Misra	2014 AACPM0813H	Professor	Technology Award
			HBNI-Distinguished
Prof. Hari Sharan Misra	2015 AACPM0813H	Professor	Award
			Fellow of the Natio
Prof. Hari Sharan Misra	2017 AACPM0813H	Professor	Academy of Science
			Indian Science Cong
Prof. Hari Sharan Misra	2017 AACPM0813H	Professor	Platinum Jubiliee Le
		Assistant	DAE Group Achieve
Dr ST MEHETRE	2015 AFYPM2622P	Professor	Award
		1. A.	- 96 ( L
		Post-Doctoral	Post-Doctoral Fello
Dr. Bhaskar Sanyal	2013 ATFPS5172H	Fellow	Brain Korea 21+ (Bk
	2017 11 10 10 10 10 1	Associate	Homi Bhabha Scien
Y V Nancharaiah	2017 AAAPN8248H	Professor	Technology Award
	2016 4440/61270		ELSEVIER Outstandi
VP Venugopalan	2016 AAAPV6137D	Senior Professor	Reviewer Award
		Associate	DAE "Scientific & Te
Dr. Birija Sankar Patro	2017 ADNPP7770L	Professor	Excellence Award"
		Assistant	
Dr. Jitendra Kumar	2018 AKQPK2997N	Professor	ISAAC-ACS Award
			Homi Bhabha Scien
Santosh Kumar Sandur	2014 AXCPS6126J	Professor	Technology Award
Ashish Kumar		Assistant	
Srivastava	2014 BCKPS4318G	Professor	INSA Young Scientis
Ashish Kumar		Assistant	डॉ. हेमा
Srivastava	2018 BCKPS4318G	Professor	NASI Award डीन (
			होमी भाषा राष्ट्रि

International Recognition, ssociation irch ion, for h enior nce and d Faculty

onal ces, India

igressecture ement

owship, K 21+) nce & ding

**Technical** 

nce and

Hemalajaram

ist Award ग राजाराम/Dr. Hema Rajaram (जीव विज्ञान)/Dean (Life Sciences) होमी भामा राष्ट्रिय संस्थान/Homi Bhabha National Institute अण्विक जैविक प्रभाग/Molecular Biology Division भाभा परमाणु अनुसंधान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085

Name of full time teachers receiving awards from state level, national level, international level

Year of

PAN

Award

Name of the award, fellowship, received from Government or recognised bodies

**BARC Life Sciences** 

Dr B. N. Pandey Dr B. N. Pandey Prof. Hari Sharan Misra 2017 AACPM0813H **Dr ST MEHETRE** 2015 AFYPM2622P Dr. Bhaskar Sanyal 2013 ATFPS5172H Y V Nancharaiah 2017 AAAPN8248H **VP** Venugopalan 2016 AAAPV6137D Dr. Birija Sankar Patro 2017 ADNPP7770L Dr. Jitendra Kumar 2018 AKQPK2997N Santosh Kumar Sandur 2014 AXCPS6126J Ashish Kumar

Srivastava Ashish Kumar Srivastava

Associate 2017 AGCPP6643E Professor Associate 2018 AGCPP6643E Professor 2013 AACPM0813H Professor 2014 AACPM0813H Professor 2015 AACPM0813H Professor 2017 AACPM0813H Professor

Professor Assistant Professor

> Post-Doctoral Fellow Associate Professor

Designation

Senior Professor Associate Professor Assistant

Professor Professor Assistant Professor Assistant Professor

2014 BCKPS4318G

2018 BCKPS4318G

International Recognition, Secretary, Asian Association of Radiation Research National Recognition, Secretary, Society for **Radiation Research** Fulbright-Nehru Senior Scholarship Homi Bhabha Science and **Technology** Award **HBNI-Distinguished Faculty** Award

Fellow of the National Academy of Sciences, India

Indian Science Congress-Platinum Jubiliee Lecture **DAE Group Achievement** Award

Post-Doctoral Fellowship, Brain Korea 21+ (BK 21+) Homi Bhabha Science & **Technology** Award **ELSEVIER Outstanding Reviewer Award** 

DAE "Scientific & Technical Excellence Award"

**ISAAC-ACS** Award Homi Bhabha Science and **Technology Award** 

Hemalayaram

**INSA Young Scientist Award** डॉ. हेमा राजाराम/Dr. Hema Rajaram डीन (जीव विज्ञान)/Dean (Life Sciences) NASI Award होमी भामा राष्ट्रिय संस्थान/Homi Bhabha National Institute आण्विक जैविक प्रभाग/Molecular Biology Division भाभा परमाणु अनुसंधान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085

Physical Sciences						
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents	
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)		
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics		
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award		
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal		
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences		
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence		
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award		
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences		
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014		
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award		
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award		
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE		
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD		

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Mohit Tyagi	2015	AELPT1454Q	Assistant professor	Indian association of Crystal Growth (IACG) Young Crystal Grower Award	
Mohit Tyagi	2016	AELPT1454Q	Assistant professor	The Indian Physical Society Young Physicist Award-	
Mohit Tyagi	2017	AELPT1454Q	Assistant professor	The National Academy of Science India (NASI) Young Scientist Award-	
Mohit Tyagi	2017	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE)-SSPS Young Achiever Award-	
Mohit Tyagi	2018	AELPT1454Q	Assistant professor	Korean Research Foundation Brain Pool Fellowship	
R.C. Rannot	2010	AADPR1486N	Professor	DAE Scientific and Technical Excellence Award	
R.C. Rannot	2011	AADPR1486N	Professor	DAE Group Achievement Award	
A.K.Tickoo	2006	AKDPT4763E	Professor	DAE Scientific and Technical Excellence Award	
A.K.Tickoo	2011	AKDPT4763E	Professor	DAE Group Achievement Award	
S. Bhattacharyya	2011	AAVPB8873D	Associate Professor	DAE Group Achievement Award	
K.K Yadav	2011	AABPY6209Q	Associate Professor	DAE Group Achievement Award	
B.S. Sahayanathan	2011	AQAPS5084J	Assistant Professor	DAE Group Achievement Award	
D. Bhattacharyya	2009	AAYPB0112E	Professor	DAE Scientific and Technical Excellence Award	
D. Bhattacharyya	2012	AAYPB0112E	Professor	DAE-SRC Outstanding Investigator Award	
D. Bhattacharyya	2014	AAYPB0112E	Professor	Homi Bhabha Scientific and Technical Excellence Award,	

Diresh V. ' डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa हीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Sudhir Ranjan Jain	1999	ABVPJ0519R	Professor	Anil Kumar Bose Memorial Award, INSA	
Sudhir Ranjan Jain	2006	ABVPJ0519R	Professor	NWO award, The Netherlands	
HARPHOOL KUMAWAT	2000-2002	АҮСРК3977А	Assistant professor	CSIR- JRF	
HARPHOOL KUMAWAT	2002-2004	АҮСРК3977А	Assistant professor	CSIR- SRF/JINR-FELLOWSHIP	
Dr. Yogesh Kumar Gupta	2014	AIGPG1414N	Assistant professor	Ashwini Kumar Rath Memorial Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Indian National Science Academy Medal for Young Scientists	
Dr. P. C. Rout	2015	AGZPR8843H	Assistant professor	DAE Young Scientist Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Best Young Physicist colloquioum award(third), Indian Physical society, Kolkatta	
Dr. P. C. Rout	2017	AGZPR8843H	Assistant professor	Member of indian national young academy of science (INYAS) 2017-2021	
A. K. Gupta	2008	ACQPG0296A	Professor	DAE Group Achievement	
A. K. Gupta	2010	ACQPG0296A	Professor	DAE Group Achievement	
Shashwati Sen	2018	AHTPS2882C	Associate Professor	DAE Scientific and Technical Excellence	
Shashwati Sen	2012		Associate Professor	DAE Group Achievement	
Shashwati Sen	2009		Associate Professor	DAE Group Achievement	
Mohit Tyagi	2013	AELPT1454Q	Assistant professor		
Mohit Tyagi	2014	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Young Applied Scientist Award	
Mohit Tyagi	2015	AELPT1454Q	Assistant professor	Nucleonix best researcher award	

28/7/2020

डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-शैक्षणिक / Dean - Academic मौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences						
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents	
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)		
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics		
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award		
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal		
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences		
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence		
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award		
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences		
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014		
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award		
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award		
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE		
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD		

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences						
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents	
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)		
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics		
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award		
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal		
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences		
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence		
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award		
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences		
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014		
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award		
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award		
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE		
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD		

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences						
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents	
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)		
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics		
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India		
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics		
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award		
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal		
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences		
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence		
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award		
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences		
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014		
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award		
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award		
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE		
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD		

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

		Best Poster Award   Astr	onomical Society of India	
3	Mr. Arun Kumar Naidu	Stars and the Galaxy	Interesting nulling behaviour of PSR J1709-1640	2015
4	Ms. Sheelu Abraham	Extragalactic Astronomy	Photometric Redshifts of Quasars from SDSS	2015
5	Mr.Kartick Chnandra Sarkar	Extragalactic Astronomy	Effect of hot halo gas on supernovae driven outflows	2015
6	Mr.Shishir Sankhyayan	Genaral Relativity and Cosmology	Extremely Large Scale Structures in Galaxies Redshift Surveys	2015
7	Mr. Prasanna Deshmukh	Instrumentation and Techniques	Dynamic loading assembly for performance testing of Segmented Mirror Telescope Actuators	2015
8	Mr. Tanmoy Cattopadhyay	Instrumentation and Techniques	Development of a Hard X-ray Focal Plane Compton Polarimeter	2015
	Best Poster Award for the ye ded to following Mr. S. Krishna Prasad	ear 2014 during 32nd Annu Sun and the Solar	al Meeting of ASI at IISER, Mohali I Spectroscopic studies of	nas been 2014
		System	coronal loops	
2	Mr. Tapas Baug	Stars and the Galaxy	Is semi-regular variable UZ Ariteis asymmetric?	2014
3	Mr. Samyaday Choudhury	Extragalactic Astronomy and Cosmology	What is the metallicity map tell us about the evolution of the LMC ?	2014
4	Mr. Kuldeep Kumar Yadav	Instrumentation and Techniques	Disp analysis procedure for the TACTIC gamma ray telescope	2014

Latest News

Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teach er/research scholar/student
Life Sciences, BARC				
NASI-Young Scientist	Dr. Ashish Kumar	National Academy of		
Platinum Jubilee Award	Srivastava	Sciences in India	2018	Teacher
DAE-Young Scientist	Dr. Ashish Kumar	Department of Atomic		
Award	Srivastava	Enerygy (DAE)	2014	Teacher
INSA-Young Scientist	Dr. Ashish Kumar	Indian National		
Medal	Srivastava	Science Academy	2014	Teacher
Studies on tyrosinase from Amorphophallus				
campanulatus and its	Amardeep Singh	THERMAX-ASSET	2016	Research Scholar
Contribution in the	Dr. Satyendra			
area of Food	Gautam	Dept of Atomic Energy	2016	Research Scholar
Development of cancer		, 0,		
therapeutics and	Dr. B. S. Patro	DAE	2017	Teacher
2.4				
				Pajaren
	* x		Ale	makajaram
			me more la	July n.

डॉ. हेमा राजाराम/Dr. Hema Rajaram डीन (जीव विज्ञान)/Dean (Life Sciences) होमी मामा राष्ट्रिय संस्थान/Homi Bhabha National Institute आण्विक जैविक प्रभाग/Molecular Biology Division भाषा परमाणु अनुसंधान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085.

ritak, a uni bin

Name of the Scientist Affiliation Name of the Honour	::	P.K. Pujari Radiochemistry Division Elected Chairperson of the 12-member International Committee on Positron and Positronium Chemistry for a 3-year period from November 2014.
Name of the Scientists Affiliation Name of the Award Title of the Paper	: :	S.M. Toprani and Birajalaxmi Das Radiation Biology & Health Sciences Division Young Scientist Award Radio-adaptive Response of Base Excision Repair Genes & Proteins in resting Human Peripheral Blood Mononuclear Cells exposed to Gamma radiation
Presented at	:	International Conference on Radiation Biology (ICRB), New Delhi, Nov. 11-13, 2014.
Name of the Scientists		Jyothi Sharma, T. Mahata, R.C. Hubli*, P.K. Patro, Deep Prakash and P.K. Sinha
Affiliation	:	Powder Metallurgy Division and Materials Processing Division*
Title of the Paper	:	"Influence of Lanthanum Site Deficiency on Phase Stability and Electrical Conductivity of (La0.75Sr0.25)1-xCr0.5Mn0.5O3- $\delta$ in air and hydrogen atmosphere"
Name of the Award	:	Best Paper Award (Second Prize)
Presented at	:	DAE-BRNS 5 <sup>th</sup> Interdisciplinary Symposium on Materials Chemistry (ISMC- 2014) held at BARC, Mumbai durinn Dec. 9-13, 2014.

Name of the Scientists	Pramod Bhatt and S. M. Yusuf					
Affiliation	: Solid State Physics Division, BARC					
Name of the Award	: Best Poster Award					
Title of the Paper	: Neutron Diffraction Study of the Chain Molecular Magnet $[{Co_{\parallel}(\Delta)Co_{\parallel}(\Lambda)}]$ $(ox)_2(phen)_2]_n$					
Presented at	: 5 <sup>th</sup> Conference on Neutron Scattering (CNS-2015), held at Homi Bhabha Centre for Science Education, Mumbai, during 2-4 February, 2015.					
Name of the Scientist	: Jhimli Paul Guin					
Affiliation	: Radiation Technology Development Division, BARC					
Name of the Award	: Best Poster Award (2 <sup>nd</sup> Prize)					
Title of the Paper	: Radiation Crosslinked Graphene/Polymer Nanocomposites for Controlled					
	Orotransmucosal Delivery of Doxycycline					
Presented at	DAE-BRNS 5 <sup>th</sup> Interdisciplinary Symposium on Materials Chemistry (ISMC-2014), Mumbai, December 9 -13, 2014.					

Name of the Scientists	:	<mark>G. Pandey,</mark> R. Chichale, A.U. Renjith, S. Dixit, S. Mukhopadhyay, K.T. Shenoy and S.K. Ghosh
Affiliation	:	Chemical Engineering Group
Name of Award/Honour	:	2 <sup>nd</sup> Prize in Poster Presentation
Title of the Paper	•	Extraction of Zirconium from Simulated Acidic Nitrate Waste using Liquid Membrane in Hollow Fiber Contactor
Presented at	:	Trombay Symposium on Desalination & Water Reuse (TSDWR-2015), Mumbai, Jan. 22-23, 2015



Dr. V.V. Parkar

**Vivek Vijay Parkar,** Nuclear Physics Division has been awarded the INSA Medal for Young Scientist 2015 for his contributions in nuclear reaction measurements using weakly bound <sup>6,7</sup>Li and<sup>9</sup>Be projectile on a range of targets. Name of full time teachers receiving awards from state level,national level, international level

Year of Award

PAN

Designation

Name of the award, fellowship, received from Government or recognised bodies

International Recognition,

आणिकक जैविक प्रभाग/Molecular Biology Division भाभा परमाणु अनुसंचान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085

**BARC Life Sciences** 

			international needs inton,
		Associate	Secretary, Asian Association
Dr B. N. Pandey	2017 AGCPP6643E	Professor	of Radiation Research
			National Recognition,
		Associate	Secretary, Society for
Dr B. N. Pandey	2018 AGCPP6643E	Professor	Radiation Research
			Fulbright-Nehru Senior
Prof. Hari Sharan Misra	2013 AACPM0813H	Professor	Scholarship
			Homi Bhabha Science and
Prof. Hari Sharan Misra	2014 AACPM0813H	Professor	Technology Award
			HBNI-Distinguished Faculty
Prof. Hari Sharan Misra	2015 AACPM0813H	Professor	Award
			Fellow of the National
Prof. Hari Sharan Misra	2017 AACPM0813H	Professor	Academy of Sciences, India
			Indian Science Congress-
Prof. Hari Sharan Misra	2017 AACPM0813H	Professor	Platinum Jubiliee Lecture
		Assistant	DAE Group Achievement
Dr ST MEHETRE	2015 AFYPM2622P	Professor	Award
			Sector Sector Production
		Post-Doctoral	Post-Doctoral Fellowship,
Dr. Bhaskar Sanyal	2013 ATFPS5172H	Fellow	Brain Korea 21+ (BK 21+)
		Associate	Homi Bhabha Science &
Y V Nancharaiah	2017 AAAPN8248H	Professor	Technology Award
			ELSEVIER Outstanding
VP Venugopalan	2016 AAAPV6137D	Senior Professor	Reviewer Award
		Associate	DAE "Scientific & Technical
Dr. Birija Sankar Patro	2017 ADNPP7770L	Professor	Excellence Award"
		Assistant	
Dr. Jitendra Kumar	2018 AKQPK2997N	Professor	ISAAC-ACS Award
			Homi Bhabha Science and Quiover
Santosh Kumar Sandur	2014 AXCPS6126J	Professor	ISAAC-ACS Award Homi Bhabha Science and Technology Award HemaRay
Ashish Kumar		Assistant	Aler. ()
Srivastava	2014 BCKPS4318G	Professor	INSA Young Scientist Award
Ashish Kumar		Assistant	डॉ. हेमा राजाराम/Dr. Hema Rajaram
Srivastava	2018 BCKPS4318G	Professor	NASI Award डीन (जीव विज्ञान)/Dean (Life Sciences)
			होमी भामा राष्ट्रिय संस्थान/Homi Bhabha National Institute
			and the second s

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology	
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research	
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)	
Dr. (Mrs.) Mrinal Rajesh				Member, National Academy of Science	
Pai	2015	ALOPP9053B		(NASI)	
				Young Associate of the Maharashtra	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences	
				De Terre Dette Memorial Award from	
				Dr. Tarun Datta Memorial Award from	
D. D. I. J. Chalman et a	2010	100001070	A state of Destates	the Indian Association of Nuclear	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)	
				Dr. P. N. Pathak Memorial Award from	
				the Association of Separation Scientists	
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India	
Dr. huber enantaval (	2010	AGITELIE			
				Young Scientist Award for the year 2014	
				from the Department of Atomic Energy,	Stor Blanky 27/7 200 Ghanty 27/7 Tapan Kumar Ghanty Effel I Dr. Tapan Kumar Former Sciences
Dr. Rubel Chakravarty	2015	AGPPC2127D		Government of India	blo
Dr. K. C. Barick	2016	NA		Assistant Professor	er lo
Dr. K. C. Barick	2017	NA		Assistant Professor	loon hore all
				Homi Bhabha Group Achievement	array and the second and the second array
				Award for "Production and supply of	2 Tapan Nur falances
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	high purity grade lithium metal "	HIR EIEI DI ST. Chamical St. Institute
Magno Inc.			3.		TUT STATE (BARC) WAR STATIT
aller that day				Homi Bhabha Science and Technical	Academic No TRICIPAL SecurA
The same and the second				Excellency Award for "Computational	Academic IN a Televisty Security and Televistor Chemistry Security and Televistorical Chemistry Security and
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	and Theoretical Chemistry"	Academic in New Televisity Section and the Academic Chemistry Section and Theoretical Chemistry Section and Theoretical Chemistry, Mumbal-ADI
					Here
					T

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology	
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research	
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)	
Dr. (Mrs.) Mrinal Rajesh	n			Member, National Academy of Science	
Pai	2015	ALOPP9053B		(NASI)	
				Young Associate of the Maharashtra	<b>/</b>
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences	
				Dr. Tarun Datta Memorial Award from	
				the Indian Association of Nuclear	<b>/</b>
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)	
Dr. Rubel Chakravarty	2016	AGPPC2127D		Dr. P. N. Pathak Memorial Award from the Association of Separation Scientists and Technologists (ASSET), India	
Dr. Ruber enandrarty	2010	AGITOLILIO			I
				Young Scientist Award for the year 2014 from the Department of Atomic Energy, Government of India Assistant Professor Homi Bhabha Group Achievement Award for "Production and supply of bigh purity grade lithium metal."	r.
Dr. Rubel Chakravarty	2015	AGPPC2127D		Government of India	
Dr. K. C. Barick	2016	NA		Assistant Professor	
Dr. K. C. Barick	2017	NA		Assistant Professor	th
				Homi Bhabha Group Achievement	A
				Award for "Production and supply of	Inces
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium metal "	astitut.
William Consult day				Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"	notion
The sole (the Martin				Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"	
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	and Theoretical Chemistry"	
				A 7 30 th	

	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALIPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	ALIPM0787E		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Destaral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	"Outstanding Doctoral Thesis Award" from HBNI, India
					"Richard and Edith Strauss Postdoctoral
	Dr. Amit Kunwar	2013	АQСРК5447К	Assistant professor	Fellowship in Respiratory Medicine" from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA "Archives of Biochemistry and Biophysics
17-345	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	Young Investigator Award" from SFRR, India DAE-Scientific & Technical Excellence
San De 12	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	Award-2016
And	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Theoretical Chemistry Section Theoretical Chemistry Section
	11 K 2			~	Si Theo.

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology	
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research	
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)	
Dr. (Mrs.) Mrinal Rajesh	A			Member, National Academy of Science	
Pai	2015	ALOPP9053B		(NASI)	
				Young Associate of the Maharashtra	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences	
				Dr. Tarun Datta Memorial Award from	
				the Indian Association of Nuclear	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)	
				Dr. P. N. Pathak Memorial Award from	
				the Association of Separation Scientists	
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India	
				Young Scientist Award for the year 2014	
				from the Department of Atomic Energy,	12
Dr. Rubel Chakravarty	2015	AGPPC2127D		Government of India	Set on Alter Marginer
Dr. K. C. Barick	2016	NA		Assistant Professor	eriv
Dr. K. C. Barick	2017	NA		Assistant Professor	aloon 1200 many
				Homi Bhabha Group Achievement	8 T T Kumar Gine
				Award for "Production and supply of	Dr. Tapali Tellar Bolences
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	high purity grade lithium metal "	27 (2, 2, 2, 6, 6, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
Nation of the					TATI STREE BARCH MANNE STSTI
There the destar				Homi Bhabha Science and Technical	Dean Academic Mar Teneficity Security and the sectors Chemistry Security and the sectors theoretical Chemisty, Mumbal-A01
Balan (the Walter				Excellency Award for "Computational	Det an are decide Crombal, Mar
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	and Theoretical Chemistry"	Deen Academic in New Tringfree Section Deen Tringfree Tringfree Section and Theoretical Chemistry Section and Theoretical Chemistry Section
					Hours

	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
	Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA GROUP ACHIEVMENT AWARD DEPT OF
	Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	ATOMIC ENERGY GOVT OF INDIA
	Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Young Associate of Maharashtra Academy of Sciences
	Dr. Ashis Kumar Satpati	2019	AYHPS0448K	Assistant Professor	Member of NASI
	Dr. S.N. Jha	2016	NA	SO/H	DAE Group Achievement Award
					DAE Young Scientist award for Excellence
		0.015			in Science, Engineering and Technology
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	for the year 2015.
					INSA fellowship for International Bilateral Exchange Program 2015 with
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Poland Academy of Science.
	Dr. Salil Varma	2010		Assistant Professor	DAE Group Achievement Award
	Dr. Salil Varma	2012		Assistant Professor	DAE Special Contributions Award
	Dr. Salil Varma	2014		Assistant Professor	
					DAE Scientific and Technical Excellance
in the	Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	Award
They Alter	Hand Brite Road In				Young Research Associate Maharashtra
Corp. 1.	Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
	Dr. K. Bhattacharyya	1			Tapen Kunner Prances
	The adda	÷			tallor
	Andra Constant and				Academy of sciences
					Academy of sciences
					and an analysis
				4	area at a state

	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
	Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA GROUP ACHIEVMENT AWARD DEPT OF
	Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	ATOMIC ENERGY GOVT OF INDIA Young Associate of Maharashtra
	Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Academy of Sciences
	Dr. Ashis Kumar Satpati	2019	AYHPS0448K	Assistant Professor	Member of NASI
	Dr. S.N. Jha	2016	NA	SO/H	DAE Group Achievement Award
					DAE Young Scientist award for Excellence
					in Science, Engineering and Technology
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	for the year 2015.
					INSA fellowship for International
					Bilateral Exchange Program 2015 with
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Poland Academy of Science.
	Dr. Salil Varma	2010	AAYPV2888F	Assistant Professor	DAE Group Achievement Award
	Dr. Salil Varma	2012	AAYPV2888F	Assistant Professor	DAE Special Contributions Award
	Dr. Salil Varma	2014	AAYPV2888F	Assistant Professor	DAE Group Achievement Award
					DAE Scientific and Technical Excellance
1000	Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	Award
And Alter	Hallen Rolling				Young Research Associate Maharashtra
Carly .	Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
	Dr. K. Bhattacharyya	10			Tapen Kunner Prances
	200 200				Hallor and mallure
					TIT Self (M. RC), abha Naton TITT
					Academy of sciences
					an Acarda area har and
					THAT TEARS,

	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
	Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA GROUP ACHIEVMENT AWARD DEPT OF
	Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	ATOMIC ENERGY GOVT OF INDIA Young Associate of Maharashtra
	Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Academy of Sciences
	Dr. Ashis Kumar Satpati	2019	AYHPS0448K	Assistant Professor	Member of NASI
	Dr. S.N. Jha	2016	NA	SO/H	DAE Group Achievement Award
					DAE Young Scientist award for Excellence
					in Science, Engineering and Technology
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	for the year 2015.
					INSA fellowship for International
					Bilateral Exchange Program 2015 with
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Poland Academy of Science.
	Dr. Salil Varma	2010	AAYPV2888F	Assistant Professor	DAE Group Achievement Award
	Dr. Salil Varma	2012	AAYPV2888F	Assistant Professor	DAE Special Contributions Award
	Dr. Salil Varma	2014	AAYPV2888F	Assistant Professor	DAE Group Achievement Award
					DAE Scientific and Technical Excellance
1000	Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	Award
And Alter	Hallen Rolling				Young Research Associate Maharashtra
Carly .	Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
	Dr. K. Bhattacharyya	10			Tapen Kunner Pratices
	200 200				Hallor and mallure
					TIT Self (M. RC), China Nation with
					Academy of sciences
					an Acarda area francis
					THAT TEARS,

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology	
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research	
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)	
Dr. (Mrs.) Mrinal Rajesh	3			Member, National Academy of Science	
Pai	2015	ALOPP9053B		(NASI)	
				Young Associate of the Maharashtra	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences	
				Dr. Tarun Datta Memorial Award from	
				the Indian Association of Nuclear	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)	
				Dr. P. N. Pathak Memorial Award from	
				the Association of Separation Scientists	
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India	
				Young Scientist Award for the year 2014	1.21
				from the Department of Atomic Energy,	1 Jrs
Dr. Rubel Chakravarty	2015	AGPPC2127D		Government of India	fre
Dr. K. C. Barick	2016	NA		Assistant Professor	U
Dr. K. C. Barick	2017	NA		Young Scientist Award for the year 2014 from the Department of Atomic Energy, Government of India Assistant Professor Assistant Professor Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium metal."	one shaniy
				Homi Bhabha Group Achievement	Kumar Giller
				Award for "Production and supply of	Terray reciences
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium metal "	Chamical Institut
NAMO IN				T. TOT STREE BARCH	STJ STJ
They and desar				Homi Bhabha Science and Technical	Chemistry Security Chemistry Security Chemistry Normbal-ADI
Roles (the Month				Excellency Award for "Computational	Cherry Mon
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	and Theoretical Chemistry"	Chemistry Section Chemistry Section Chemisty, Mumbal-ADF C, Trembay, Mumbal-ADF
				Harth	
				A. B.	

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology	
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research	
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)	
Dr. (Mrs.) Mrinal Rajesh	A			Member, National Academy of Science	
Pai	2015	ALOPP9053B		(NASI)	
				Young Associate of the Maharashtra	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences	
				Dr. Tarun Datta Memorial Award from	
				the Indian Association of Nuclear	
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)	
				Dr. P. N. Pathak Memorial Award from	
				the Association of Separation Scientists	
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India	
				Young Scientist Award for the year 2014	
				from the Department of Atomic Energy,	1
Dr. Rubel Chakravarty	2015	AGPPC2127D		Government of India	Set on Ata My 27/1200 Ghaniy 27/1200 Ghaniy Efeli Dr. Tapan Kumar Grants Sciences
Dr. K. C. Barick	2016	NA		Assistant Professor	Corrison and the second
Dr. K. C. Barick	2017	NA		Assistant Professor	about 1200 many
				Homi Bhabha Group Achievement	8 1 1 1 Kumar Gina
				Award for "Production and supply of	Dr. Tapan Terrer Isciences
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	high purity grade lithium metal "	27 (2, 2, 2, 6, 6, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
Nation of the				ć	. duri signature (BARC) mathe a st341
There the destar				Homi Bhabha Science and Technical	Dean Academic I New Tenafferin Security and Tenate, Academic Chemistry Security and Tenate, Academic Chemistry, Minnhal-Aor and Theoretical Chemistry, Minnhal-Aor
Roles (N. P. Tr.				Excellency Award for "Computational	bet and are decine all cal criembel, his
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	and Theoretical Chemistry"	and the rest and the sector
					House
					- 56/

	Dr. Virendra Kumar	2016		SO/G	Dr. Tarun Dutta Memroral Award-2016 DAE Scientific & Technical Excellence
	Rahul Tripathi	2014	ADQPT0065K	Scientific Officer G	award
	Dr. Collin Komer Charle	2015			DAE-Science Research Council
	Dr. Subir Kumar Ghosh	2015	ABXPG9302K	Associate Professor	Outstanding Investigator Award, DAE
	Dr. Subir Kumar Ghosh	2017		Associate Professor	DAE-Group Achievement Award, DAE
					N M Sampat Award, Electrochemical
	Dr. Subir Kumar Ghosh	2019		Professor	Society of India, IISC Bangalore
		Fellow of			
		Maharashtra Academy of			
		Sciences			Maharashtra Academy of Sciences
	Sharmistha Dutta				SERB Women Excellence Research Grant
	Choudhury	2013-2016	AMAPD9408P	Assistant Professor	Award
	Sharmistha Dutta				Membership of Indian National Young
	Choudhury	2016	AMAPD9408P	Assistant Professor	Academy of Science (INYAS)
					'Associate Editor' of the Editorial Board
	Dr.(Mrs.) Jyotirmayee				of Supramolecular Chemistry, a specialty
	Mohanty	2019			of Frontiers in Chemistry.
	Dr.(Mrs.) Jyotirmayee				'Bronze Medal-2017' by Chemical
	Mohanty	2017			'Bronze Medal-2017' by Chemical Research Society of India (CRSI) AvH Fellowship for Experienced Researchers Fellow of National Academy of Sciences
	Dr.(Mrs.) Jyotirmayee				AvH Fellowship for Experienced
	Mohanty	2013-2016			Researchers Tapen Kunning Researchers
1.040	Dr.(Mrs.) Jyotirmayee		22		Fellow of National Academy of Sciences
The second second	Mohanty	2014			Shing all all all all all all all all all al
Char Es	a light the start and				(F.N.A.Sc.)
	and the second	÷			BIN STETE THEOTHER BARC, TUN
	BR SY.				108d. # 1

-----

Dr Deep Prakash	2019 2013	AAYPR8281Q AJSPP1456E	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085 Professor	Inclusion of name & affiliation at 2019 edition of 'Marquis Who's Who in the World' DAE Group Achievement Award
Dr Kinshuk Dasgupta	2010	1001121001		
	2015	AEUPD0499N	Associate Professor, Mechanical Metallurgy Division, Materials Group, Bhabha Atomic Research Centre, Mumbai	DAE Scientific & Technical Excellence Award 2015 by Department of Atomic Energy, Government of India, under Excellence in Science, Engineering and Technology Awards Scheme 2015
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical Metallurgy Division, Materials Group,	
			Bhabha Atomic	Fullbright Nehru Academic and
Dr Vivekanand Kain	2018	AEUPD0499N	Research Centre, Mumbai	professional excellence fellowship by University of Cincinnati, Cincinnati, OH. Vasvik Award (Materials Science &
	2018	ААВРК7826К	Professor	Technology)
K. K. Singh				Humboldt Fellowship for Post doctoral Research from Alexander vom
	2015	BAFPS1431M	Associate Professor	Humboldat foundation, Germany
Dr. Praveen Kumar	2017	АНСРК6311М	Associate Professor	Group Achievement Award SCIENTIFIC AND TECHNICAL EXCELLENCE
Anindya Chakravarty	2015	AEMPC3195C	Associate Professor	

Suy 18,2020

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

	2019	AAYPR8281Q	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085	Inclusion of name & affiliation at 2019 edition of 'Marquis Who's Who in the World'
Dr Deep Prakash	2013	AJSPP1456E	Professor	DAE Group Achievement Award
Dr Kinshuk Dasgupta Dr Kinshuk Dasgupta	2015	AEUPD0499N	Associate Professor, Mechanical Metallurgy Division, Materials Group, Bhabha Atomic Research Centre, Mumbai	DAE Scientific & Technical Excellence Award 2015 by Department of Atomic Energy, Government of India, under Excellence in Science, Engineering and Technology Awards Scheme 2015
DI KINSHUK Dasgupta			Associate	
			Professor, Mechanical Metallurgy Division, Materials Group, Bhabha Atomic Research Centre,	Fullbright Nehru Academic and professional excellence fellowship by
Dr Vivekanand Kain	2018	AEUPD0499N	Mumbai	University of Cincinnati, Cincinnati, OH. Vasvik Award (Materials Science &
	2018	ААВРК7826К	Professor	Technology)
K. K. Singh				Humboldt Fellowship for Post doctoral Research from Alexander vom
Dr. Praveen Kumar	2015	BAFPS1431M	Associate Professor	Humboldat foundation, Germany
	2017	АНСРК6311М	Associate Professor	Group Achievement Award
Anindya Chakravarty				SCIENTIFIC AND TECHNICAL EXCELLENCE

- Suy 28, 2020

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
D. Bhattacharyya	2010	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2013	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2014	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2015	AAYPB0112E	Professor	DAE Group Achievement Award	
S. N. Jha	2009	AEVPJ1778F	Professor	DAE Group Achievement Award	
S. N. Jha	2011	AEVPJ1778F	Professor	DAE Scientific and Technical Excellence Award	
S. N. Jha	2016	AEVPJ1778F	Professor	DAE Group Achievement Award	
S. N. Jha	2018	AEVPJ1778F	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2009	AAAPU2445B	Professor	DAE Scientific and Technical Excellence	
Dinesh V Udupa	2011	AAAPU2445B	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2011	AAAPU2445B	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2015	AAAPU2445B	Professor	DAE Group Achievement Award	
S.G. Nakhate	2018	AABPN6714H	Professor	Arizona state University, USA Visiting Felllowship	
Aparna Shastri	2015	AWVPS5313D	Assistant professor	DAE Group Achievement	
T Jayasekharan	2010	ACJPJ9026A	Associate Professor	DAE Scientific and Technical Excellence	

Dif 28/7/2010

डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रौक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भामा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences								
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award				
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)				
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences				
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics				
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize				
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India				
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics				
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award				
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal				
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences				
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence				
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award				
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences				
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014				
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award				
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award				
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE				
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD				

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Amitabh Das	2018	AGIPD3453G	Professor	Fellow, Maharashtra Academy of Scinces	
B. K. Nayak	2008	ACNPN3607K	Senior Professor	Homi Bhabha Science & Technology Award	
S. Santra	2016	AFEPS1103D	Professor	Homi Bhabha Science & Technology Award	
S. Santra	2012	AFEPS1103D	Professor	DAE Scientific and Technical Excellence	
S. Santra	2012	AFEPS1103D	Professor	DAE-SRC Outstanding Investigator Award	
L. M. Pant	2011	AAHPP6695D	Professor	DAE Scientific and Technical Excellence	
L. M. Pant	2015	AAHPP6695D	Professor	DAE Group Achievement	
P. Shukla	2013	AHMPS8156L	Professor	DAE Scientific and Technical Excellence	
P. Shukla	2015	AHMPS8156L	Professor	DAE Group Achievement	
K. Mahata	2007	ABBPM5184D	Associate Professor	DAE Scientific and Technical Excellence	
K. Mahata	2016	ABBPM5184D	Associate Professor	DAE Young Scientist Award	
A. Shrivastava	2017	AHTPS6202L	Associate Professor	Homi Bhabha Science & Technology Award	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Scientific and Technical Excellence	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Group Achievement	
D. Dutta	2013	ADYPD8192K	Associate Professor	DAE Scientific and Technical Excellence	
D. Dutta	2013	ADYPD8192K	Associate Professor	Fellow, Maharashtra Academy of Scinces	
D. Dutta	2015	ADYPD8192K	Associate Professor	DAE Group Achievement	
V. Jha		ABXPJ5127D	Associate Professor	DAE Scientific and Technical Excellence	
Sudhir Ranjan Jain	1994	ABVPJ0519R	Professor	Indian National Science Academy Medal for Young Scientists	

للمعنى المعنى होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Sudhir Ranjan Jain	1999	ABVPJ0519R	Professor	Anil Kumar Bose Memorial Award, INSA	
Sudhir Ranjan Jain	2006	ABVPJ0519R	Professor	NWO award, The Netherlands	
HARPHOOL KUMAWAT	2000-2002	АҮСРКЗ977А	Assistant professor	CSIR- JRF	
HARPHOOL KUMAWAT	2002-2004	АҮСРКЗ977А	Assistant professor	CSIR- SRF/JINR-FELLOWSHIP	
Dr. Yogesh Kumar Gupta	2014	AIGPG1414N	Assistant professor	Ashwini Kumar Rath Memorial Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Indian National Science Academy Medal for Young Scientists	
Dr. P. C. Rout	2015	AGZPR8843H	Assistant professor	DAE Young Scientist Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Best Young Physicist colloquioum award(third), Indian Physical society, Kolkatta	
Dr. P. C. Rout	2017	AGZPR8843H	Assistant professor	Member of indian national young academy of science (INYAS) 2017-2021	
A. K. Gupta	2008	ACQPG0296A	Professor	DAE Group Achievement	
A. K. Gupta	2010	ACQPG0296A	Professor	DAE Group Achievement	
Shashwati Sen	2018	AHTPS2882C	Associate Professor	DAE Scientific and Technical Excellence	
Shashwati Sen	2012		Associate Professor	DAE Group Achievement	
Shashwati Sen	2009		Associate Professor	DAE Group Achievement	
Mohit Tyagi	2013	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Group Achievement award	
Mohit Tyagi	2014	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Young Applied Scientist Award	
Mohit Tyagi	2015	AELPT1454Q	Assistant professor	Nucleonix best researcher award	

28/7/2020

डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-शैक्षणिक / Dean - Academic मौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Amitabh Das	2018	AGIPD3453G	Professor	Fellow, Maharashtra Academy of Scinces	
B. K. Nayak	2008	ACNPN3607K	Senior Professor	Homi Bhabha Science & Technology Award	
S. Santra	2016	AFEPS1103D	Professor	Homi Bhabha Science & Technology Award	
S. Santra	2012	AFEPS1103D	Professor	DAE Scientific and Technical Excellence	
S. Santra	2012	AFEPS1103D	Professor	DAE-SRC Outstanding Investigator Award	
L. M. Pant	2011	AAHPP6695D	Professor	DAE Scientific and Technical Excellence	
L. M. Pant	2015	AAHPP6695D	Professor	DAE Group Achievement	
P. Shukla	2013	AHMPS8156L	Professor	DAE Scientific and Technical Excellence	
P. Shukla	2015	AHMPS8156L	Professor	DAE Group Achievement	
K. Mahata	2007	ABBPM5184D	Associate Professor	DAE Scientific and Technical Excellence	
K. Mahata	2016	ABBPM5184D	Associate Professor	DAE Young Scientist Award	
A. Shrivastava	2017	AHTPS6202L	Associate Professor	Homi Bhabha Science & Technology Award	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Scientific and Technical Excellence	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Group Achievement	
D. Dutta	2013	ADYPD8192K	Associate Professor	DAE Scientific and Technical Excellence	
D. Dutta	2013	ADYPD8192K	Associate Professor	Fellow, Maharashtra Academy of Scinces	
D. Dutta	2015	ADYPD8192K	Associate Professor	DAE Group Achievement	
V. Jha		ABXPJ5127D	Associate Professor	DAE Scientific and Technical Excellence	
Sudhir Ranjan Jain	1994	ABVPJ0519R	Professor	Indian National Science Academy Medal for Young Scientists	

للمعنى المعنى होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.



#### HOMI BHABHA NATIONAL INSTITUTE (A Grant-in-Aid Institution of the Department of Atomic Energy and a Deemed to be University under section 3 of the UGC Act 1956)

## 10 Years of Excellence 2005-2015

## **Distinguished Faculty Award**

Academic Council of Homi Bhabha National Institute bestows Distinguished Faculty Award on

## Prof. D.K. Maity

of Bhabha Atomic Research Centre, Mumbal

Mumbai August 08, 2015

डॉ. के. एल. रामकुमार, अध्यक्ष Dr. K. L. Ramakumar, Head

नाभिकीय नियंत्रण एवं आयोजना स्कंध **Nuclear Controls and Planning Wing** 



भारत सरकार परमाणु ऊर्जा विभाग अणुशक्ति भवन, छत्रपति शिवाजी महाराज मार्ग. मुंबई - 400 001.

**GOVERNMENT OF INDIA** DEPARTMENT OF ATOMIC ENERGY ANUSHAKTI BHAVAN, C. S. M. MARG, MUMBAI - 400 001.

No.DAE/HNCPW/A-24.1/2013/9 201

June 23, 2015

#### Subject : Selection of DAE SRC Outstanding Investigator Awardee

Dear Dr. Ghosh,

This has reference to research proposal submitted by you in response to the DAE SRC Outstanding Investigators Awards Scheme published in 2014.

It gives me a great pleasure to inform you that after going through a robust selection process, DAE Science Research Council has selected your proposal for DAE-SRC Outstanding Investigators Awards Scheme and on behalf of DAE-SRC, you will be called 'DAE-SRC Outstanding Investigator awardee'. I congratulate you on your selection. To carry the process further, kindly convey your willingness to accept the project award. In case you are receiving performance related incentive scheme (Individual), you are required to exercise an option to forgo incentive of Rs.25,000/- per month under the DAE SRC OI Awards scheme or PRIS (Individual) as you may wish.

In addition, kindly email the information relating to financial requirement as per enclosed format, at the earliest. In parallel, sponsorship certificate as per the enclosed format duly sponsored by the Head of the Department / Director / Dean of the institution may also be furnished.

You are requested to adhere to the salient features mentioned in the DAE's Office Memorandum No.10/30/2012-R&D-II/5734 dated 07.05.2014 (copy enclosed). It may kindly be noted that release of research grant for subsequent years of research is subject to strict compliance of salient features of the scheme.

We expect to receive this information before 07th July 2015.

Wishing you all the best in your research endeavours in the coming years.

With regards,

Yours sincerely,

(K.L. Ramakumar)

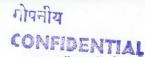
Dr. Subir Kumar Ghosh, SO/G, Materials Processing Division, : Through : Director, BARC BARC, Trombay, Mumbai -400 085.

Copy to :

Director, BARC, Mumbai - 400 085. 1.

2. Scientific Secretary, BRNS, Central Complex, BARC, Trombay पी. गोवर्धन नियंत्रक P. GOVERDHAN Controller





सेंट्रल कॉम्प्लेक्स, ट्रॉम्बे, मुंबई - 400085.

Central Complex, Trombay, Mumbai - 400085.

#### भारत सरकार GOVERNMENT OF INDIA भाभा परमाणु अनुसंधान केंद्र BHABHA ATOMIC RESEARCH CENTRE

Ref: BARC/10(09)/PD-PR/Award/2016/2211

October 17, 2016

Dear Dr.(Smt.) Sawant,

On behalf of Chairman, AEC and Director, BARC, I have great pleasure in informing you that you have been selected for the **SCIENTIFIC & TECHNICAL EXCELLENCE AWARD** for the year 2015 in recognition of your outstanding contributions under DAE (Excellence in Science, Engineering & Technology) Award Scheme. We congratulate you on this achievement.

The award consists of Citation, Medal and Cash amount of Rs. 1 Lakh. The award will be presented to you on Friday, 28<sup>th</sup> October 2016 which will be celebrated as the Founder's Day in BARC this year. The presentation of award to you will be done in the Central Complex Auditorium of BARC on that day.

With best wishes,

Yours sincerely,

(P. Goverdhan)

Dr.(Smt.) Shilpa N. Sawant SO/F, Chemistry Division,CG, BARC.

CC: Director, CG, BARC.

Dr. V.K. Jain, OS & Head, Chemistry Division, Chemistry Group, BARC.



**HOMI BHABHA NATIONAL INSTITUTE** (A Grant-in-Aid Institution of the Department of Atomic Energy and a Deemed to be

University under section 3 of the UGC Act 1956)

# 10 Years of Excellence 2005-2015

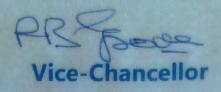
# **Outstanding Doctoral Thesis Award**

### Academic Council of Homi Bhabha National Institute bestows Outstanding Doctoral Thesis Award on

## Dr. Prabhat Kumar Singh (CHEM01200804002)

of Bhabha Atomic Research Centre, Mumbai

Mumbai August 08, 2015



Scanned by CamScanner



**GOVERNMENT OF INDIA** 



DEPARTMENT OF ATOMIC ENERGY

#### **EXCELLENCE IN SCIENCE, ENGINEERING AND TECHNOLOGY AWARDS SCHEME**

## Scientific & Technical Excellence Award 2015

## **Dr. Suneel Kumar Gupta**

#### Reactor Safety Division Reactor design and Development Group Bhabha Atomic Research Centre, Mumbai

is conferred the Scientific & Technical Excellence Award for the year 2015 for his excellent contributions in the area of "Design and Structural Integrity, Fitness For Service assessment of components/structures of several Indian Nuclear Power Plants and Nuclear Facilities".

His association with R&D programme on nuclear component integrity resulted in development of methods/ criteria to demonstrate realistic safety margin and leak-before-break compliance of Indian Reactors and resolving the issues related to it. His distinguishing contributions included developments of evaluation procedures for nuclear component integrity and ultimate load capacity under extreme cyclic loading event consisting of large number of cycles of large amplitude. He was instrumental in generating sufficient knowledge on related modes of failure and development of corresponding simplified design rules/equations/criteria for fracture under large amplitude seismic loads, pre-mature failure under ratcheting-fatigue synergistic conditions, and excessive fatigue damage under non-proportional multi-axial loads. Even the standard international design codes do not cover explicit guidelines to address these modes of failure. Such assessments were not possible under prevailing conventional codal procedures. These contributions enabled safe and optimum design of nuclear power plant components with accurate knowledge of safety margin against failure in extreme loading events and provide rigorous basis for safe continued operation/life extension of older plants.

While pursuing Research and Development in the areas of structural integrity, he has also been in touch with the ground realities of operating/new nuclear plants/facilities. His expertise in structural/component stress analyses has contributed in timely resolving the engineering & design issues of several components of nuclear facilities / power plants. Some of his major contributions are design modification of PFBR High Temperature Fission Chamber (HTFC), Integral behavior and capacity determination of Calandria End-shield Grout assembly under seismic loads, resolved issue of premature failures of cutting tool blade of Fuel Reprocessing Plant's spent fuel chopper, continued operation of hot tower of HWP Kotabeyond its design life.

The Chairman, Atomic Energy Commission has great pleasure in presenting the "Scientific & Technical Excellence Award 2015" to Dr. Dr. Suneel Kumar Gupta in recognition of his outstanding contribution to the Departmental programme.contribution to the Departmental programme.

Lekhar Basy

(Dr. Sekhar Basu) Chairman, Atomic Energy Commission & Secretary to the Government of India



### HOMI BHABHA NATIONAL INSTITUTE (A Grant-in-Aid Institution of the Department of Atomic Energy and a Deemed to be

A Grant-in-Aid Institution of the Department of Atomic Energy and a Deemed to be University under section 3 of the UGC Act 1956)

# 10 Years of Excellence 2005-2015

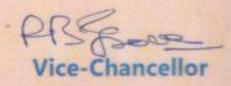
# **Distinguished Faculty Award**

Academic Council of Homi Bhabha National Institute bestows Distinguished Faculty Award on

# Prof. H.S. Misra

of Bhabha Atomic Research Centre, Mumbai

Mumbai August 08, 2015



#### BARC Celebrates Founder's Day

### 5. Shri Joti Nath Sharma, SO/G, PsDD, NRG, BARC

Shri Sharma has been awarded for his excellent research contributions in the area of "Synthesis and Development of Organic Solvents for separation processes of nuclear metals".

He has synthesized cesium specific solvent Calix-Crown-6 (CC6) indigenously at large scale.

Based on his work, an engineering scale facility was set up for treating HLW where cesium using calixcrown-6 solvent and americium and strontium using TEHDGA solvent will be separated. Separation of these elements from HLW, results in about 30 fold reduction in the vitrified glass volume.



Shri Joti Nath Sharma receiving the Homi Bhabha Science & Technology Award from Prof.V.S.Ramamurthy, Director, National Institute of Advanced Studies, Bangalore & Chairman, Recruitment & Assessment Board, Council of Scientific and Industrial Research.

## B. Exceptional Service Award carries a Cash award of Rs 5 Lakhs, a Citation & a Medal.

Shri K.N. Mahule, Head, ED&DD, MRG, BARC was the only recipient of this Award. Shri Mahule has been awarded for his excellent contributions in the areas of "Nuclear fuels fabrication, transportation of nuclear materials, and strategic programmes of the department".

#### BARC NEWSLETTER

His contributions include design and commissioning of FBTR fuel fabrication facility and production campaign, design and development of equipment and facilities for plate type fuel, metallic fuels for fast reactors, sol-gel based fuel and development of fully automated fuel fabrication facility. He also actively contributed in setting up pilot scale alpha solid waste treatment facility, and design and fabrication of transport packages for nuclear materials.

# C. Scientific & Technical Excellence Award carries a Cash award of Rs 1 Lakh, a Citation and a Medal.

There were Twenty seven award winners: Twenty two from BARC, two each from IGCAR and RRCAT and one from VECC. Following were the award winners from BARC:

- 1. Dr. Prashant Shukla, SO/G, NPD, PG, BARC
- 2. Shri Sudhir Mishra, SO/G, RMD, NFG, BARC
- 3. Shri Vivek Bhardwaj, SO/E, A&CED, ESG, BARC
- 4. Shri M. Thakuria, SO/F, LWRD, RPG, BARC
- 5. Shri Raman Kumar, SO/F, NRPSED, NRB, BARC
- 6. Dr. (Smt.) Dipanwita Dutta, SO/F, NPD, PG, BARC
- 7. Shri S.K. Sinha, SO/H, RED, RD&DG, BARC
- 8. Dr. Sudipta Chakraborti, SO/F, IA&RD, RC&IG, BARC
- 9. Dr. Chiranjib Majumder, SO/G, ChD, CG, BARC
- 10. Dr. G. Kedarnath, SO/F, ChD, CG, BARC
- 11. Shri A.K. Haruray, SO/H, DRHR, DM&AG
- 12. Dr. (Smt.) P.M. Dighe, SO/F, ED, E&IG, BARC
- 13. Shri Clement C. Verghese, SO/H, RCnD, E&IG, BARC
- 14. Dr. Sunil Dutt Sharma, SO/F, RP&AD, HS&EG, BARC
- 15. Dr. Abhijit Ghosh, SO/G, G&AMD, MG, BARC
- 16. Dr. K.D. Joshi, SO/G, APD, MRG, BARC
- 17. Dr. Manoj Kumar Warrier, SO/F, CAD, MRG, BARC
- 18. Dr. Aniruddha Kumar, SO/G, AFFF, Tarapur, NFG, BARC
- 19. Dr. Kathi Sudarshan, SO/F, RCD, RC&IG, BARC
- 20. Shri Vishnu Verma, SO/G, RSD, RD&DG, BARC
- 21. Dr. Usha Pal, SO/G, RPDD, RD&DG, BARC
- 22. Shri B.S. Manjunath, SO/G, RTD, RD&DG, BARC

# DAE (Excellence in Science, Engineering & Technology) Awards 2015

#### A. Homi Bhabha Science & Technology Awardees

### 1. Shri I.V.N.S. Kamaraju, SO/H, KBNRP&C, NRB, BARC

Shri Kamaraju has been awarded for his innovative research contributions in field of "*Erection and construction of different mechanical systems of Project PREFRE-3A, presently the largest reprocessing plant*". He has demonstrated his professional excellence in planning and executing the challenging task of high density piping work inside the confined process hot cell. One of his major achievements has been the completion of fabrication and erection of all 6200 pipe spools amounting to about 100 km of small bore (90% of pipes up to 25 mm NB) piping with 45000 RT qualified weld joints inside the confined hot cells with restricted access while maintaining high quality and safety standards.



## 2. Shri Rayakamath Dinesh Babu, SO/H, RPD, RPG, BARC

Shri Babu has been awarded for his contributions in the field of "*Core Calibration Experiments at P4 and development of reactor internals and equipment to be used in a project of national importance*". He has played a pivotal role in the core calibration campaign at P4, which was successfully completed due to his hard work, dedication, extensive field engineering and excellent coordination. He also has played a key role in developing infrastructure at site for refuelling and commissioning of novel Spent Fuel Storage Modules



#### 3. Dr. P. K. Mukherjee, SO/G, NABTD, BSG, BARC

Dr. Mukherjee has been awarded for his contributions in the field of "*Agricultural research*". He has made significant contributions in understanding the biology of the most popular biofungicides Trichoderma spp. in improvement of strains using radiation-induced mutations, development of processes for formulations and in mining of Trichoderma genomes for novel metabolites and proteins of relevance to agriculture and medicine. He has transferred two technologies to five biotech companies.



#### 5. Shri S. Sarkar, DS & Director, ChTG, BARC

Shri Sarkar has beem Awarded for his contributions in the field of "*Chemical Engineering*". He had led a multidisciplinary team of Engineers and Scientists in harnessing multi-disciplinary "*Enrichment Technology*" to meet the growing strategic and non-strategic applications of the nation. He has immensely contributed and spearheaded the scaling up of in-house developed Fluorine production technology, plant scale refining of different kinds of feed materials, indigenous development of ultra-low range flow meters and vacuum gauges, development of advanced technology HSR machines with higher output and their successful deployment in larger scale.



## 6. Shri Kailash Agarwal, OS & GM, NRPSED & KNRPD, BARC

Shri Agarwal has been awarded for his contributions in the field of "*Development of Technologies for Reprocessing Facilities*". He also played a key role in development of new technologies for spent fuel storage and handling, hull monitoring, hull compaction and feed clarification, which resulted in enhanced plant performance. He had provided innovative and speedy solutions to many challenging problems during the first two years of PREFRE-2 operation. He has given shape to the concept of Direct Fuel Transfer from pool to spent fuel chopper, which eliminates the multiple handling of heavy charging casks.



#### 7. Shri. Satish B. Patil, SO/F, TDD NRG, BARC & Smt. Jyoti Jha, SO/F, TDD NRG, BARC

Jointly awarded for outstanding contribution in the field of "Design & Development of Facility for Production of Active Cs-137 Source Pencils for Blood Irradiator". Shri. Satish Patil and Smt. Jyoti Jha have made excellent contribution in development of technology for utilization of Cs-137 recovered from nuclear waste as a radioactive source for medical applications. This achievement has placed Department of Atomic Energy, India at a new height in the international arena in terms of producing Cs-137 Source Pencils in the Vitrified form.



#### 8. Dr. Ranjan Mittal, SO/H, SSPD, PG, BARC

Dr. Mittal has been awarded for his outstanding contributions in the field of "*Condensed Matter Physics, in particular, the experimental studies on neutron inelastic scattering and computational studies on lattice dynamics*". He has made significant contributions in Condensed Matter Physics in the area of neutron inelastic scattering experiments and computational lattice dynamics. He has carried out extensive phonon study on yttria, multiferroic and scheelite structured compounds to understand the role of structural distortions and their correlation to phonon instabilities, leading to phase transitions in these compounds.



#### **B. Exceptional Service Awardee**

Dr. R.K. Patil, Former Associate Director was instrumental in indigenous development of Control & Instrumentation systems. He was responsible in evolving the Control and Instrumentation for Dhruva Reactor from concept Stage and its implementation and integration. He has made significant contribution in C&I to various other DAE projects such as Purnima II & III Reactors, Kamini Reactors, PRP Reactor Program.



## **Scientists Honoured**

#### NATIONAL GEOSCIENCE AWARD 2014

Field-(vi): Mineral Beneficiation (including mineral processing, project development for utilization of low grade ores & production of value added mineral products and mineral economics).

Dr. Sreenivas Tumuluri, Scientific Officer 'H' & Head, Mineral Processing Division, Bhabha Atomic Research Centre, Hyderabad, has made major contributions in the field of mineral beneficiation of strategic minerals. Dr. Sreenivas has developed technoeconomic and environmentally viable processing flow sheets for the recovery of various strategic and energy critical minerals from low-grade primary resources and industrial waste. His approach of comprehensive extraction of mined material led to successful application of sustainability in resource utilisation as well as making exploitation of low-grade complex ores of strategic minerals economical. He has characterised and developed an industrially acceptable mineral processing flow sheet for the recovery of value added metals like Heavy Rare Earths Elements (HREE) from waste and from fly ash generated at lignite and coal based thermal power plants. In recognition of his significant contribution in the field of Mineral Beneficiation, the National Geoscience Award-2014 is conferred on Dr. Sreenivas Tumuluri. He shares the award with Dr. Swati Mohanty.



• The paper "Magnetic nanoparticles in combination with gamma radiation induce G2-M arrest and mitotic catastrophe mediated cell death in mouse fibrosarcoma cell line" by Smt. Neena Girish Shetake presented in the International Conference on Radiation Research: Impact on Human Health and Environment (ICRR-HHE 2016), held in BARC, Mumbai during February, 11-13, 2016 won the Best Oral Presentation Award.







### Design and Development of Magnetic lenses for Proton Accelerators

Vikas Teotia, Elina Mishra, Prashant Kumar and Sanjay Malhotra

Electromagnetic Applications Section, Accelerator Control Division

#### Dr. Sanjay Malhotra is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

#### Abstract

High Energy Proton beams have application in scientific, industrial and Medical fields. High energy proton accelerators mainly consist of an ion source and array of RF accelerating cavities and focusing magnets. Low energy section of accelerator deploys solenoid magnets as they focus the beam simultaneously in both axes, although they are less efficient then quadrupole focusing magnets. The paper discusses design of Electromagnetic Quadrupole for transverse focusing in 200 MeV sections of a High Energy Proton Accelerator and magnetic measurements carried out on Permanent Magnet Quadrupoles for DTL of LEHIPA (Low Energy High Intensity Proton Accelerator). Optimisation techniques to achieve magnetic field uniformity better than 1000 ppm in Good field region is described. Detailed studies carried out on the influence of Magneto motive forces on figure of merit of the magnet, in terms of uniformity and magnetic field gradient is described. Field uniformity, linearity and higher order modes achieved in the design are elaborated. Based on this design, fabrications of the magnets were taken up. Paper also discusses measurement results of Permanent Magnets based quadrupole focusing lenses developed for LEHIPA project of BARC.

Keywords: Accelerators, proton, PMQ, EMQ, Good Field Region, HEPA, emittance

#### Introduction

Charged particle beams in accelerators tend to defocus due to Columbic repulsions and transverse kicks attributable to fringe E-fields in the cavity, the strength of which depend on the synchronous phase and Electromagnetic design of RF accelerating cavities [1, 5]. The transverse blow-up of beam increases the cross section of the beam whichdegrades the spatial current density which is undesirable. Electromagnetic forces are required to annul this transverse defocusing. Among the available options of using Electric field or magnetic field for charged particle focusing, magnetic fields are preferred since generation of an equivalent B-field is convenient than generation of equivalent E-field [2]. However, at low particle energy, E-fields are preferred as magnetic Lorentz forces are low owing to low particle velocity. For high energy beams, B-field focusing is natural choice for transverse focusing. Magnetic Quadrupole are used for focusing of charged particle beams. Depending on design, these quadrupoles could be permanent magnet based [3, 4] or electromagnet based (Warm (iron dominated) or Superconducting (coil design)). The latter choice provides the advantage of ease

in tuning while former is more efficient in terms of power consumption during operations [5]. Magnetic field strength of quadrupole magnet is given in terms of integrated magnetic field gradient denoted integralG.dl. The required integral G.dl depends on beamemittance at entry of the magnetic lens; magnetic quadrupoles are therefore operated normally from 50% to 100% of their rated strength. Electromagnetic Quadrupole becomes the obvious choice for such applications. This paper describes design and analysis of an EMQ for 200 MeV section of a proton accelerator, in detail and also describes the results of magnetic measurements on Permanent Magnet Quadrupoles for LEHIPA. Since quadrupoles provides alternate gradient focusing [5], the focusing and de-focusing quadrupoles are always used in pairs, aptly named as "doublet assembly".

#### System specifications

#### Layout

The high energy section of proton accelerator consists of an array of accelerating cavities and focusing elements. Depending on the particle  $\beta$ , the accelerating cavities

w

SLETTE

Founder's Day Special Issue October 2016







### Design and Development of Magnetic lenses for Proton Accelerators

Vikas Teotia, Elina Mishra, Prashant Kumar and Sanjay Malhotra Electromagnetic Applications Section, Accelerator Control Division

#### Dr. Sanjay Malhotra is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

#### Abstract

High Energy Proton beams have application in scientific, industrial and Medical fields. High energy proton accelerators mainly consist of an ion source and array of RF accelerating cavities and focusing magnets. Low energy section of accelerator deploys solenoid magnets as they focus the beam simultaneously in both axes, although they are less efficient then quadrupole focusing magnets. The paper discusses design of Electromagnetic Quadrupole for transverse focusing in 200 MeV sections of a High Energy Proton Accelerator and magnetic measurements carried out on Permanent Magnet Quadrupoles for DTL of LEHIPA (Low Energy High Intensity Proton Accelerator). Optimisation techniques to achieve magnetic field uniformity better than 1000 ppm in Good field region is described. Detailed studies carried out on the influence of Magneto motive forces on figure of merit of the magnet, in terms of uniformity and magnetic field gradient is described. Field uniformity, linearity and higher order modes achieved in the design are elaborated. Based on this design, fabrications of the magnets were taken up. Paper also discusses measurement results of Permanent Magnets based quadrupole focusing lenses developed for LEHIPA project of BARC.

Keywords: Accelerators, proton, PMQ, EMQ, Good Field Region, HEPA, emittance

#### Introduction

Charged particle beams in accelerators tend to defocus due to Columbic repulsions and transverse kicks attributable to fringe E-fields in the cavity, the strength of which depend on the synchronous phase and Electromagnetic design of RF accelerating cavities [1, 5]. The transverse blow-up of beam increases the cross section of the beam whichdegrades the spatial current density which is undesirable. Electromagnetic forces are required to annul this transverse defocusing. Among the available options of using Electric field or magnetic field for charged particle focusing, magnetic fields are preferred since generation of an equivalent B-field is convenient than generation of equivalent E-field [2]. However, at low particle energy, E-fields are preferred as magnetic Lorentz forces are low owing to low particle velocity. For high energy beams, B-field focusing is natural choice for transverse focusing. Magnetic Quadrupole are used for focusing of charged particle beams. Depending on design, these quadrupoles could be permanent magnet based [3, 4] or electromagnet based (Warm (iron dominated) or Superconducting (coil design)). The latter choice provides the advantage of ease

in tuning while former is more efficient in terms of power consumption during operations [5]. Magnetic field strength of quadrupole magnet is given in terms of integrated magnetic field gradient denoted integralG.dl. The required integral G.dl depends on beamemittance at entry of the magnetic lens; magnetic quadrupoles are therefore operated normally from 50% to 100% of their rated strength. Electromagnetic Quadrupole becomes the obvious choice for such applications. This paper describes design and analysis of an EMQ for 200 MeV section of a proton accelerator, in detail and also describes the results of magnetic measurements on Permanent Magnet Quadrupoles for LEHIPA. Since quadrupoles provides alternate gradient focusing [5], the focusing and de-focusing quadrupoles are always used in pairs, aptly named as "doublet assembly".

#### System specifications

Founder's Day Special Issue October 2016

#### Layout

The high energy section of proton accelerator consists of an array of accelerating cavities and focusing elements. Depending on the particle  $\beta$ , the accelerating cavities

w

SLETTE







### Design and Development of Magnetic lenses for Proton Accelerators

Vikas Teotia, Elina Mishra, Prashant Kumar and Sanjay Malhotra Electromagnetic Applications Section, Accelerator Control Division

#### Dr. Sanjay Malhotra is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

#### Abstract

High Energy Proton beams have application in scientific, industrial and Medical fields. High energy proton accelerators mainly consist of an ion source and array of RF accelerating cavities and focusing magnets. Low energy section of accelerator deploys solenoid magnets as they focus the beam simultaneously in both axes, although they are less efficient then quadrupole focusing magnets. The paper discusses design of Electromagnetic Quadrupole for transverse focusing in 200 MeV sections of a High Energy Proton Accelerator and magnetic measurements carried out on Permanent Magnet Quadrupoles for DTL of LEHIPA (Low Energy High Intensity Proton Accelerator). Optimisation techniques to achieve magnetic field uniformity better than 1000 ppm in Good field region is described. Detailed studies carried out on the influence of Magneto motive forces on figure of merit of the magnet, in terms of uniformity and magnetic field gradient is described. Field uniformity, linearity and higher order modes achieved in the design are elaborated. Based on this design, fabrications of the magnets were taken up. Paper also discusses measurement results of Permanent Magnets based quadrupole focusing lenses developed for LEHIPA project of BARC.

Keywords: Accelerators, proton, PMQ, EMQ, Good Field Region, HEPA, emittance

#### Introduction

Charged particle beams in accelerators tend to defocus due to Columbic repulsions and transverse kicks attributable to fringe E-fields in the cavity, the strength of which depend on the synchronous phase and Electromagnetic design of RF accelerating cavities [1, 5]. The transverse blow-up of beam increases the cross section of the beam whichdegrades the spatial current density which is undesirable. Electromagnetic forces are required to annul this transverse defocusing. Among the available options of using Electric field or magnetic field for charged particle focusing, magnetic fields are preferred since generation of an equivalent B-field is convenient than generation of equivalent E-field [2]. However, at low particle energy, E-fields are preferred as magnetic Lorentz forces are low owing to low particle velocity. For high energy beams, B-field focusing is natural choice for transverse focusing. Magnetic Quadrupole are used for focusing of charged particle beams. Depending on design, these quadrupoles could be permanent magnet based [3, 4] or electromagnet based (Warm (iron dominated) or Superconducting (coil design)). The latter choice provides the advantage of ease

in tuning while former is more efficient in terms of power consumption during operations [5]. Magnetic field strength of quadrupole magnet is given in terms of integrated magnetic field gradient denoted integralG.dl. The required integral G.dl depends on beamemittance at entry of the magnetic lens; magnetic quadrupoles are therefore operated normally from 50% to 100% of their rated strength. Electromagnetic Quadrupole becomes the obvious choice for such applications. This paper describes design and analysis of an EMQ for 200 MeV section of a proton accelerator, in detail and also describes the results of magnetic measurements on Permanent Magnet Quadrupoles for LEHIPA. Since quadrupoles provides alternate gradient focusing [5], the focusing and de-focusing quadrupoles are always used in pairs, aptly named as "doublet assembly".

#### System specifications

Founder's Day Special Issue October 2016

#### Layout

The high energy section of proton accelerator consists of an array of accelerating cavities and focusing elements. Depending on the particle  $\beta$ , the accelerating cavities

w

SLETTE







### Setting up of In-situ X ray Absorption Spectroscopy measurement facility at Indus-2 SRS & Indigenous development of thin film multilayer neutron supermirrors

D.Bhattacharyya, C.Nayak, A. Biswas, S.N. Jha and N.K. Sahoo Atomic & Molecular Physics Division

Dr. D. Bhattacharyya is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

### *In-situ* X-ray Absorption Measurement Facility at Indus-2 SRS

X-ray absorption spectroscopy (XAS) generally deals with measurement of absorption coefficient as a function of X-ray photon energy around an X-ray absorption edge of an element in a material. X-ray absorption spectrum consists of two parts: (i) The spectrum near the absorption edge (viz., the X-ray near edge structure or the XANES part) gives information about the external perturbations in the valence states to which electrons make transitions from core levels upon absorption of Xray photon energy and hence can yield information regarding hybridization of orbitals in case of molecule or long range order existing in a crystalline sample apart from the oxidation states of the absorbing atom in the material. (ii) The second part of the spectrum which extends from 50 eV to ~700 eV above the absorption edge is generally called the Extended X-ray absorption fine structure (EXAFS) part which is generally characterized by the presence of fine structure oscillations and can give precise information regarding the short range order and local structure around the particular atomic species in the material. This determination is confined to a distance given by the mean free path of the photoelectron in the condensed matter, which is between 5-7 Å radius from the element. The above characteristic along with the fact that EXAFS is an element specific tool, makes it a powerful structural local probe. With the advent of modern bright Synchrotron radiation sources, XAS has emerged out to be the most powerful local structure determination technique which can be applied to any type of material viz. amorphous, polycrystalline, polymers, surfaces, solutions. Furthermore, XAS does not require any particular experimental conditions, such as high vacuum and hence samples of various physical forms can be adapted for measurements in the experimental stations [1].

Over the last few years, a comprehensive XAS measurement facility has been developed at INDUS-2 SRS at RRCAT, Indore which consists of two working beamlines viz., Energy Dispersive EXAFS beamline (BL-08) and Energy Scanning EXAFS beamline (BL-09) [2,3]. A large number of users from R&D institutions, universities and industries across the country are using the above facility and more than 85 papers have so far been published in reputed international journals in last 5-6 years where the data measured in the above beamlines have been used. The energy dispersive EXAFS beamline (BL-08) covers the photon energy range of 5-20 keV and in this beamline, the entire EXAFS spectrum of the samples can be recorded in a single shot within a time scale of ~300 msec. Hence this is best suited for studying in-situ fast and time-resolved processes. One of the major applications of this beamline is in-situ studies on growth of nanoparticles.

Since its invention, nanoparticles find wide varieties of applications in the field of medicine, catalysis, biotechnology, fuel cells, solar cells, sensors and environmental science etc. [4]. This is well established that the properties of these nanoparticles can be tuned over a wide range by controlling their size and shape and this seeks the need to understand the mechanism of nucleation and growth of these nanoparticles. This envisages a new era of "*in-situ*" studies on the growth of nanoparticles. However, the scarcity of suitable fast techniques, which is one of the pre-requisites of *in-situ* studies, that can actually throw some light into the

Founder's Day Special Issue October 2016

WSLETTE







### Setting up of In-situ X ray Absorption Spectroscopy measurement facility at Indus-2 SRS & Indigenous development of thin film multilayer neutron supermirrors

D.Bhattacharyya, C.Nayak, A. Biswas, S.N. Jha and N.K. Sahoo Atomic & Molecular Physics Division

Dr. D. Bhattacharyya is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

### *In-situ* X-ray Absorption Measurement Facility at Indus-2 SRS

X-ray absorption spectroscopy (XAS) generally deals with measurement of absorption coefficient as a function of X-ray photon energy around an X-ray absorption edge of an element in a material. X-ray absorption spectrum consists of two parts: (i) The spectrum near the absorption edge (viz., the X-ray near edge structure or the XANES part) gives information about the external perturbations in the valence states to which electrons make transitions from core levels upon absorption of Xray photon energy and hence can yield information regarding hybridization of orbitals in case of molecule or long range order existing in a crystalline sample apart from the oxidation states of the absorbing atom in the material. (ii) The second part of the spectrum which extends from 50 eV to ~700 eV above the absorption edge is generally called the Extended X-ray absorption fine structure (EXAFS) part which is generally characterized by the presence of fine structure oscillations and can give precise information regarding the short range order and local structure around the particular atomic species in the material. This determination is confined to a distance given by the mean free path of the photoelectron in the condensed matter, which is between 5-7 Å radius from the element. The above characteristic along with the fact that EXAFS is an element specific tool, makes it a powerful structural local probe. With the advent of modern bright Synchrotron radiation sources, XAS has emerged out to be the most powerful local structure determination technique which can be applied to any type of material viz. amorphous, polycrystalline, polymers, surfaces, solutions. Furthermore, XAS does not require any particular experimental conditions, such as high vacuum and hence samples of various physical forms can be adapted for measurements in the experimental stations [1].

Over the last few years, a comprehensive XAS measurement facility has been developed at INDUS-2 SRS at RRCAT, Indore which consists of two working beamlines viz., Energy Dispersive EXAFS beamline (BL-08) and Energy Scanning EXAFS beamline (BL-09) [2,3]. A large number of users from R&D institutions, universities and industries across the country are using the above facility and more than 85 papers have so far been published in reputed international journals in last 5-6 years where the data measured in the above beamlines have been used. The energy dispersive EXAFS beamline (BL-08) covers the photon energy range of 5-20 keV and in this beamline, the entire EXAFS spectrum of the samples can be recorded in a single shot within a time scale of ~300 msec. Hence this is best suited for studying in-situ fast and time-resolved processes. One of the major applications of this beamline is in-situ studies on growth of nanoparticles.

Since its invention, nanoparticles find wide varieties of applications in the field of medicine, catalysis, biotechnology, fuel cells, solar cells, sensors and environmental science etc. [4]. This is well established that the properties of these nanoparticles can be tuned over a wide range by controlling their size and shape and this seeks the need to understand the mechanism of nucleation and growth of these nanoparticles. This envisages a new era of "*in-situ*" studies on the growth of nanoparticles. However, the scarcity of suitable fast techniques, which is one of the pre-requisites of *in-situ* studies, that can actually throw some light into the

Founder's Day Special Issue October 2016

WSLETTE







### Setting up of In-situ X ray Absorption Spectroscopy measurement facility at Indus-2 SRS & Indigenous development of thin film multilayer neutron supermirrors

D.Bhattacharyya, C.Nayak, A. Biswas, S.N. Jha and N.K. Sahoo Atomic & Molecular Physics Division

Dr. D. Bhattacharyya is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

### *In-situ* X-ray Absorption Measurement Facility at Indus-2 SRS

X-ray absorption spectroscopy (XAS) generally deals with measurement of absorption coefficient as a function of X-ray photon energy around an X-ray absorption edge of an element in a material. X-ray absorption spectrum consists of two parts: (i) The spectrum near the absorption edge (viz., the X-ray near edge structure or the XANES part) gives information about the external perturbations in the valence states to which electrons make transitions from core levels upon absorption of Xray photon energy and hence can yield information regarding hybridization of orbitals in case of molecule or long range order existing in a crystalline sample apart from the oxidation states of the absorbing atom in the material. (ii) The second part of the spectrum which extends from 50 eV to ~700 eV above the absorption edge is generally called the Extended X-ray absorption fine structure (EXAFS) part which is generally characterized by the presence of fine structure oscillations and can give precise information regarding the short range order and local structure around the particular atomic species in the material. This determination is confined to a distance given by the mean free path of the photoelectron in the condensed matter, which is between 5-7 Å radius from the element. The above characteristic along with the fact that EXAFS is an element specific tool, makes it a powerful structural local probe. With the advent of modern bright Synchrotron radiation sources, XAS has emerged out to be the most powerful local structure determination technique which can be applied to any type of material viz. amorphous, polycrystalline, polymers, surfaces, solutions. Furthermore, XAS does not require any particular experimental conditions, such as high vacuum and hence samples of various physical forms can be adapted for measurements in the experimental stations [1].

Over the last few years, a comprehensive XAS measurement facility has been developed at INDUS-2 SRS at RRCAT, Indore which consists of two working beamlines viz., Energy Dispersive EXAFS beamline (BL-08) and Energy Scanning EXAFS beamline (BL-09) [2,3]. A large number of users from R&D institutions, universities and industries across the country are using the above facility and more than 85 papers have so far been published in reputed international journals in last 5-6 years where the data measured in the above beamlines have been used. The energy dispersive EXAFS beamline (BL-08) covers the photon energy range of 5-20 keV and in this beamline, the entire EXAFS spectrum of the samples can be recorded in a single shot within a time scale of ~300 msec. Hence this is best suited for studying in-situ fast and time-resolved processes. One of the major applications of this beamline is in-situ studies on growth of nanoparticles.

Since its invention, nanoparticles find wide varieties of applications in the field of medicine, catalysis, biotechnology, fuel cells, solar cells, sensors and environmental science etc. [4]. This is well established that the properties of these nanoparticles can be tuned over a wide range by controlling their size and shape and this seeks the need to understand the mechanism of nucleation and growth of these nanoparticles. This envisages a new era of "*in-situ*" studies on the growth of nanoparticles. However, the scarcity of suitable fast techniques, which is one of the pre-requisites of *in-situ* studies, that can actually throw some light into the

Founder's Day Special Issue October 2016

WSLETTE







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

<mark>S. R. Ghodke,</mark> Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

K. P. Dixit, S. Acharya, P. Roychowdhury

Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	$6 \pm 0.1 \text{ MeV}$
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

ΕT

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based

Founder's Day Special Issue October 2016







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, <mark>Mahendra Kumar,</mark> Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

K. P. Dixit, S. Acharya, P. Roychowdhury

Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	$6 \pm 0.1 \text{ MeV}$
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

Т

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

K. P. Dixit, S. Acharya, P. Roychowdhury

Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	6 ± 0.1 MeV
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

ΕT

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based

42







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

K. P. Dixit, S. Acharya, P. Roychowdhury

Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	6 ± 0.1 MeV
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

> **K. P. Dixit, S. Acharya, P. Roychowdhury** Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	6 ± 0.1 MeV
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based

42







### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

K. P. Dixit, S. Acharya, P. Roychowdhury

Electron Beam Centre, Accelerator & Pulse Power Division

#### S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	$6 \pm 0.1 \text{ MeV}$
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based









### Mechanical design and development of DC, RF accelerator and ECR ion source programme of APPD, BARC

S. R. Ghodke, Rajesh Barnwal, Mahendra Kumar, Susanta Nayak, D. Bhattacharjee, J. Mondal, A. S. Dhavle, Vijay Sharma, Shiv Chandan, Nishant Choudwary, R. I. Bakhatsing V. T. Nimje,

> **K. P. Dixit, S. Acharya, P. Roychowdhury** Electron Beam Centre, Accelerator & Pulse Power Division

## S.R. Ghodke is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract:

APPD, BARC has taken up the indigenous design & development of high power electron accelerators for industrial, research and cargo scanning applications. Pulsed RF Linacs, with on-axis coupled cavity configuration, include the 10 MeV Industrial RF linac, 30 MeV linac for radiation streaming studies of fast breeder reactor as well as 6 MeV compact linac for cargo scanning applications. Industrial DC accelerators include a 500 keV Cockroft-Walton machine and 3 MeV Dynamitron. Several radiation processing applications, such as material modification, waste water treatment, flue-gas treatment, etc. have been demonstrated using these accelerators. 6 MeV linac for cargo-scanning have been successfully commissioned and are being characterized for the required x-ray output. For ADS studies, a 50 keV, 50 mA ECR Ion Source is fabricated including low energy beam transport line. This paper presents the details of the mechanical design and fabrication of these accelerators.

Mechanical design, fabrication and development of components of different programme of APPD are as given below.

#### 1. 6 MeV Compact Linac:

The 6 MeV compact RF Electron Linac as X-ray head (fig-1) for container cargo-scanning applications has been designed and developed by the Accelerator & Pulse Power Division, BARC. In linac-based cargo-scanning systems, the linac acts as the source of x-rays, which fall on the cargo and are then detected by the detector system. This para describes the salient features of the 6 MeV compact linac and its fabrication.

From 6 MeV linac (fig-2) electrons are emitted from electron gun, accelerated up to 6 MeV in linac cavity and hit on a tantalum target to produce x-rays with a dose rate of 1-3 Gy/min/m. The specifications of the linac are given in Table-1 below:

#### Table-1: Specification 6 MeV compact linac

Beam energy	$6 \pm 0.1 \text{ MeV}$
Peak beam current	160 mA
Average beam current	700 W (max)
X-ray beam focal size	1.5 to 2 mm
X-ray dose	1-3 Gy/min/m
X-ray field size	Std. 30 degree cone

ΕT

Pulse width	3.4 µs
Pulse repetition rate	250 Hz (max)
Length of cavity	0.6 m
RF frequency	2856 ± 2MHz
Injection voltage	40-85 kV



#### Fig. 1: 6 MeV compact linac.

A 75 kV electron gun acts as the injector to the compact linac. The on-axis coupled cavity linac [12] operates at 2856 MHz and is powered by a magnetron-based









### Improvements to Gang type Spent Fuel Chopper at TRP, Tarapur

Abhishant, A.K. Jha, K. Agarwal

NRPSED, NRB, Mumbai

Abhishant is the recipient of the DAE Scientific & Technical Excellence Award for the year 2014

#### Abstract

Spent Fuel Chopper (SFC) is the most critical equipment for a reprocessing plant. SFC is one of the equipment in operating reprocessing plants which does not have a standby. It's down time directly affects the productivity of the plant. The earlier SFC design at PREFRE-1, Tarapur and KARP, Kalpakkam was based on progressive cutting whereas the design of SFC at TRP, Tarapur is based on 'Gang Chopping Concept', which cuts one PHWR spent fuel bundle into multiple pieces in one stroke. During the initial phase of operation, few teething problems related to design emerged which resulted shortfall in the name plate plant capacity. This paper is based on problem case studies and troubleshooting backed up by solution implementation after mock test trials with minimum affecting the plant operations.

#### **Background:**

Spent fuel chopping is a first stage activity for reprocessing of nuclear power reactor's spent fuel as it enables the fuel material to interact with the reagents.

The chopping of spent fuel is done by a shearing machine called "Spent Fuel Chopper". The shearing machines installed at PREFRE-1, Tarapur & KARP, Kalpakkam were based on progressive cutting, where fuel bundle was cut in sequential steps of pushing, gripping and shearing.

This process as well as maintenance of shear machine was time consuming & hence a new chopping system based on 'Gang Chopping Concept' was developed & installed at TRP, Tarapur where a fuel bundle is chopped in a single stroke, thus reduces time of chopping considerably.

This machine avoids other aid like fuel gripping etc. Additionally this shearing machine has remotely replaceable modules which reduces the downtime & thereby increase the plant throughput. During initial phase of operation, many technical challenges arose which were overcome in a time bound manner to surpass the plant annual targets year by year.

#### The problem statements:

ЕТ

Following problems were encountered during the operation of machine in the first few years:

- Interferences of bundle with Component Transfer Tube (CTT).
- Erratic/stuck CTT movements
- Abortive bundle transfers by CTA
- Premature failure of cutting tools
- Time & labour intensive cutting tools replacement activities.
- High man-rem expenditure during shear module's maintenance.
- Pusher link stuck up at home position.

#### The solution statements:

Each of above problems was analyzed in detail and technically feasible solutions were implemented by modifying the existing design of corresponding components. These design modifications were mock tested up to the extent possible at the existing Component Testing Facility (CTF), at Tarapur before implementing the same in radioactive environment. The major components which needed design modifications were (1) Component Transfer Assembly, (2) Shear Module Assembly and (3) Pusher Link Assembly.

#### 1. Component Transfer Assembly:

Founder's Day Special Issue October 2016

The Component Transfer Assembly (CTA) has a pneumatically actuated tube, which reciprocates between moving and fixed blades to receive one fuel bundle at a time from fuel feed magazine. The CTA is locked with the body of SFC by 45<sup>o</sup> rotation.







### EXPERIMENTAL AND ANALYTICAL STUDY FOR SAFETY OF NUCLEAR RESEARCH REACTORS

Samiran Sengupta, Aniruddha Ghosh and S. Mammen

Research Reactor Design & Projects Division C. Sengupta Research Reactor Maintenance Division S. Bhattacharya Reactor Group

Samiran Sengupta is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

#### Abstract

This paper describes some of the key experimental and analytical studies carried out for the design and development of Plate type fuel assemblies, Natural circulation valve, BeO reflector assemblies and Chimney structure to ensure safety of nuclear research reactors.

Keywords: chimney, fuel, model, natural circulation, nuclear safety, radioactivity, reflector, research reactors

#### Introduction

Apsara reactor, the first research reactor built in Asia, was commissioned in the year 1956. It was a 1 MW swimming pool type reactor using high enriched uranium (HEU) as fuel, demineralised water as coolant, moderator and reflector. Considering the long service period, the reactor was permanently shut down in 2010. Under the upgradation programme, the reactor power is increased to 2 MW and reactor core is replaced with low enriched uranium (LEU) as fuel. The core is surrounded by two layers of beryllium oxide (BeO) reflectors. The maximum thermal neutron flux is enhanced to  $6.1 \times 10^{13}$  n/cm<sup>2</sup>.sec. This paper describes some of the developmental work carried out for the upgraded Apsara reactor. It also presents the experimental studies carried out for the design of chimney structure of proposed High Flux Research Reactor at Vizag.

#### **Plate type Fuel Assembly**

The fuel material used for plate type fuel assemblies is  $U_3Si_2$  dispersed in Aluminium matrix. The material has high uranium density in fuel meat, good compatibility with aluminium matrix, high thermal conductivity, excellent blister resistance threshold, stable swelling behaviour under irradiation, high fission gas retaining capability, low release of volatile fission products and good fabricability.  $U_3Si_2$  is synthesized by using powder processing route with uranium metal powder and silicon powder as the starting materials. Aluminium alloy of nuclear grade is chosen as cladding material. The upgraded Apsara core is loaded with two types of fuel assemblies comprising of standard fuel assemblies and control fuel assemblies. The general

E

ЕТ

arrangement drawing of the standard and control fuel assemblies are shown in Fig. 1.

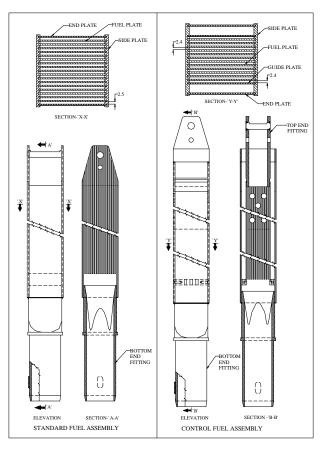


Fig. 1: Details of Standard and Control Fuel Assembly

Founder's Day Special Issue October 2016

77







### EXPERIMENTAL AND ANALYTICAL STUDY FOR SAFETY OF NUCLEAR RESEARCH REACTORS

Samiran Sengupta, Aniruddha Ghosh and S. Mammen Research Reactor Design & Projects Division C. Sengupta Research Reactor Maintenance Division S. Bhattacharya

Reactor Group

#### Samiran Sengupta is the recipient of the DAE Homi Bhabha Science and Technology Award for the year 2014

#### Abstract

This paper describes some of the key experimental and analytical studies carried out for the design and development of Plate type fuel assemblies, Natural circulation valve, BeO reflector assemblies and Chimney structure to ensure safety of nuclear research reactors.

Keywords: chimney, fuel, model, natural circulation, nuclear safety, radioactivity, reflector, research reactors

#### Introduction

Apsara reactor, the first research reactor built in Asia, was commissioned in the year 1956. It was a 1 MW swimming pool type reactor using high enriched uranium (HEU) as fuel, demineralised water as coolant, moderator and reflector. Considering the long service period, the reactor was permanently shut down in 2010. Under the upgradation programme, the reactor power is increased to 2 MW and reactor core is replaced with low enriched uranium (LEU) as fuel. The core is surrounded by two layers of beryllium oxide (BeO) reflectors. The maximum thermal neutron flux is enhanced to  $6.1 \times 10^{13}$  n/cm<sup>2</sup>.sec. This paper describes some of the developmental work carried out for the upgraded Apsara reactor. It also presents the experimental studies carried out for the design of chimney structure of proposed High Flux Research Reactor at Vizag.

#### **Plate type Fuel Assembly**

The fuel material used for plate type fuel assemblies is  $U_3Si_2$  dispersed in Aluminium matrix. The material has high uranium density in fuel meat, good compatibility with aluminium matrix, high thermal conductivity, excellent blister resistance threshold, stable swelling behaviour under irradiation, high fission gas retaining capability, low release of volatile fission products and good fabricability.  $U_3Si_2$  is synthesized by using powder processing route with uranium metal powder and silicon powder as the starting materials. Aluminium alloy of nuclear grade is chosen as cladding material. The upgraded Apsara core is loaded with two types of fuel assemblies comprising of standard fuel assemblies and control fuel assemblies. The general

E

ЕТ

arrangement drawing of the standard and control fuel assemblies are shown in Fig. 1.

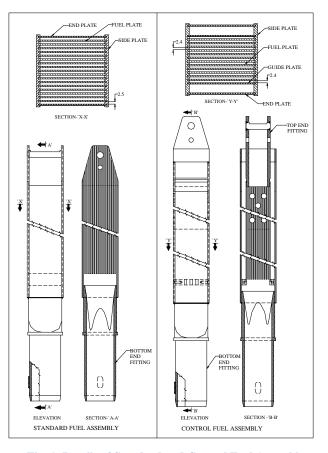


Fig. 1: Details of Standard and Control Fuel Assembly

Founder's Day Special Issue October 2016

77







### Growth of Single Crystal Scintillators and Development of Nuclear Radiation Detectors

Mohit Tyagi

**Technical Physics Division** 

### Dr. Mohit Tyagi is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

#### Abstract

Single crystal scintillators for nuclear radiation detection were successfully grown from the melt using the Czochralski technique. Various growth parameters were optimized to grow the crack-free single crystals. A systematic approach was adopted to investigate the effect of growth ambient and co-doping on electronic, optical and scintillation properties of the grown crystals. The defect structure of the crystals was studied and altered to obtain improved performance characteristics. The single crystal scintillators having improved performances were coupled to a PMT, photodiodes or SiPM to develop nuclear radiation detector for various applications. A portable gamma-ray spectrometer that could be powered from a USB port of a laptop was also developed by employing single crystal scintillators.

Keywords: Crystal growth, Scintillator, Radiation Detector.

#### Introduction

Single crystals are vital parts of the modern technology due to the combination of unique properties. They have various applications in industries including electronic, optical, medicals, sensor, nuclear etc. The single crystals of scintillating materials are very useful for radiation detectors also which have several applications, including high-energy physics, medical imaging, geological exploration, nuclear industry and national security etc. [1, 2]. Although there are many conventional scintillators which are being used in many devices, but due to increasing applications, there is continuous demand and interest in the research for new scintillators with improved performances. The characteristics of an ideal scintillator includes high density, high light yield, fast decay time, high radiation hardness, chemical and mechanical resistance, low afterglow, matching emission wavelength with photo-sensors etc. Since there is no ultimate scintillator, that fulfills all these criteria, a number of materials have been tried based on different applications. Based on the luminescence generating sites, scintillators are mainly divided in two categories; intrinsic and extrinsic. Single crystals of PbWO<sub>4</sub>, BaF<sub>2</sub> and Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub>(BGO) are well known intrinsic scintillators while CsI(Tl) and Nai(Tl) are commonly used extrinsic scintillators. In recent years, Ce doped single crystals have attracted the attention of many researchers due to their excellent combination of light output and decay time [3, 4]. Oxide crystals with a garnet structure have proven to be promising host materials due to their high density, broad transmission range and easy doping with rare earth elements like Ce [5, 6]. Recently, Kamada et al. have done

LET

extensive combinatorial band gap engineering for multi component garnet compounds having chemical formula of A<sub>3</sub>(B,Al)<sub>5</sub>O<sub>12</sub> (where A: Gd, Y, or Lu and B: Ga, La, or It was found that Ce Sc) [7, 8]. doped Gd<sub>3</sub>Ga<sub>3</sub>Al<sub>2</sub>O<sub>12</sub>(GGAG) crystals have promising scintillation properties [9]. These crystals have a high density of 6.7 g/cm<sup>3</sup>, high scintillation light output (LO) of over 60,000 photons/MeV and a fast decay time of 55 ns [10].

Various single crystal scintillators have been grown in Crystal Technology Section, Technical Physics Division. However, in this communication, we have described the growth of advance scintillator of GGAG:Ce single crystals and development of a USB based portable gamma-ray spectrometer based on these crystals.

#### **Experimental**

#### Single Crystal Growth

Founder's Day Special Issue October 2016

The nuclear radiation detectors require high optical quality single crystals of different dimensions. The single crystals can be grown either from solution, melt or vapor phases, depending upon material properties and dimensional requirements. Single crystals of Ce doped GGAG, having high melting temperature of 1850°C, were grown from the melt using the Czochralski technique in an automatic diameter controlled crystal puller system (Model: Oxypuller, Cyberstar). The starting charge was prepared using solid state sintering of constituent oxides Gd<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub>, Ga<sub>2</sub>O<sub>3</sub> in their stoichiometric molar ratio with 0.2 at% CeO<sub>2</sub> doping. As-prepared material in the form of pellets was loaded in a suitable crucible and heated to 50°C above its melting point to homogenize the melt. A single crystal seed (not oriented in a specific direction)









# Recovery of uranium from Tummalapalle leach solution using novel precipitating method

#### Sujoy Biswas

Uranium Extraction Division

#### Dr. Sujoy Biswas is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

#### Abstract

The recovery of uranium from carbonate ore leach solution was studied using novel precipitation method. The uranium ore leached using  $Na_2CO_3/NaHCO_3$  was recovered as magnesium di uranate (MDU) with excess NaOH in presence of trace amount of  $Mg^{2+}$ . The overall uranium recovery of the process was 97% with improved particle size (~57 µm). Based on the experimental findings, a process flow-sheet has been developed for the recovery of uranium from carbonate ore leach solution with a uranium concentration of < 1g/L.

Key Words: Uranium, Carbonate ore, MDU, Tummalapalle, Precipitation

#### Introduction

Nowadays nuclear power becomes an important resource of energy worldwide due to its several advantages over conventional energy sources [1,2]. In the development Nuclear Energy Programme, the uranium plays an important role as it is used as a primary nuclear fuel in nuclear reactor [2,3]. The sustainability of Nuclear Power Program depends on the availability of natural uranium in the front-end of nuclear fuel cycle along with established nuclear technology. In a country like India, only 3% of the total energy comes from the nuclear sources [4]. Considering shortage in the availability of fossil fuels and other resources of energy, the nuclear power may play as a big contributor in the total energy production of the country in near future. To meet such nuclear energy requirement, there is a need for constant supply of natural uranium which will come from various resources including lean sources like carbonate ore situated at Tummalapalle, India [5, 6]. The Tummalapalle has a vast deposit of uranium as carbonate ore in the host rock of alkali (dolomite and calcite) containing 0.048 % U<sub>3</sub>O<sub>8</sub> and hence considered as lean resource of uranium [7-8]. The chemical composition of Tummalapalle ore was given in Table 1 [8, 9]. The recovery of uranium from such lean source becomes a challenge to the scientist and technologist working in the field of separation science and technology due to non availability of suitable recovery technique [5]. Generally, leaching of uranium from carbonate ore, Tummalapalle was carried out using alkali (Na2CO3/NaHCO3) leaching process in an autoclave at high temperature and pressure [7-10]. The

#### Table 1: Mineralogical composition of the Tummalapalle uranium ore sample

uranium ore sample	
Mineral	% Weight
Carbonates	83.2
Quartz + feldspar	11.3
Apatite	4.3
Pyrite	0.47
Chalcopyrite	0.05
Galena	Traces
Magnetite	0.15
Ilmenite + leucoxene	0.25
Iron hydroxide (goethite)	0.27
Pitchblende in association with pyrite	0.1
Total	100.0

uranium from leach liquor was precipitated as sodium di uranate (SDU) in presence of excess NaOH at ~ 50-55 °C. The chemical reactions involving leaching and precipitation of uranium from Tummalapalle ore are given by the following chemical reactions:

$$UO_2 + \frac{1}{2}O_2 \to UO_3 \tag{1}$$

$$UO_3 + 3Na_2CO_3 + H_2O \rightarrow Na_4UO_2(CO_3)_3 + NaOH$$
(2)

$$NaHCO_3 + NaOH \to Na_2CO_3 + H_2O \tag{3}$$







### Design of a Permanent Magnet Based Focusing Lens for a Miniature Klystron

Kumud Singh, Janvin Itteera and Sanjay Malhotra ACnD

### Smt. Kumud Singh is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

**Abstract**—Application of Permanent magnet technology to high frequency miniature klystron tubes to be utilized for space applications improves the efficiency and operational reliability of these tubes. But nevertheless the task of generating magnetic focusing forces to eliminate beam divergence once the beam crosses the electrostatic focusing regime and enters the drift region in the RF section of the tube throws several challenges. Building a high quality magnet focusing lens to meet beam optics requirement in cathode gun and RF interaction region is considered tobe one of the critical issues for these high frequency miniature tubes. In this paper, electromagnetic design and particle trajectory studies in combined electric and magnetic fieldfor optimizing the magnetic circuit using 3D Finite element method (FEM) analysis software is presented. A rectangular configuration of magnet was constructed to accommodate apertures for input and output waveguide sectionsand facilitate coupling of electromagnetic fields into input klystron cavity and out from output klystron cavity through coupling loops. Prototype lenses have been built and have been tested after integration with the klystron tube. We discuss the design requirements and challenges, and the results from beam transmission of the prototype lens.

Keywords- Beam transmission, Brillouin, confined flow, Miniature Klystron.

#### INTRODUCTION

One of the major challenges associated with beam focusing of high intensity space charged electron beam in high frequency miniature klystron tubes is achieving high field intensity in constrained longitudinal and transverse dimensions. Achieving high beam filling factor in millimetre scale drift tube aperture and shielding requirements for reducing beam boundary oscillations in cathode gun region further aggravates the design complexity.

Beam boundary oscillations in a linear beam tube are governed by Busch's theorem and Gauss's law [1]. At the beam boundary where r = b, the electric field, Er(b), is given as

$$Er(b) = \frac{\eta I}{2\pi\mu_0\varepsilon_0} \tag{1}$$

The relation given below represents the motion of the electrons on the outer edge of the beam under the influence of electric and magnetic fields:

$$b^{"} + b\omega_{L}^{2} \left[ 1 - \left( \frac{B_{C}}{B} \frac{b_{c}^{2}}{b^{2}} \right)^{2} \right] - \frac{\eta I}{2 \Pi i \mu_{0} \varepsilon_{0}} = 0$$
(2)

lfwelet,

1

$$a = \frac{1}{B} \left( \frac{2 I}{\eta \Pi \mu_0 \varepsilon_0} \right)^2$$

Using the equilibrium radius beam equation can be written as,

$$\frac{b^{\prime\prime}}{a} + \omega_L^2 \left[ \frac{b}{a} \left( 1 - \left( \frac{B_C}{B} \frac{b_c^2}{b^2} \right)^2 \right) - \frac{a}{b} \right] = 0$$
(4)

(3)

where,

Table 1: Symbol Notations for equation (1), (2), (3) and (4)

Symbol	Quantity
$\omega_L$	Larmor frequency, = $\mathbb{P}B/2$
Ι	Beam current
$B_C$	Flux density at cathode position
В	Actual Flux density = $mB_B$ for confined flow
m	Confinement factor
$B_B$	Brillouin Flux density
$\mu_0$	Free space permeability
$\varepsilon_0$	Free space permittivity
η	Charge to mass ratio; $\bullet = e/m$
а	equilibrium radius for a Brillouin Beam







### Design of a Permanent Magnet Based Focusing Lens for a Miniature Klystron

Kumud Singh, Janvin Itteera and Sanjay Malhotra ACnD

### Smt. Kumud Singh is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

**Abstract**—Application of Permanent magnet technology to high frequency miniature klystron tubes to be utilized for space applications improves the efficiency and operational reliability of these tubes. But nevertheless the task of generating magnetic focusing forces to eliminate beam divergence once the beam crosses the electrostatic focusing regime and enters the drift region in the RF section of the tube throws several challenges. Building a high quality magnet focusing lens to meet beam optics requirement in cathode gun and RF interaction region is considered tobe one of the critical issues for these high frequency miniature tubes. In this paper, electromagnetic design and particle trajectory studies in combined electric and magnetic fieldfor optimizing the magnetic circuit using 3D Finite element method (FEM) analysis software is presented. A rectangular configuration of magnet was constructed to accommodate apertures for input and output waveguide sectionsand facilitate coupling of electromagnetic fields into input klystron cavity and out from output klystron cavity through coupling loops. Prototype lenses have been built and have been tested after integration with the klystron tube. We discuss the design requirements and challenges, and the results from beam transmission of the prototype lens.

Keywords- Beam transmission, Brillouin, confined flow, Miniature Klystron.

#### INTRODUCTION

One of the major challenges associated with beam focusing of high intensity space charged electron beam in high frequency miniature klystron tubes is achieving high field intensity in constrained longitudinal and transverse dimensions. Achieving high beam filling factor in millimetre scale drift tube aperture and shielding requirements for reducing beam boundary oscillations in cathode gun region further aggravates the design complexity.

Beam boundary oscillations in a linear beam tube are governed by Busch's theorem and Gauss's law [1]. At the beam boundary where r = b, the electric field, Er(b), is given as

$$Er(b) = \frac{\eta I}{2\pi\mu_0\varepsilon_0} \tag{1}$$

The relation given below represents the motion of the electrons on the outer edge of the beam under the influence of electric and magnetic fields:

$$b^{"} + b\omega_{L}^{2} \left[ 1 - \left( \frac{B_{C}}{B} \frac{b_{c}^{2}}{b^{2}} \right)^{2} \right] - \frac{\eta I}{2 \Pi i \mu_{0} \varepsilon_{0}} = 0$$
(2)

lfwelet,

$$a = \frac{1}{B} \left( \frac{2 I}{\eta \Pi \mu_0 \varepsilon_0} \right)^2$$

Using the equilibrium radius beam equation can be written as,

$$\frac{b^{"}}{a} + \omega_L^2 \left[ \frac{b}{a} \left( 1 - \left( \frac{B_C}{B} \frac{b_c^2}{b^2} \right)^2 \right) - \frac{a}{b} \right] = 0$$
(4)

(3)

where,

Table 1: Symbol Notations for equation (1), (2), (3) and (4)

Symbol	Quantity
$\omega_L$	Larmor frequency, = $\mathbb{P}B/2$
Ι	Beam current
$B_C$	Flux density at cathode position
В	Actual Flux density = $mB_B$ for confined flow
m	Confinement factor
$B_B$	Brillouin Flux density
$\mu_0$	Free space permeability
$\varepsilon_0$	Free space permittivity
η	Charge to mass ratio; $\bullet = e/m$
а	equilibrium radius for a Brillouin Beam







### Augmented reality assisted telerobotics system for autonomous pick and place operations

Pritam Prakash Shete, and Surojit Kumar Bose

**Computer Division** 

Abhishek Jaju, Prabir Pal

Division of Remote Handling & Robotics

### Shri Pritam Prakash Shete is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

#### Abstract

Robots are deployed to perform repeatable and hazardous tasks because of their inherent reliability, consistency, safety, and accuracy. In this article, we discuss the design and development of a stereo vision guided telerobotics system for autonomous pick and place operations. We describe system architecture, implementation details and overall system competency. We utilize a pair of IP cameras, a 3D enabled monitor and NVIDIA 3D Vision Pro system for developing our stereoscopic vision system. The robot is controlled autonomously by detecting a pre-specified marker attached on objects, then using stereo triangulation to find object's location with respect to the robot using the stereo vision system. We also carried out real-time online stereo rectification of stereo image stream to provide a comfortable stereoscopic view to the operator. We have also developed an augmented reality interface through which an operator can command the robot to any point in the workspace using stereo vision, and also plan robots approach path by avoiding obstacles. We have assessed accuracy and repeatability of the system within the robot working volume. It is highly accurate with errors less than 2mm along X and Y directions, and below 5mm along Z direction which is a viewing direction.

#### Introduction

Robots are reliable, consistent, safe, and accurate. They are deployed to replace human operations in hazardous environments. Efficient teleoperation of robot essentially needs information about its work environment. Image sensors are widely used for capturing visual information. Typically the robot is manipulated using one or more monoscopic cameras. A mono vision using a single image sensor provides only 2D image. A stereo vision is more effective as a disparity between a left and a right view gives essential depth information.

Stereoscopic system has become an integral part of telerobotics, industrial automation, and 3D reconstruction. A typical stereo vision system consists of image acquisition, camera calibration, stereo calibration, stereo rectification and finally stereo matching for 3D coordinates computation.

Computer Division and Division of Remote Handling and Robotics, BARC have designed and developed a stereo vision guided telerobotics system [1] [3] for autonomous pick and place operations. In this article, we will discuss the system architecture, challenges faced and solution strategy adopted for developing this system.

#### System Architecture

In this section, we discuss the system architecture of the telerobotics system, which operates at two different sites namely a manipulator site and a remote operation site respectively. It consists of hardware as well as software

TE

LET

components. Fig. 1 shows the architecture of the Telepresence system using the stereoscopic vision.

#### Robot

A KUKA KR-6 industrial robot installed in the DRHR is remotely manipulated from the Computer Division.

#### Stereo camera

A stereo camera is constructed by using a Dinion HD 1080p Day and Night IP camera pair. It provides individually configurable image streams in MJPG and H-264 formats using the real time streaming protocol.

#### PoE switch

IP cameras are powered using a power over Ethernet i.e. PoE protocol enabled switch to provide both data and power connections within a single cable.

#### Workstation

The workstation has an Intel Core i3-3220 with 3.30 GHz processor and 4GB DDR3 RAM installed. It contains two cores and four threads with SSE-4.x instruction set extensions.

#### Graphics card

The CUDA enabled NVIDIA Quadro 4000 professional grade graphics card with 2GB GDDR5 memory is employed for the stereoscopic vision, which has 2.0 compute capability and 256 parallel CUDA cores for GPU computation.

Founder's Day Special Issue October 2016







### An Insight in to the Effect of Ternary Alloying on Hydrogen Isotope Storage Properties of ZrCo based Alloys

Ram Avtar Jat

Product Development Division

### Shri Ram Avtar Jat is the recipient of the DAE Young Applied Scientist / Technologist Award for the year 2014

#### Abstract

An effort was made to improve the hydrogen isotope storage properties of ZrCo alloy by ternary alloying with suitable transition metal element. Ternary alloys  $Zr_{1-x}Ti_xCo$  and  $ZrCo_{1-x}M_x$  (M= Ni and Fe) were prepared and characterized. The hydrogen isotope storage behavior of Zr-Co-M ternary alloys was systematically investigated by employing different experimental techniques. The extensive work carried out enabled us to identify a suitable ternary substituent  $Zr_{0.8}Ti_{0.2}Co$  for effective storage, supply and recovery of hydrogen isotopes.

#### Introduction

Solid state storage of tritium in the form of metal tritide is considered as the most safest method in fusion technology and hence is being adapted in International Thermonuclear Experimental Reactor (ITER) program [1]. Conventionally, uranium is used for storage, supply and recovery of hydrogen isotopes. Despite favorable storage properties, uranium has the drawbacks of restrictive use due to its radioactive and pyrophoric nature. Hence, the development of alternate tritium storage materials, which can substitute uranium, is a mainstream of research today among the fusion science community. The intermetallic compound ZrCo has been investigated largely as a suitable candidate material for storage, supply and recovery of hydrogen isotopes in various tritium handling facilities like ITER because of its non-radioactive nature, non-pyrophoricity at room temperature and tritium storage properties similar to uranium. ZrCo has a favorable hydrogen isotope (Q =<sup>1</sup>H, <sup>2</sup>H or <sup>3</sup>H) absorption capacity with maximum stoichiometry of ZrCoQ<sub>3</sub>. However, ZrCo is prone to hydrogen induced disproportionation upon repeated hydriding-dehydriding cycles [2]. The hydrogen induced disproportionation reaction can be written as:

$$2ZrCoQ_x \rightarrow ZrQ_2 + ZrCo_2 + (x-1)Q_2 \tag{1}$$

Disproportionation results in the formation of a hydrogen non-absorbing  $ZrCo_2$  and a very stable  $ZrQ_2$  phases. Since, decomposition of  $ZrQ_2$  requires much higher temperature (> 973 K) than that of  $ZrCoQ_3$ , a significant amount of hydrogen gets trapped within the storage material. This results in reduction of hydrogen storage capacity of ZrCo, which is not desirable for its use in tritium handling facilities. Konishi et al. [3] have reported that the extent of disproportionation can be

E

ЕТ

suppressed by decreasing the dehydriding temperature. However, decreasing the dehydriding temperature lowers the hydrogen equilibrium pressure of  $ZrCo-H_2$ system due to which the required delivery pressure of 100 kPa of hydrogen couldn't be achieved. Hence, the alternative choice is to alloy ZrCo with an element M which can elevate the desorption equilibrium hydrogen pressure compared to the parent compound  $ZrCoQ_3$ , at a particular temperature, thereby preventing the extent of disproportionation.

This has led to the onset of consolidated efforts to find a suitable ternary alloy for storage, supply and recovery of hydrogen isotopes. In this context, a systematic approach has been applied to investigate the effect of ternary alloying on the hydrogen isotope storage properties of ZrCo alloy. Ternary alloys  $Zr_{1-x}Ti_xCo$  and  $ZrCo_{1-x}M_x$ (M= Ni and Fe) were prepared and characterized. The hydrogen isotope storage behavior of Zr-Co-M ternary alloys was systematically investigated by employing Sieverts' Hydrogen apparatus. induced disproportionation behavior of Zr-Co-M ternary alloys was studied by isothermal studies. The phenomenon of hydrogen induced disproportionation in different Zr-Co-M ternary alloys was further investigated by employing neutron powder diffraction (NPD) technique.

#### Experimental

Founder's Day Special Issue October 2016

Zr-Co-M based ternary alloys of compositions  $ZrCo_{1-x}Ni_x$  (x = 0.0, 0.1, 0.2 and 0.3),  $ZrCo_{0.9}Fe_{0.1}$  and  $Zr_{1-x}Ti_xCo$  (x = 0.1, 0.2 and 0.3) were prepared by arcmelting method and characterized by different techniques like XRD, SEM, EDS and Elemental mapping. Alloy samples were activated by using an indigenously designed, developed and fabricated Sievert's type volumetric apparatus (Fig. 1).







### Computational Modeling of Novel Materials for Hydrogen Energy Related Applications

#### K. Srinivasu

Theoretical Chemistry Section

Dr. K. Srinivasu is the recipient of the

#### DAE Young Scientist Award for the year 2014

#### Abstract

Hydrogen is considered to be one of the best alternative, renewable and carbon-free energy carriers. However, its generation, storage and utilization are posing major challenges. Through *ab initio* investigations, we proposed s-triazine based graphitic carbon nitride as a possible metal-free photocatalyst for solar water splitting. We have also shown that the electronic band structure of graphitic carbon nitrides can be tuned through doping with non-metal elements as well as by metal decoration. The detailed mechanism of water splitting reaction on the photocatalyst surface has been studied and the associated overpotentials for each half-cell reactions were measured. For effective storage of hydrogen in molecular form, varieties of light metal decorated molecules and materials were modelled by using some of the elegant chemical concepts such as the electrostatic interactions, curvature of the carbon nanomaterials, aromaticity etc.

#### Introduction:

Energy is considered to be the key factor in deciding the social and economic development of any country. Worldwide, especially in the developing countries, energy sector has been given prime importance in view of rapidly increasing energy demands due to the day by day improved standards of living along with the industrial revolutions.<sup>1</sup> Gradually depleting fossil fuel resources and their adverse effects on environment are providing the motivation to search for a clean and sustainable energy system. Hydrogen has been accepted worldwide to be one of the best possible alternative renewable energy carriers.<sup>2-4</sup> Though hydrogen is having very high energy density per unit mass, its energy density per unit volume is very less. At ambient conditions of 25 °C temperature and 1 bar pressure, 1 kg of hydrogen requires a volume of  $\sim 11 \text{ m}^3$ . Hence, developing effective hydrogen storage technology for transportation applications is highly challenging and one of the key factors in moving towards the hydrogen economy.

Though hydrogen is the most abundant element on the earth. less than 1% of it is present as the molecular hydrogen and majority of it is in chemically bonded state like water and hydrocarbons. Hence the generation of molecular hydrogen from the other forms requires breaking those molecules which is energetically intensive. The overall water splitting reaction is thermodynamically an uphill reaction with a positive free energy change of  $\Delta G = +237.12$  kj/mol. The hydrogen production from water can be carried out through different means such as thermal, electrical, photonic and biochemical methods. The primary energy needed for different methods to produce hydrogen can be obtained from different green energy sources like thermal and electrical energy from solar, wind,

LET

geothermal, tidal, wave, ocean thermal, hydro, biomass, nuclear energy, etc.<sup>5</sup> An ideal way for achieving sustainable energy is through the use of solar energy to convert water into hydrogen and oxygen. Solar water splitting using semiconductor photocatalyst has attracted immense research interest after the original work by Honda and Fujishima<sup>6</sup> using a semiconductor anode such as  $TiO_2$  and a metal cathode like platinum. To be a good photocatalyst for water splitting, the materials should satisfy several requirements, viz. (i) suitable bandgap for efficient absorption of solar visible-light (ii) appropriate band edge potentials for overall water splitting (iii) ability to separate photo generated electronhole pairs (iv) stability towards chemical and photo corrosion in aqueous environments etc.<sup>7</sup> For a photocatalyst to complete the overall water splitting, its conduction band bottom should be more negative than the proton reduction potential (0 V vs. NHE) and the top of the valence band should be more positive than the oxidation potential of water (+1.23 V vs. NHE). Apart from the conventional materials such as transition metal oxides, nitrides, oxinitrides etc, polymeric semiconductor materials like graphitic carbon nitride  $(g-C_3N_4)$  materials are found to have great potential as photocatalyst. In a recent study, Wang et al.<sup>8</sup> have reported the melem-based polymeric graphitic carbon nitrides (g-C<sub>3</sub>N<sub>4</sub>) as a metal-free photocatalyst for visible-light driven hydrogen production through water splitting.  $g-C_3N_4$ , with appropriate band structure for overall water splitting along with it high thermal and chemical stability gained lot of interest in designing a metal-free catalyst. However, this material is reported to have a very poor quantum yield of ~0.1% which is attributed to the high recombination rate of electron-hole pairs generated. To overcome this problem, many methods are proposed to tune the properties viz. doping, decoration, introducing porosity, making metal

Founder's Day Special Issue October 2016

119







### Design and Development of Precision Scientific Instruments and Parallel Manipulators

Ramnik Singh, S.P. Srivastava, V.K. Mishra, P.I. Hadagali and K.N. Karn, Centre for Design and Manufacture

> Mala N.Rao, Saibal Basu Solid State Physics Division

Shri Sandeep Kumar Singh is the recipient of the DAE Young Engineer Award

for the year 2014

#### Introduction

Precision instruments play a vital role in many areas of scientific and engineering applications. The quality of these instruments predicts its performance. Some important quality measures of the instruments are accuracy, precision and reliability. These high precision instruments are designed and manufactured with high end softwares and manufacturing facilities. Subsequently they are tested for functional performance to qualify them.

#### Neutron Focussing Mechanism for SSPD, Dhruva

It is a PC controlled neutron focusing mechanism[1] known as double curvature monochromator[2] which consists of a 3x5 array of crystals mounted on links provided in the vertical and horizontal direction. The cam and follower based mechanism has been used for designing the instrument. The links are connected to followers at each end which move in the helical groove of the cam for certain rotation of the camshaft. Further the links rotate about pivot points to get the required tilt for given radius of curvature. In the given setup the vertical and horizontal focussing are independent.

#### Specifications of the instrument

- 1) Crystal-size: 35mmx25mmx10mm.
- 2) Horizontal focussing: 500mm to .
- 3) Vertical focussing: 5 to -1 degrees
- 4) Repeatability is 0.1 deg.

ЕТ

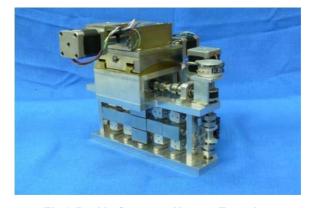


Fig.1: Double Curvature Neutron Focussing Monochromator

#### Three row Si(113) Crystal Bender(SSPD)

Founder's Day Special Issue October 2016

A special type of bender[3] has been designed to bend three nos. of Si(113) crystals arranged in a column simultaneously to focus neutron beam from neutron guide of size 100mm x 25mm to 4mm x 4mm(square). It is to be used as a monochromator for polarised neutron reflectometer in Dhruva Reactor Hall. It comprises of 3 asymmetrically cut Si(113) crystals of size (200mm x 45mm x 4mm(thk)). The crystals are required to be bent precisely in the horizontal plane from infinte radius value to 10-15m. This is being achieved by help of a differential screw and lever mechanism. The vertical focussing is obtained by the inherent nature of the crystals. The double curvature focussing provides a defined range of wavelengths of neutron beam at the sample from the incident neutron beam. The main application of this instrument is to carry out surface film studies.







### Design and Development of Precision Scientific Instruments and Parallel Manipulators

Ramnik Singh, S.P. Srivastava, V.K. Mishra, P.I. Hadagali and K.N. Karn, Centre for Design and Manufacture

> Mala N.Rao, Saibal Basu Solid State Physics Division

Shri Sandeep Kumar Singh is the recipient of the DAE Young Engineer Award

for the year 2014

#### Introduction

Precision instruments play a vital role in many areas of scientific and engineering applications. The quality of these instruments predicts its performance. Some important quality measures of the instruments are accuracy, precision and reliability. These high precision instruments are designed and manufactured with high end softwares and manufacturing facilities. Subsequently they are tested for functional performance to qualify them.

#### Neutron Focussing Mechanism for SSPD, Dhruva

It is a PC controlled neutron focusing mechanism[1] known as double curvature monochromator[2] which consists of a 3x5 array of crystals mounted on links provided in the vertical and horizontal direction. The cam and follower based mechanism has been used for designing the instrument. The links are connected to followers at each end which move in the helical groove of the cam for certain rotation of the camshaft. Further the links rotate about pivot points to get the required tilt for given radius of curvature. In the given setup the vertical and horizontal focussing are independent.

#### Specifications of the instrument

- 1) Crystal-size: 35mmx25mmx10mm.
- 2) Horizontal focussing: 500mm to .
- 3) Vertical focussing: 5 to -1 degrees
- 4) Repeatability is 0.1 deg.

ЕТ



Fig.1: Double Curvature Neutron Focussing Monochromator

#### Three row Si(113) Crystal Bender(SSPD)

Founder's Day Special Issue October 2016

A special type of bender[3] has been designed to bend three nos. of Si(113) crystals arranged in a column simultaneously to focus neutron beam from neutron guide of size 100mm x 25mm to 4mm x 4mm(square). It is to be used as a monochromator for polarised neutron reflectometer in Dhruva Reactor Hall. It comprises of 3 asymmetrically cut Si(113) crystals of size (200mm x 45mm x 4mm(thk)). The crystals are required to be bent precisely in the horizontal plane from infinte radius value to 10-15m. This is being achieved by help of a differential screw and lever mechanism. The vertical focussing is obtained by the inherent nature of the crystals. The double curvature focussing provides a defined range of wavelengths of neutron beam at the sample from the incident neutron beam. The main application of this instrument is to carry out surface film studies.

	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALIPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	ALIPM0787E		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	АQСРК5447К	Assistant professor	GOI
	Dr. Amit Kunwar	2016	АQСРК5447К	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral Fellowship in Respiratory Medicine"
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA "Archives of Biochemistry and Biophysics Young Investigator Award" from SFRR,
17-305	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	India DAE-Scientific & Technical Excellence
State of the	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	Award-2016
A CARE AND	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Transfirme (AL, G, A, C, Chamical Sciences) an Academic (BARC), Chamical Sciences an Academic (BARC), Chamical Sciences and Academic (BARC), Chamical Sciences and Academic (BARC), Chamical Sciences and Academic (BARC), Chamical Sciences and Academic (BARC), Chamical Sciences

Dr. Virendra Kumar	2016		SO/G	Dr. Tarun Dutta Memroral Award-2016
Rahul Tripathi	2014	ADQPT0065K	Scientific Officer G	DAE Scientific & Technical Excellence award
	2015			DAE-Science Research Council
Dr. Subir Kumar Ghosh	2015	ABXPG9302K	Associate Professor	Outstanding Investigator Award , DAE
Dr. Subir Kumar Ghosh	2017		Associate Professor	DAE-Group Achievement Award, DAE
5 N. 200 (00) (442) 2				N M Sampat Award, Electrochemical
Dr. Subir Kumar Ghosh	2019 Fellow of		Professor	Society of India, IISC Bangalore
	Maharashtra			
Dr. Ratikanta Mishra	Academy of Sciences			Maharashtra Academy of Sciences
Sharmistha Dutta	Sciences			SERB Women Excellence Research Grant
Choudhury	2013-2016	AMAPD9408P	Assistant Professor	Award
Sharmistha Dutta				Membership of Indian National Young
Choudhury	2016	AMAPD9408P	Assistant Professor	Academy of Science (INYAS)
				'Associate Editor' of the Editorial Board
Dr.(Mrs.) Jyotirmayee				of Supramolecular Chemistry, a specialty
Mohanty	2019			of Frontiers in Chemistry.
Dr.(Mrs.) Jyotirmayee				'Bronze Medal-2017' by Chemical
Mohanty	2017			Research Society of India (CRSI)
Dr.(Mrs.) Jyotirmayee				AvH Fellowship for Experienced
Mohanty	2013-2016			Researchers
Dr.(Mrs.) Jyotirmayee		73		Fellow of National Academy of Sciences
Dr.(Mrs.) Jyotirmayee Mohanty	2014			Fellow of National Academy of Sciences (F.N.A.Sc.)
and the second				Dean Arten
opy.				108d

emical cRSI) nced y of Sciences and a state of the st

and the second second

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)
Dr. (Mrs.) Mrinal Rajesh	n			Member, National Academy of Science
Pai	2015	ALOPP9053B		(NASI)
				Young Associate of the Maharashtra
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences
				Dr. Tarun Datta Memorial Award from
				the Indian Association of Nuclear
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)
				Dr. P. N. Pathak Memorial Award from
				the Association of Separation Scientists
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India
				Young Scientist Award for the year 2014
				from the Department of Atomic Energy,
Dr. Rubel Chakravarty	2015	AGPPC2127D		Young Scientist Award for the year 2014 from the Department of Atomic Energy, Government of India Assistant Professor Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium motal."
Dr. K. C. Barick	2016	NA		Assistant Professor
Dr. K. C. Barick	2017	NA		Assistant Professor
				Homi Bhabha Group Achievement
				Award for "Production and supply of
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	high purity grade lithium metal "
Washer in				Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium metal "
They will desar				Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"
Sola (Sola House				Excellency Award for "Computational
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"
				Ho M A
				14

	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
	Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
	Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA GROUP ACHIEVMENT AWARD DEPT OF
	Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	ATOMIC ENERGY GOVT OF INDIA Young Associate of Maharashtra
	Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Academy of Sciences
	Dr. Ashis Kumar Satpati Dr. S.N. Jha	2019 2016	AYHPS0448K NA	Assistant Professor SO/H	Member of NASI DAE Group Achievement Award DAE Young Scientist award for Excellence
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	in Science, Engineering and Technology for the year 2015. INSA fellowship for International
	Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Bilateral Exchange Program 2015 with Poland Academy of Science.
	Dr. Salil Varma	2010		Assistant Professor	DAE Group Achievement Award
	Dr. Salil Varma	2012		Assistant Professor	DAE Special Contributions Award
	Dr. Salil Varma	2014		Assistant Professor	
nog Maria	Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
NGA.	Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	
	Andreas and the second and the secon	*			Academy of sciences
				,	ST. 2017 9 Starter (BARC). Str. Webstreen (BARC). an Academic (BARC). an Academic (Homi Bhabha Na an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC). an Academic (BARC).

Name of full time teach Chemical Sciences	• Year of Award	PAN	Designation	Name of the award, fellowship, received from Goverr Link for the
Dr. A. K. Tyagi	2017	AADPT5519N	Senior Professor	Metallurgist of the year, Ministry of steel, GOI
Dr. S. N. Achary				MAHSc
Dr. G. Kedarnath	2013	AEQPG1382R	Scientific Officer (F)	Scientific & Technical Excellence of DAE- 2013
Dr. R. K. Vatsa	2013	AAGPY0445H	SO(H)	Bronze Medalof CRSI
				DAE Scientific & Technical Excellence
Dr. Shilpa N. Sawant	2016	AAVPT4103G	Associate Professor	Award
Dr. Prabhat Kumar				Department of Atomic Energy (DAE)
SIngh	2013	BFBPS0644R	Assistant Professor	Young Scientist Award
Dr. Prabhat Kumar				Indian Science Congress Association
Singh	2013	BFBPS0644R	Assistant Professor	(ISCA) Young Scientist Award
Dr. Prabhat Kumar				Selected as Member of Indian National
Singh	2017	BFBPS0644R	Assistant Professor	Young Academy of Sciences (INYAS-INSA)
Dr. Prabhat Kumar				Selected as Associate of Indian Academy
Singh	2017	BFBPS0644R	Assistant Professor	of Sciences (IASc), Bangalore
Dr. Prabhat Kumar				National Academy of Science, India
SIngh	2017	BFBPS0644R	Assistant Professor	(NASI) Young Scientist Award
Dr. Prabhat Kumar				Scientific Planet Society (SPS) Young
Singh	2018	BFBPS0644R	Assistant Professor	Scientist Award
Dr. Prabhat Kumar				Selected as Member, National Academy
Singh	2018	BFBPS0644R	Assistant Professor	of Science, India (NASI) – 2018 Selected as Young Associate, Maharashtra Academy of Science (MASc)
				Selected as Young Associate,
Dr. Prabhat Kumar	2010			Maharashtra Academy of Science (MASc)
Singh	2019	BFBPS0644R	Assistant Professor	2010
Chiranjib Majumder	2014	AAIPM3082A	SO/G	Science and Technical excellence award
	2014	AILINDUOLA	50/0	Science and recimical excellence award
a set as a worth of the second	9			St. Str. Andrew Mars Chemial's Munbal
in a setting	1			Dear an electronic and roman
				tr. sr. The tak D.

Dr. A. C. Bhasikuttan	2017	NA		Professor Suresh C Ameta Award for the year 2016, Indian Chemical Society. HomiBhabha Science & Technology
Dr. A. C. Bhasikuttan	2015	NA		Award-2014, Department of Atomic Energy, Govt. of India. Bronze Medal-2013, Chemical Research
Dr. A. C. Bhasikuttan	2014	NA		Society of India (CRSI)
Dr. (Mrs.) Mrinal Rajesh	n			Member, National Academy of Science
Pai	2015	ALOPP9053B		(NASI)
				Young Associate of the Maharashtra
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Academy of Sciences
				Dr. Tarun Datta Memorial Award from
				the Indian Association of Nuclear
Dr. Rubel Chakravarty	2018	AGPPC2127D	Assistant Professor	Chemists and Allied Scientists (IANCAS)
				Dr. P. N. Pathak Memorial Award from
				the Association of Separation Scientists
Dr. Rubel Chakravarty	2016	AGPPC2127D		and Technologists (ASSET), India
				Young Scientist Award for the year 2014
				from the Department of Atomic Energy,
Dr. Rubel Chakravarty	2015	AGPPC2127D		Young Scientist Award for the year 2014 from the Department of Atomic Energy, Government of India Assistant Professor Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium motal."
Dr. K. C. Barick	2016	NA		Assistant Professor
Dr. K. C. Barick	2017	NA		Assistant Professor
				Homi Bhabha Group Achievement
				Award for "Production and supply of
Prof. Sk. Musharaf Ali	2015	ACAPA5008N	SO/G	high purity grade lithium metal "
Washer in				Homi Bhabha Group Achievement Award for "Production and supply of high purity grade lithium metal "
They will desar				Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"
Sola (Sola House				Excellency Award for "Computational
Prof. Sk. Musharaf Ali	2016	ACAPA5008N	SO/G	Homi Bhabha Science and Technical Excellency Award for "Computational and Theoretical Chemistry"
				Ho M A
				14

Name of full time teachers receiving awards from state Year of level, national level, Award PAN D	Designation	Name of the award, fellowship, received from Government or recognised bodies
Engineering Sciences Amit Sinha 2017 AMNPS3181R F	Professor, HBNI	The PMAI Guiding Hand Award for Faculty by Powder Metallurgy Association of India (PMAI), 2017
Arijit Laik		Scientific & Technical excellence award of Department of Atomic Energy, Government of India
Arijit Laik		Excellence in Microscopy award 2010 by Electron Microscopy Society of India
2018 ABMPL5404E Dr Archana Sharma	Associate Professon Outstanding Scientist, Head, PP&EMD, Head,	r (EMSI) 2018
	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai -	Fellow of INAE (FNAE)
2017 ABAPS9045E Dr Archana Sharma	400 085 Outstanding Scientist, Head, PP&EMD, Head,	
2017 ABAPS9045E Dr Archana Sharma	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai 400 085 Outstanding Scientist, Head,	- Fellow of IEI (FIE)
2019 ABAPS9045E Dr Biswaranjan Diksł	PP&EMD, Head, PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai 400 085	· · · · · · · · · · · · · · · · · ·
2016 ACEPD6661L Dr Biswaranjan Diksł	Scientific Office	r (H) Publishing) Outstanding Reviewer Award 2018, from European Journal of Physics (IOP
2018 ACEPD6661L	Professor, HBN	r (H) Publishing)
Dr D Mandal 2016 AFIPM2119	Head Alkali Material & Met Division, BARC M Mumbai-85	tal Homi Bhabha Science & Technology Award 2016, Department of Atomic Energy, Govt. of India, 2017 ডাঁ. বিवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष रोक्षणिक (अभियांत्रको विषय-I) भा.प. अ.क. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr D Mandal		Professor, HBNI & Head Alkali Material & Metal	Group Achievement Award 2016, Excellence in Science & Technology
Dr D Mandal	2016 AFIPM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Award Scheme, Department of Atomic Energy, Govt. of India, 2017
Dr D Mandai	2016 AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Sisir Kumar Mitra Memorial Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2017 AFIPM2119M	Material & Metal Division, BARC	IIChE-NRC Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2018 AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Fellow, Indian Institute of Chemical Engineers
Dr D Mandal	2018 AFIPM2119M	Professor, HBNI &	Chemical Distinguished Speaker Award, by Indian Institute of Chemical Engineers
Dr. Dahanik Boy	2018 AFIPM2119M	Head Alkali Material & Metal Division, BARC Mumbai-85	Jubiliant Award 2018 for Outstanding Contribution in the area of Chemical Process Design by Indian Institute of Chemical Engineers.
Dr Debanik Roy			
		Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay,	Member of the Programme Advisory Committee (PAC) on "Civil & Mechanical Engineering" of DST-SERB (Science & Engineering Research Board, Dept. of
Dr Debanik Roy	2018 AAYPR8281Q	Mumbai - 400 085	Science & Technology, Govt. of India
	2019 AAYPR8281Q	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085	Member of Technical Advisory Committee (TAC) of Gujarat State Science & Technology Council (GUJCOST), Dept. of Science & Technology, Govt. of Gujarat डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.कॅ. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./H.B.N.I.
		0.0	<b>લ્પ.થા.ૡ૧.બાફ./ H.B.N.I</b> .

Dr D Mandal Dr D Mandal	2016	AFIPM2119M	Professor, HBNI & Head Alkali Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Group Achievement Award 2016, Excellence in Science & Technology Award Scheme, Department of Atomic Energy, Govt. of India, 2017
Dr D Mandal	2016	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Sisir Kumar Mitra Memorial Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2017	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	IIChE-NRC Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2018	AFIPM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	Fellow, Indian Institute of Chemical Engineers
Dr D Mandal	2018	AFIPM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	Chemical Distinguished Speaker Award, by Indian Institute of Chemical Engineers Jubiliant Award 2018 for Outstanding Contribution in the area of Chemical
Dr Debanik Roy	2018	AFIPM2119M	Division, BARC Mumbai-85	Process Design by Indian Institute of Chemical Engineers.
Dr Debanik Roy	2018	AAYPR8281Q	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085	Member of the Programme Advisory Committee (PAC) on "Civil & Mechanical Engineering" of DST-SERB (Science & Engineering Research Board, Dept. of Science & Technology, Govt. of India
	2019	AAYPR8281Q	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085	Member of Technical Advisory Committee (TAC) of Gujarat State Science & Technology Council (GUJCOST), Dept. of Science & Technology, Govt. of Gujarat डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.कॅ. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.ची.एन.आई./ H.B.N.I.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Amitabh Das	2018	AGIPD3453G	Professor	Fellow, Maharashtra Academy of Scinces	
B. K. Nayak	2008	ACNPN3607K	Senior Professor	Homi Bhabha Science & Technology Award	
S. Santra	2016	AFEPS1103D	Professor	Homi Bhabha Science & Technology Award	
S. Santra	2012	AFEPS1103D	Professor	DAE Scientific and Technical Excellence	
S. Santra	2012	AFEPS1103D	Professor	DAE-SRC Outstanding Investigator Award	
L. M. Pant	2011	AAHPP6695D	Professor	DAE Scientific and Technical Excellence	
L. M. Pant	2015	AAHPP6695D	Professor	DAE Group Achievement	
P. Shukla	2013	AHMPS8156L	Professor	DAE Scientific and Technical Excellence	
P. Shukla	2015	AHMPS8156L	Professor	DAE Group Achievement	
K. Mahata	2007	ABBPM5184D	Associate Professor	DAE Scientific and Technical Excellence	
K. Mahata	2016	ABBPM5184D	Associate Professor	DAE Young Scientist Award	
A. Shrivastava	2017	AHTPS6202L	Associate Professor	Homi Bhabha Science & Technology Award	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Scientific and Technical Excellence	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Group Achievement	
D. Dutta	2013	ADYPD8192K	Associate Professor	DAE Scientific and Technical Excellence	
D. Dutta	2013	ADYPD8192K	Associate Professor	Fellow, Maharashtra Academy of Scinces	
D. Dutta	2015	ADYPD8192K	Associate Professor	DAE Group Achievement	
V. Jha		ABXPJ5127D	Associate Professor	DAE Scientific and Technical Excellence	
Sudhir Ranjan Jain	1994	ABVPJ0519R	Professor	Indian National Science Academy Medal for Young Scientists	

للمعنى المعنى होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

			Physical Sciences		
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award	
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)	
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences	
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics	
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize	
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India	
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics	
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award	
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal	
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences	
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence	
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award	
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences	
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014	
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award	
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award	
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE	
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD	

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences								
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award				
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)				
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences				
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics				
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize				
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India				
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics				
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award				
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal				
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences				
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence				
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award				
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences				
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014				
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award				
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award				
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE				
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD				

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Physical Sciences							
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)			
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics			
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award			
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal			
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences			
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence			
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award			
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences			
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014			
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award			
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award			
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE			
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD			

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
D. Bhattacharyya	2010	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2013	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2014	AAYPB0112E	Professor	DAE Group Achievement Award	
D. Bhattacharyya	2015	AAYPB0112E	Professor	DAE Group Achievement Award	
S. N. Jha	2009	AEVPJ1778F	Professor	DAE Group Achievement Award	
S. N. Jha	2011	AEVPJ1778F	Professor	DAE Scientific and Technical Excellence Award	
S. N. Jha	2016	AEVPJ1778F	Professor	DAE Group Achievement Award	
S. N. Jha	2018	AEVPJ1778F	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2009	AAAPU2445B	Professor	DAE Scientific and Technical Excellence	
Dinesh V Udupa	2011	AAAPU2445B	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2011	AAAPU2445B	Professor	DAE Group Achievement Award	
Dinesh V Udupa	2015	AAAPU2445B	Professor	DAE Group Achievement Award	
S.G. Nakhate	2018	AABPN6714H	Professor	Arizona state University, USA Visiting Felllowship	
Aparna Shastri	2015	AWVPS5313D	Assistant professor	DAE Group Achievement	
T Jayasekharan	2010	ACJPJ9026A	Associate Professor	DAE Scientific and Technical Excellence	

Dif 28/7/2000

डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रौक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भामा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Amitabh Das	2018	AGIPD3453G	Professor	Fellow, Maharashtra Academy of Scinces	
B. K. Nayak	2008	ACNPN3607K	Senior Professor	Homi Bhabha Science & Technology Award	
S. Santra	2016	AFEPS1103D	Professor	Homi Bhabha Science & Technology Award	
S. Santra	2012	AFEPS1103D	Professor	DAE Scientific and Technical Excellence	
S. Santra	2012	AFEPS1103D	Professor	DAE-SRC Outstanding Investigator Award	
L. M. Pant	2011	AAHPP6695D	Professor	DAE Scientific and Technical Excellence	
L. M. Pant	2015	AAHPP6695D	Professor	DAE Group Achievement	
P. Shukla	2013	AHMPS8156L	Professor	DAE Scientific and Technical Excellence	
P. Shukla	2015	AHMPS8156L	Professor	DAE Group Achievement	
K. Mahata	2007	ABBPM5184D	Associate Professor	DAE Scientific and Technical Excellence	
K. Mahata	2016	ABBPM5184D	Associate Professor	DAE Young Scientist Award	
A. Shrivastava	2017	AHTPS6202L	Associate Professor	Homi Bhabha Science & Technology Award	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Scientific and Technical Excellence	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Group Achievement	
D. Dutta	2013	ADYPD8192K	Associate Professor	DAE Scientific and Technical Excellence	
D. Dutta	2013	ADYPD8192K	Associate Professor	Fellow, Maharashtra Academy of Scinces	
D. Dutta	2015	ADYPD8192K	Associate Professor	DAE Group Achievement	
V. Jha		ABXPJ5127D	Associate Professor	DAE Scientific and Technical Excellence	
Sudhir Ranjan Jain	1994	ABVPJ0519R	Professor	Indian National Science Academy Medal for Young Scientists	

للمعنى المعنى होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.





DEPARTMENT OF ATOMIC ENERGY

### **EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME**

# Group Achievement Award 2016

Recovery and purification of Helium-3 & Recovery of SNM (Pu) from metallurgical scrap using dry route

Bhabha Atomic Research Centre, Mumbai

Group Achievement Award for the year 2016 is conferred on Shri N. K. Shukla & Dr. S. C. Parida a group leaders of the team of Scientists/ Engineers/Technical personnel for successfully accomplishing the activity titled "Recovery and purification of helium-3" & "Recovery of SNM (Pu) from metallurgical scrap using dry route".

The Chairman, Atomic Energy Commission, has great pleasure in presenting the "Group Achievement Award for the year 2016" to this Group in recognition of their invaluable contribution to the Department.

le khar

(Dr. Sekhar Basu) Chairman, Atomic Energy Commission & Secretary to the Government of India

### The organizers of

## 61st DAE Solid State Physics Symposium

(Sponsored by Board of Research in Nuclear Sciences Department of Atomic Energy, Government of India)

based on the evaluation by an expert committee

Confer the

## Young Achiever Award

to

## K. C. Barick

## Bhabha Atomic Research Centre, Mumbai

for his meritorious contribution in the field of Science.

Place: KIIT University, Bhubaneswar

Date: 30 December 2016

Prof. Saibal Basu Convener, DAE SSPS 2016 & Head, Solid State Physics Division Bhabha Atomic Research Centre, Mumbai

Physical Sciences							
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)			
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics			
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award			
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal			
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences			
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence			
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award			
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences			
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014			
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award			
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award			
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE			
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD			

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Amitabh Das	2018	AGIPD3453G	Professor	Fellow, Maharashtra Academy of Scinces	
B. K. Nayak	2008	ACNPN3607K	Senior Professor	Homi Bhabha Science & Technology Award	
S. Santra	2016	AFEPS1103D	Professor	Homi Bhabha Science & Technology Award	
S. Santra	2012	AFEPS1103D	Professor	DAE Scientific and Technical Excellence	
S. Santra	2012	AFEPS1103D	Professor	DAE-SRC Outstanding Investigator Award	
L. M. Pant	2011	AAHPP6695D	Professor	DAE Scientific and Technical Excellence	
L. M. Pant	2015	AAHPP6695D	Professor	DAE Group Achievement	
P. Shukla	2013	AHMPS8156L	Professor	DAE Scientific and Technical Excellence	
P. Shukla	2015	AHMPS8156L	Professor	DAE Group Achievement	
K. Mahata	2007	ABBPM5184D	Associate Professor	DAE Scientific and Technical Excellence	
K. Mahata	2016	ABBPM5184D	Associate Professor	DAE Young Scientist Award	
A. Shrivastava	2017	AHTPS6202L	Associate Professor	Homi Bhabha Science & Technology Award	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Scientific and Technical Excellence	
A. Shrivastava	2011	AHTPS6202L	Associate Professor	DAE Group Achievement	
D. Dutta	2013	ADYPD8192K	Associate Professor	DAE Scientific and Technical Excellence	
D. Dutta	2013	ADYPD8192K	Associate Professor	Fellow, Maharashtra Academy of Scinces	
D. Dutta	2015	ADYPD8192K	Associate Professor	DAE Group Achievement	
V. Jha		ABXPJ5127D	Associate Professor	DAE Scientific and Technical Excellence	
Sudhir Ranjan Jain	1994	ABVPJ0519R	Professor	Indian National Science Academy Medal for Young Scientists	

للمعنى المعنى होमी भाषा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

	Drishty Satpati	2017	ANSPS2915H	SO/F, Assistant Professor	DAE Scientific and Technical Excellence Award
	Balaji Prasad Mandal	2017	ALIPM0787E	Asst. Prof	DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	ALJPM0787E		The National Academy of Sciences, India
					DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award
		2014	1150001000		Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Fellow, National Academy of Sciences, India
	Dr. rapar is Ghanty	2014		Scientine Officer II	"Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
				•	
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India
					"Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral
					Fellowship in Respiratory Medicine"
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	from Strauss Foundation, Canada
			9888 23 BARANES (48)	2000-202-202-20-20-20-20-20-20-20-20-20-	
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI
					"Lester Pecker Young Investigator
					Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA
					"Archives of Biochemistry and Biophysics
1.4	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	Young Investigator Award" from SFRR, India
1 345				Assistant professor	DAE-Scientific & Technical Excellence
Sa. Smi	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	Award-2016
Stan lan	reama ( the Real B				Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Transfirme (Al. G. 37, 57, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7
THE R.	Dr. Virendra Kumar	2016		SO/G	DAE-Group achievement award- 2016
· 101	and the stand and a stand	Sec.			TH Ven Stamic (BAN Bhadha 373 ccilo
	Dr. Virendra Kumar Dr. Virendra Kumar	a.			Award- 2016 DAE-Group achievement award- 2016 Dr. Tayan render Sciences Str. Tensoretical Chemistry Section Theoretical Chemistry Section
	Content Content of			~	at Theoretica.

Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	NATIONAL GEOSCIENCE AWARD, MINISTRY OF MINES, GOVT OF INDIA
Sreenivas Tumuluri	2016	AAO PT4771B	PROFESSOR	OUTSTANDING ENGINEER (MINERAL BENEFICIATION) R&D INDIAN INST OF MINERAL ENGINEERS, JAMSHEDPUR
Sreenivas Tumuluri	2017	AAOPT4771B	PROFESSOR	BINANI GOLD MEDAL FOR BEST PAPER IN NON-FERROUS METALLURGY, INDIAN INSTITUE OF METALS, KOLKATA
Sreenivas Tumuluri	2015	AAOPT4771B	PROFESSOR	GROUP ACHIEVMENT AWARD DEPT OF ATOMIC ENERGY GOVT OF INDIA Young Associate of Maharashtra
Dr. Ashis Kumar Satpati	2015	AYHPS0448K	Assistant Professor	Academy of Sciences
Dr. Ashis Kumar Satpati Dr. S.N. Jha	2019 2016	AYHPS0448K NA	Assistant Professor SO/H	Member of NASI DAE Group Achievement Award
				DAE Young Scientist award for Excellence in Science, Engineering and Technology
Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	for the year 2015. INSA fellowship for International Bilateral Exchange Program 2015 with
Dr. Piya Maheswhari	2015	ANUPM9223A	SO-F	Poland Academy of Science.
Dr. Salil Varma	2010	AAYPV2888F	Assistant Professor	DAE Group Achievement Award
Dr. Salil Varma	2012	AAYPV2888F	Assistant Professor	DAE Special Contributions Award
Dr. Salil Varma	2014	AAYPV2888F	Assistant Professor	DAE Group Achievement Award DAE Scientific and Technical Excellance Award Young Research Associate Maharashtra Academy of SCiences
Dr. Salil Varma	2016	AAYPV2888F	Associate Professor	Award Young Research Associate Maharashtra
Dr. K. Bhattacharyya	2018	AIBPB2922P	SO/F	
To the second se	ě.			Academy of sciences
			,	ST. 277 9 Starter (BARC). Str verstrere (BARC). an Academic (BARC). an Academic (Homi Bhabha Na an Academic (Homi Bhabha Na an Academic (BARC). an Academic (BARC).

Name of full time teac Chemical Sciences	h€Year of Award	PAN	Designation	Name of the award, fellowship, received from Goverr Link for the
	2017			Metallurgist of the year, Ministry of
Dr. A. K. Tyagi	2017	AADPT5519N	Senior Professor	steel, GOI
Dr. S. N. Achary				MAHSc
Dr. G. Kedarnath	2013	AEQPG1382R	Scientific Officer (5)	Scientific & Technical Excellence of DAE- 2013
Dr. R. K. Vatsa	2013	AAGPY0445H	Scientific Officer (F)	Bronze Medalof CRSI
DI. N. K. Vatsa	2017	AAOF 10443H	SO(H)	DAE Scientific & Technical Excellence
Dr. Shilpa N. Sawant	2016	AAVPT4103G	Associate Professor	Award
Dr. Prabhat Kumar	2010	AAVI 141030	Associate Froiesson	Department of Atomic Energy (DAE)
Singh	2013	BFBPS0644R	Assistant Professor	Young Scientist Award
Dr. Prabhat Kumar				Indian Science Congress Association
Singh	2013	BFBPS0644R	Assistant Professor	(ISCA) Young Scientist Award
Dr. Prabhat Kumar				Selected as Member of Indian National
Singh	2017	BFBPS0644R	Assistant Professor	Young Academy of Sciences (INYAS-INSA)
Dr. Prabhat Kumar				Selected as Associate of Indian Academy
Singh	2017	BFBPS0644R	Assistant Professor	of Sciences (IASc), Bangalore
Dr. Prabhat Kumar				National Academy of Science, India
Singh	2017	BFBPS0644R	Assistant Professor	(NASI) Young Scientist Award
Dr. Prabhat Kumar				Scientific Planet Society (SPS) Young
Singh	2018	BFBPS0644R	Assistant Professor	Scientist Award
Dr. Prabhat Kumar				Selected as Member, National Academy
Singh	2018	BFBPS0644R	Assistant Professor	of Science, India (NASI) – 2018
				Selected as Young Associate,
Dr. Prabhat Kumar				of Science, India (NASI) – 2018 Selected as Young Associate, Maharashtra Academy of Science (MASc)
Singh	2019	BFBPS0644R	Assistant Professor	-2010
ë i <sup>den</sup> ng				- V HEIDI.
Chiranjib Majumder	2014	AAIPM3082A	SO/G	Science and Technical excellence award
a strange warden en strange strang	43 27			SI. 27 Academic Iner Chemistory Munbal-AU
1. may				The Theoret BARC.

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
	Atindra Mohan				Post-Doctoral Fellowship, University of
	Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Banerjee Atindra Mohan	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award ITAS (Indian Thermal Analysis Society)
noise noise	Banerjee Dr. A. C. Bhasikuttan	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award The Japanese Photochemistry Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Tapan Market Sciences
100	Dr. A. C. Bhasikuttan	2017	NA		by Eikohshaby Japanese Photochemistry Association, 2017

Dr. Virendra Kumar	2016		SO/G	Dr. Tarun Dutta Memroral Award-2016 DAE Scientific & Technical Excellence
Rahul Tripathi	2014	ADQPT0065K	Scientific Officer G	award
Dr. Subir Kumar Gho	osh 2015	ABXPG9302K	Associate Professor	DAE-Science Research Council Outstanding Investigator Award , DAE
Dr. Subir Kumar Gho	osh 2017		Associate Professor	DAE-Group Achievement Award, DAE
Dr. Subir Kumar Gho	osh 2019 Fellow of Maharashtra Academy of		Professor	N M Sampat Award, Electrochemical Society of India, IISC Bangalore
Dr. Ratikanta Mishr Sharmistha Dutta	a Sciences			Maharashtra Academy of Sciences SERB Women Excellence Research Grant
Choudhury Sharmistha Dutta	2013-2016	AMAPD9408P	Assistant Professor	Award Membership of Indian National Young
Choudhury	2016	AMAPD9408P	Assistant Professor	Academy of Science (INYAS)
Dr.(Mrs.) Jyotirmay Mohanty	ee 2019			'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty of Frontiers in Chemistry.
Dr.(Mrs.) Jyotirmay Mohanty	ee 2017			'Bronze Medal-2017' by Chemical Research Society of India (CRSI)
Dr.(Mrs.) Jyotirmay Mohanty	2013-2016			AvH Fellowship for Experienced
Dr.(Mrs.) Jyotirmay Mohanty	2014			Fellow of National Academy of Sciences (F.N.A.Sc.)
				No. 7

es an active free area second

-----

	Drishty Satpati	2017	ANSPS2915H	SO/F, Assistant Professor	DAE Scientific and Technical Excellence Award
	Balaji Prasad Mandal	2017	ALIPM0787E	Asst. Prof	DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	АШРМ0787Е		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral
					Fellowship in Respiratory Medicine"
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Overgon Club Colifornia
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	Award" from Oxygen Club California, USA
					"Archives of Biochemistry and Biophysics Young Investigator Award" from SFRR,
17-845	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	India DAE-Scientific & Technical Excellence
1. 1990 - 20	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	DAE-Scientific & Technical Excellence Award- 2016
State St	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 The oretical Chemistry Sectors an Academic (AARC), Busha National Institute Theoretical Chemistry Sectors
	State Report	No.		~	at and a state theoretical City of

Name of full time teachers receiving awards from state level,national level, international level

Year of Award

PAN

Designation

Name of the award, fellowship, received from Government or recognised bodies

International Recognition,

**BARC Life Sciences** 

Associate Secretary, Asian Association Dr B. N. Pandey 2017 AGCPP6643E Professor of Radiation Research National Recognition, Associate Secretary, Society for Dr B. N. Pandey 2018 AGCPP6643E Professor **Radiation Research** Fulbright-Nehru Senior Prof. Hari Sharan Misra 2013 AACPM0813H Professor Scholarship Homi Bhabha Science and Prof. Hari Sharan Misra **Technology Award** 2014 AACPM0813H Professor **HBNI-Distinguished Faculty** Prof. Hari Sharan Misra 2015 AACPM0813H Professor Award Fellow of the National Prof. Hari Sharan Misra 2017 AACPM0813H Professor Academy of Sciences, India Indian Science Congress-Prof. Hari Sharan Misra 2017 AACPM0813H Professor Platinum Jubiliee Lecture Assistant **DAE Group Achievement Dr ST MEHETRE** 2015 AFYPM2622P Professor Award Post-Doctoral Post-Doctoral Fellowship, Dr. Bhaskar Sanyal 2013 ATFPS5172H Fellow Brain Korea 21+ (BK 21+) Associate Homi Bhabha Science & Y V Nancharaiah **Technology** Award 2017 AAAPN8248H Professor **ELSEVIER Outstanding VP** Venugopalan 2016 AAAPV6137D Senior Professor **Reviewer Award** DAE "Scientific & Technical Associate Dr. Birija Sankar Patro 2017 ADNPP7770L Professor Excellence Award" Assistant Dr. Jitendra Kumar 2018 AKQPK2997N Professor **ISAAC-ACS** Award Homi Bhabha Science and Santosh Kumar Sandur 2014 AXCPS6126J Professor **Technology Award** Ashish Kumar Assistant Srivastava 2014 BCKPS4318G Professor **INSA Young Scientist Award** Ashish Kumar Assistant Srivastava 2018 BCKPS4318G Professor NASI Award

Hemalayaram

डॉ. हेमा राजाराम/Dr. Hema Rajaram ASI Award डीन (जीव विज्ञान)/Dean (Life Sciences) होमी भाषा राष्ट्रिय संस्थान/Homi Bhabha National Institute अण्विक जैविक प्रभाग/Molecular Biology Division भाषा परमाणु अनुसंधान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085 Name of full time teachers receiving awards from state level,national level, international level

Year of

PAN

Award

Name of the award, fellowship, received from Government or recognised bodies

**BARC Life Sciences** 

Dr B. N. Pandey Dr B. N. Pandey Prof. Hari Sharan Misra Dr ST MEHETRE Dr. Bhaskar Sanyal

Y V Nancharaiah

VP Venugopalan

#### Dr. Birija Sankar Patro

Dr. Jitendra Kumar

Santosh Kumar Sandur Ashish Kumar Srivastava Ashish Kumar Srivastava Associate 2017 AGCPP6643E Professor 2018 AGCPP6643E Professor 2013 AACPM0813H Professor 2014 AACPM0813H Professor 2015 AACPM0813H Professor

2017 AACPM0813H Professor

2013 ATFPS5172H

2017 AAAPN8248H

2016 AAAPV6137D

2017 ADNPP7770L

2018 AKQPK2997N

2014 AXCPS6126J

2014 BCKPS4318G

2018 BCKPS4318G

2017 AACPM0813H Professor Assistant 2015 AFYPM2622P Professor

> Post-Doctoral Fellow Associate Professor

Designation

Senior Professor Associate Professor Assistant

Professor Assistant Professor Assistant Professor International Recognition, Secretary, Asian Association of Radiation Research National Recognition, Secretary, Society for Radiation Research Fulbright-Nehru Senior Scholarship Homi Bhabha Science and Technology Award HBNI-Distinguished Faculty Award

Fellow of the National Academy of Sciences, India

Indian Science Congress-Platinum Jubiliee Lecture DAE Group Achievement Award

Post-Doctoral Fellowship, Brain Korea 21+ (BK 21+) Homi Bhabha Science & Technology Award ELSEVIER Outstanding Reviewer Award

DAE "Scientific & Technical Excellence Award"

ISAAC-ACS Award Homi Bhabha Science and Technology Award

Hemalajaram

INSA Young Scientist Award **डॉ. हेमा राजाराम/Dr. Hema Rajaram** NASI Award डीन (जीव विज्ञान)/Dean (Life Sciences) होमी भाषा राष्ट्रिय संस्थान/Homi Bhabha National Institute आण्विक जैविक प्रभाग/Molecular Biology Division भाषा परमाणु अनुरूंचान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085

Name of full time teachers receiving awards from state Year of level, national level, Award PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies
2017 / 1111 00	Professor, HBNI	The PMAI Guiding Hand Award for Faculty by Powder Metallurgy Association of India (PMAI), 2017 Scientific & Technical excellence award
Arijit Laik 2017 ABMPL5404E Arijit Laik	Associate Professor	of Department of Atomic Energy, Government of India Excellence in Microscopy award 2018 by Electron Microscopy Society of India
2018 ABMPL5404E Dr Archana Sharma	Associate Professor Outstanding Scientist, Head, PP&EMD, Head, PPSS, APPD,	
2017 ABAPS9045E Dr Archana Sharma	Bhabha Atomic Research Centre (BARC), Mumbai - 400 085 Outstanding Scientist, Head,	Fellow of INAE (FNAE)
2017 ABAPS9045E Dr Archana Sharma	PP&EMD, Head, PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai 400 085 Outstanding Scientist, Head, PP&EMD, Head,	Fellow of IEI (FIE)
2019 ABAPS9045E Dr Biswaranjan Diksł	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai 400 085	· · · · · · · · · · · · · · · · · ·
2016 ACEPD6661 Dr Biswaranjan Diksł	L Scientific Office	r (H) Publishing) Outstanding Reviewer Award 2018, from European Journal of Physics (IOP
2018 ACEPD6661 Dr D Mandal	L Scientific Office Professor, HBN Head Alkali	r (H) Publishing) I &
2016 AFIPM2119	Material & Met Division, BARC	tal Homi Bhabha Science & Technology Award 2016, Department of Atomic Energy, Govt. of India, 2017 डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष रोक्षणिक (अभियांत्रको विषय-I) भा.प.अ.कॅ. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Name of full time teachers receiving awards from state level,national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received Incentives given by Link for the from Government or recognised bodies the HEI in relevant recognition of the documents award	Incentives given by Link for the the HEI in relevant recognition of the documents award	Link for the relevant documents
			Medical and Hea	Medical and Health Sciences, BARC		
Dr. Sandip Basu	2017	AHJPB5829J	5/0S	Homi Bhabha Science and Technology Award		
				Homi Bhabha Memorial Oration Award		
Dr. Sandip Basu	2019	AHJPB5829J	SO/G	by the Society of Nuclear Medicine, India		
	2012 (Award					
	received in			Shanti Swarup Bhatnagar Prize in		
Dr. Sandip Basu	2016)	AHJPB5829J	SO/G	Medical Sciences		
				American Medical Association PRA		
				Category 1 Credits: 231 credits awarded		
Dr Gaurav Malhotra		AFXPM 8362H	SO F	from March 2015 till date		
				Marfatia Award by Indian Psychiatric		
Dr Gaurav Malhotra	2016	AFXPM 8362H	SO F	Society		

Certified:

mon

Dr (Prof) Sandip Basu

Head, Nuclear Medicine Academic Programme

Dean-Academic, Medical and Health Sciences, BARC

Sandip Basu fi.ant.cry.st.cry.st. DRM, DNB. / Dr.

Net Aufres ender a Academic Frogramme a Academic Frogramme a Academic Contra, BARC. Vernment of India Vernmest, Parel, Aumbel - 400 012. 0 Dean-Aca.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Sudhir Ranjan Jain	1999	ABVPJ0519R	Professor	Anil Kumar Bose Memorial Award, INSA	
Sudhir Ranjan Jain	2006	ABVPJ0519R	Professor	NWO award, The Netherlands	
HARPHOOL KUMAWAT	2000-2002	АҮСРК3977А	Assistant professor	CSIR- JRF	
HARPHOOL KUMAWAT	2002-2004	АҮСРК3977А	Assistant professor	CSIR- SRF/JINR-FELLOWSHIP	
Dr. Yogesh Kumar Gupta	2014	AIGPG1414N	Assistant professor	Ashwini Kumar Rath Memorial Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Indian National Science Academy Medal for Young Scientists	
Dr. P. C. Rout	2015	AGZPR8843H	Assistant professor	DAE Young Scientist Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Best Young Physicist colloquioum award(third), Indian Physical society, Kolkatta	
Dr. P. C. Rout	2017	AGZPR8843H	Assistant professor	Member of indian national young academy of science (INYAS) 2017-2021	
A. K. Gupta	2008	ACQPG0296A	Professor	DAE Group Achievement	
A. K. Gupta	2010	ACQPG0296A	Professor	DAE Group Achievement	
Shashwati Sen	2018	AHTPS2882C	Associate Professor	DAE Scientific and Technical Excellence	
Shashwati Sen	2012		Associate Professor	DAE Group Achievement	
Shashwati Sen	2009		Associate Professor	DAE Group Achievement	
Mohit Tyagi	2013	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Group Achievement award	
Mohit Tyagi	2014	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Young Applied Scientist Award	
Mohit Tyagi	2015	AELPT1454Q	Assistant professor	Nucleonix best researcher award	

28/7/2020

डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-शैक्षणिक / Dean - Academic मौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.



GOVERNMENT OF INDIA

DEPARTMENT OF ATOMIC ENERGY

EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME

# Homi Bhabha Science & Technology Award 2017

# Dr. Dilip Kumar Maity

Bhabha Atomic Research Centre, Mumbai

is conferred the Homi Bhabha Science & Technology Award for the year 2017 for his contribution to "Theoretical and Computational Chemistry".

Dr. Dilip Kumar Maity has made fundamental contributions to the understanding of microsolvation of chemical systems. He developed a theoretical formulation to extract bulk properties of solvated ions from the properties of finite size ion embedded solvated clusters. He has also derived a relation for finding pKa value of an acid by a non-thermodynamic route. Dr. Maity made significant contributions in developing ligands for selective separation of uranium and platinum group metals and water soluble laser dyes.

The Chairman, Atomic Energy Commission has great pleasure in presenting the "Homi Bhabha Science & Technology Award 2017" to Dr. Dilip Kumar Maity in recognition of his outstanding contribution to the Departmental programme.

> (K.N.Vya5) Chairman Atomic Energy Commission & Secretary to the Government of India







DEPARTMENT OF ATOMIC ENERGY

#### EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME

## Group Achievement Award 2017

#### Research on Turmeric and Development of its Healthcare Products

Bhabha Atomic Research Centre, Mumbai

Group Achievement Award for the year 2017 is conferred on Dr. K. C. Barick, Member of the team of scientists / engineers / technical personnel for his successfully accomplishing the activity titled "Research on turmeric and development of its healthcare products".

The Chairman, Atomic Energy Commission, has great pleasure in presenting the "Group Achievement Award for the year 2017" to this Group in recognition of their invaluable contribution to the Department.

(K.N.Vyas) Chairman, Atomic Energy Commission & Secretary to the Government of India





NMENT OF INDIA

DEPARTMENT OF ATOMIC ENERGY

6)

EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME

## Homi Bhabha Science & Technology Award 2017

## Dr. R. N. Singh

Mechanical Metallurgy Divison Materials Group Bhabha Atomic Research Centre, Mumbai

is conferred the Homi Bhabha Science & Technology Award for the year 2017 for his contribution to "Hydride embrittlement of Zr-alloy components of PHWR for safety and residual life assessment."

Dr. R. N. Singh has contributed to the understanding of the mechanical behaviour of nuclear structural materials using experimental and computational approaches. Dr. Singh has enhanced the understanding of the in-service degradation of mechanical properties of Zr-alloy components due to hydride embrittlement and oxide nodule formation. This understanding is immensely helpful in safety assessment, life extension and failure analysis. His outstanding contributions include understanding fracture behaviour of Zr-alloy components. Dr. Singh contributed to the development, characterisation and qualification of the pressure tubes manufactured by a new route employing forging and timely supply for PHWR700 and Enmasse Coolant Channel Replacement of pressure tubes for Kakrapar Atomic Power Station.

The Chairman, Atomic Energy Commission has great pleasure in presenting the "Homi Bhabha Science & Technology Award 2017" to Dr. R. N. Singh in recognition of his outstanding contribution to the Departmental programme.

> (K.N.Vyas) Chairman, Atomic Energy Commission & Secretary to the Government of India

## पी. गोवर्धन P. Goverdhan



भारत सरकार Government of India अध्यक्ष, योजना एवं समन्वय प्रभाग ज्ञान प्रबन्धन वर्ग सचिव, टी.सी. एवं टी.एस.सी. भाभा परमाणु अनुसंधान केंद्र

Head, Planning and Coordination Division Knowledge Management Group Secretary, TC&TSC Bhabha Atomic Research Centre

## Ref:10(09)/PD-PR/S&TEA-2016/2017/2434

Sept. 21, 2017

Dear Dr. Laik,

On behalf of Chairman, AEC and Director, BARC, I have great pleasure in informing you that you have been selected for the SCIENTIFIC & TECHNICAL EXCELLENCE AWARD for the year 2016 in recognition of your outstanding contributions under DAE (Excellence in Science, Engineering & Technology) Award Scheme. We congratulate you on this achievement.

The award consists of a Citation, Medal and a Cash amount of **Rs.1 Lakh**. The award will be presented to you on **Monday 30<sup>th</sup> October 2017** which is celebrated as the Founder's Day in BARC. The presentation of award to you will be done in the Central Complex Auditorium of BARC on that day.

With best wishes,

Yours sincerely,

Dr Laik Arijit SO G, MSD, MG BARC

> CC: Dr. Madan Gopal Krishnan, Associate Director, MG, BARC Dr. G. K. Dey ,DS , MG BARC



भाभा परमाणु अनुसंधान केंद्र, ट्रॉम्बे, मुंबई - 400 085, भारत • Bhabha Atomic Research Centre, Trombay, Mumbai 400 085, India दूरभाष / Tel.:+91-22-2559 2927, 2559 3852 • फैक्स / Fax:+91-22-2550 5151, 2551 9613 ई-मेल / E-mail: pgd@barc.gov.in / papcd@barc.gov.in





GOVERNMENT OF INDIA

DEPARTMENT OF ATOMIC ENERGY

### **EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME**

# Group Achievement Award 2017

### Design, Construction, Erection & Testing of Apsara -Upgraded Reactor

Bhabha Atomic Research Centre, Mumbai

Group Achievement Award for the year 2017 is conferred on **Dr. Praveen Kumar**, Group Member of the team of scientists / engineers / technical personnel for his successfully accomplishing the activity titled "Design, Construction, Erection & Testing of Apsara -Upgraded Reactor".

The Chairman, Atomic Energy Commission, has great pleasure in presenting the Group Achievement Award for the year 2017 to this Group in recognition of their invaluable contribution to the Department.

(K.N.

Chairman, Atomic Energy Commission & Secretary to the Government of India

पी. गोवर्धन नियंत्रक P. GOVERDHAN Controller





सेंट्रल कॉम्प्लेक्स, ट्रॉम्बे, मुंबई - 400085. Central Complex, Trombay, Mumbai - 400085.

#### भारत सरकार GOVERNMENT OF INDIA भाभा परमाणु अनुसंधान केंद्र BHABHA ATOMIC RESEARCH CENTRE

#### Ref:10(09)/PD-PR/HBS&TA-2017/2018/26

Sept. 21, 2018

#### Dear Dr. Nancharaiah,

On behalt of Chairman, AEC and Director, BARC, I have great pleasure in informing you that you have been selected for the **HOMI BHABHA SCIENCE & TECHNOLOGY AWARD** for the year 2017 in recognition of your outstanding contributions under DAE (Excellence in Science, Engineering & Technology) Award Scheme. We congratulate you on this achievement.

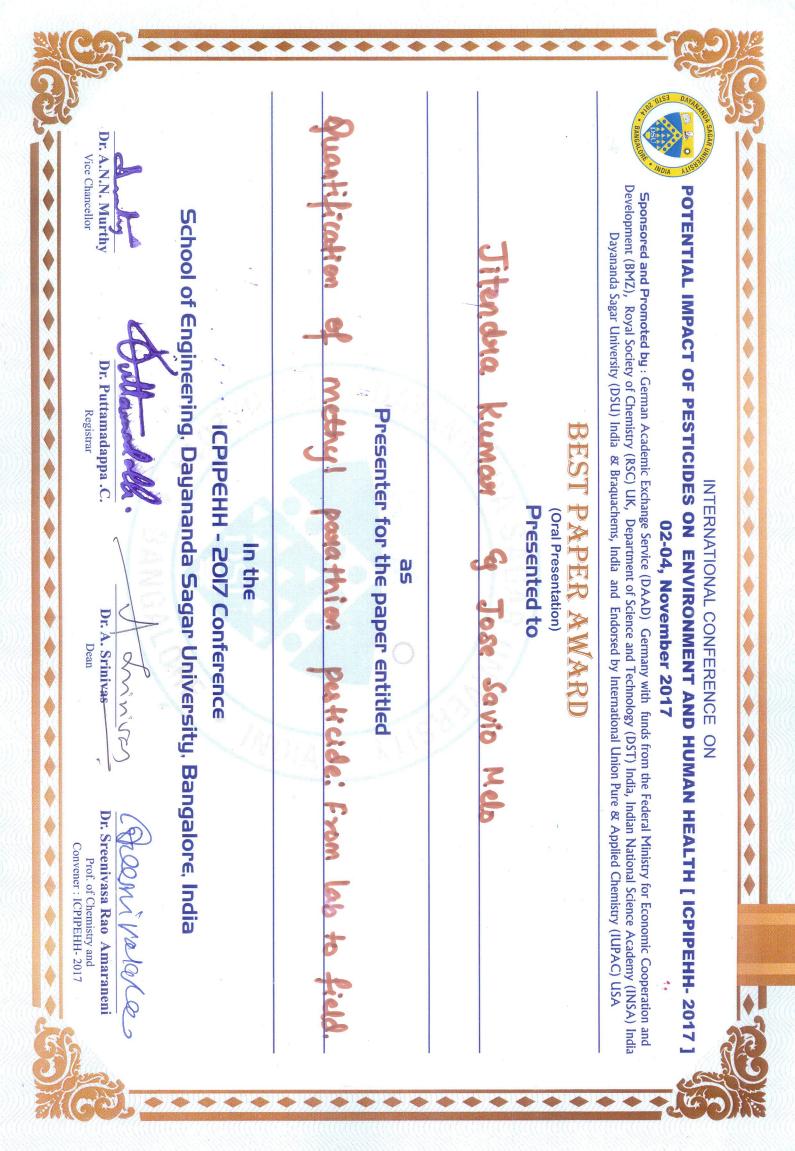
The award consists of a Citation, Medal and a Cash amount of **Rs. 5 Lakh**. The award will be presented to you on **Tuesday 30<sup>th</sup> October 2018** which is celebrated as the Founder's Day in BARC. The presentation of award to you will be done in the Central Complex Auditorium of BARC on that day.

With best wishes,

Yours sincerely, (P. Goverdhan)

Dr. Nancharaiah Y V, SO G, WSCD, CG, BARC

> CC: Dr. Velmurugan S, Facility Director, BARC-F, NRB, BARC Dr. P D Naik, Associate Director, CG, BARC



	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALIPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	АШРМ0787Е		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	Fellowship in Respiratory Medicine" from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA "Archives of Biochemistry and Biophysics
17 365	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	Young Investigator Award" from SFRR, India DAE-Scientific & Technical Excellence
1. 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	DAE-Scientific & Technical Excellence Award- 2016
Strike St	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Theoretical Chemistry Section Theoretical Chemistry Section
	WILL MARCHINE			~	T stell, theoretics

	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALIPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	АШРМ0787Е		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	Fellowship in Respiratory Medicine" from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator Award" from Oxygen Club California,
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	USA "Archives of Biochemistry and Biophysics
17 365	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	Young Investigator Award" from SFRR, India DAE-Scientific & Technical Excellence
1. 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	DAE-Scientific & Technical Excellence Award- 2016
Strike St	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 Theoretical Chemistry Section Theoretical Chemistry Section
	and the state			~	T stell, theoretics

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
	Atindra Mohan				Post-Doctoral Fellowship, University of
	Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Banerjee	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award
	Atindra Mohan	2016		60 (5) DADC	ITAS (Indian Thermal Analysis Society)
	Banerjee	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award
					The Japanese Photochemistry
in.					Association Lectureship Award for Asian
noto	10 m				and Oceanian Photochemist Sponsored
and the tax	Dr. A. C. Bhasikuttan	2017			by Eikohshaby Japanese Photochemistry Association, 2017
"Tops	Dr. A. C. Bhasikuttan	2017	NA		Association, 2017
A P	States and States				and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Starter and Starter Solar and Sol
	and the fil				Si den transfer Hom stransfer Section
					A TRANSPORTING TO THE REAL PROPERTY OF THE REAL PRO

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar	2014	AACPK7715Q	SO/H	DAE Group Achievement Award
	Atindra Mohan				Post-Doctoral Fellowship, University of
	Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Banerjee Atindra Mohan	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award ITAS (Indian Thermal Analysis Society)
10	Banerjee Dr. A. C. Bhasikuttan	2016 2017	AJYPB5211F NA	SO (E), BARC	Young Scientist Award The Japanese Photochemistry Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Association, 20
					an Academic IV. Hom Ferraristry Section

Dr. Virendra Kumar	2016		SO/G	Dr. Tarun Dutta Memroral Award-2016
Rahul Tripathi	2014	ADQPT0065K	Scientific Officer G	DAE Scientific & Technical Excellence award
Dr. Subir Kumar Ghosh	2015	ABXPG9302K	Associate Professor	DAE-Science Research Council Outstanding Investigator Award , DAE
Dr. Subir Kumar Ghosh			Associate Professor	DAE-Group Achievement Award, DAE
				N M Sampat Award, Electrochemical
Dr. Subir Kumar Ghosh	2019 Fellow of Maharashtra		Professor	Society of India, IISC Bangalore
Dr. Ratikanta Mishra Sharmistha Dutta	Academy of Sciences			Maharashtra Academy of Sciences SERB Women Excellence Research Grant
Choudhury Sharmistha Dutta	2013-2016	AMAPD9408P	Assistant Professor	Award Membership of Indian National Young
Choudhury	2016	AMAPD9408P	Assistant Professor	Academy of Science (INYAS)
Dr.(Mrs.) Jyotirmayee Mohanty	2019			'Associate Editor' of the Editorial Board of Supramolecular Chemistry, a specialty of Frontiers in Chemistry.
Dr.(Mrs.) Jyotirmayee	2015			'Bronze Medal-2017' by Chemical
Mohanty	2017			Research Society of India (CRSI)
Dr.(Mrs.) Jyotirmayee Mohanty	2013-2016			AvH Fellowship for Experienced
Dr.(Mrs.) Jyotirmayee Mohanty	2014	z		Fellow of National Academy of Sciences (F.N.A.Sc.)
Charles Harris Harris				Dean Acade
Diff sy.				4080.

es dif grit and provide the second of second of second of second of the second of sec

- All and a second

Name of full time teachers receiving awards from state level,national level, international level

Year of

PAN

Designation

Award

Name of the award, fellowship, received from Government or recognised bodies

International Recognition,

**BARC Life Sciences** 

Associate Secretary, Asian Association Dr B. N. Pandey 2017 AGCPP6643E Professor of Radiation Research National Recognition, Associate Secretary, Society for Dr B. N. Pandey 2018 AGCPP6643E Professor **Radiation Research** Fulbright-Nehru Senior Prof. Hari Sharan Misra 2013 AACPM0813H Professor Scholarship Homi Bhabha Science and Prof. Hari Sharan Misra **Technology** Award 2014 AACPM0813H Professor **HBNI-Distinguished Faculty** Prof. Hari Sharan Misra 2015 AACPM0813H Professor Award Fellow of the National Prof. Hari Sharan Misra 2017 AACPM0813H Professor Academy of Sciences, India Indian Science Congress-Prof. Hari Sharan Misra 2017 AACPM0813H Professor Platinum Jubiliee Lecture Assistant **DAE Group Achievement Dr ST MEHETRE** 2015 AFYPM2622P Professor Award Post-Doctoral Post-Doctoral Fellowship, Dr. Bhaskar Sanyal 2013 ATFPS5172H Fellow Brain Korea 21+ (BK 21+) Associate Homi Bhabha Science & Y V Nancharaiah **Technology** Award 2017 AAAPN8248H Professor **ELSEVIER Outstanding VP** Venugopalan 2016 AAAPV6137D Senior Professor **Reviewer Award** DAE "Scientific & Technical Associate Dr. Birija Sankar Patro 2017 ADNPP7770L Professor Excellence Award" Assistant Dr. Jitendra Kumar 2018 AKQPK2997N Professor **ISAAC-ACS** Award Homi Bhabha Science and Santosh Kumar Sandur 2014 AXCPS6126J Professor **Technology Award** Ashish Kumar Assistant Srivastava 2014 BCKPS4318G Professor **INSA Young Scientist Award** Ashish Kumar Assistant Srivastava 2018 BCKPS4318G Professor NASI Award

Hemalajaram

**डॉ. हेमा राजाराम/Dr. Hema Rajaram** SI Award डीन (जीव विज्ञान)/Dean (Life Sciences) होमी भागा राष्ट्रिय संस्थान/Homi Bhabha-National Institute आण्विक जैविक प्रभाग/Molecular Biology Division भामा परमाणु अनुसंचान केंद्र/Bhabha Atomic Research Centre भारत सरकार/Government of India ट्रॉम्बे, मुंबई-४०० ०८५./Trombay, Mumbai-400085

Name of full time teachers receiving awards from state Year of level, national level, Award PAN D	Designation	Name of the award, fellowship, received from Government or recognised bodies
Engineering Sciences Amit Sinha		The PMAI Guiding Hand Award for Faculty by Powder Metallurgy Association of India (PMAI), 2017
Arijit Laik	Professor, HBNI	Scientific & Technical excellence award of Department of Atomic Energy,
2017 ABMPL5404E Arijit Laik	Associate Professor	Government of India Excellence in Microscopy award 2018 by Electron Microscopy Society of India
Dr Archana Sharma	Associate Professor Outstanding Scientist, Head, PP&EMD, Head,	(EMSI) 2018
	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai -	
2017 ABAPS9045E Dr Archana Sharma	400 085 Outstanding Scientist, Head, PP&EMD, Head, PPSS, APPD,	Fellow of INAE (FNAE)
2017 ABAPS9045E Dr Archana Sharma	Bhabha Atomic Research Centre (BARC), Mumbai 400 085 Outstanding Scientist, Head,	- Fellow of IEI (FIE)
	PP&EMD, Head, PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai	<ul> <li>V for Electrical Engineering in INAE of</li> </ul>
2019 ABAPS9045E Dr Biswaranjan Diksł	400 085	new fellows of INAE Outstanding Reviewer Award 2016, from European Journal of Physics (IOP)
2016 ACEPD6661L Dr Biswaranjan Diksł	Scientific Officer	r (H) Publishing) Outstanding Reviewer Award 2018, from European Journal of Physics (IOP
2018 ACEPD6661L Dr D Mandal	Scientific Office Professor, HBNI Head Alkali	
2016 AFIPM2119	Material & Met Division, BARC	al Homi Bhabha Science & Technology Award 2016, Department of Atomic Energy, Govt. of India, 2017
	1000- 300 J 28,200	डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यस-रौक्षणिक (अभियांत्रकी विषय-]) भा.प.अ.कें. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr D Mandal			Professor, HBNI & Head Alkali Material & Metal Division, BARC	Group Achievement Award 2016, Excellence in Science & Technology Award Scheme, Department of Atomic
Dr D Mandal	2016	AFIPM2119M	Mumbai-85 Professor, HBNI & Head Alkali	Energy, Govt. of India, 2017
Dr D Mandal	2016	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Sisir Kumar Mitra Memorial Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2017	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	IIChE-NRC Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2018	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Fellow, Indian Institute of Chemical Engineers
Dr D Mandal	2018	AFIPM2119M	Material & Metal Division, BARC Mumbai-85 Professor, HBNI & Head Alkali	Chemical Distinguished Speaker Award, by Indian Institute of Chemical Engineers Jubiliant Award 2018 for Outstanding
Dr Debanik Roy	2018	AFIPM2119M	Material & Metal Division, BARC Mumbai-85	Contribution in the area of Chemical Process Design by Indian Institute of Chemical Engineers.
			Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay,	Member of the Programme Advisory Committee (PAC) on "Civil & Mechanical Engineering" of DST-SERB (Science & Engineering Research Board, Dept. of
Dr Debanik Roy	2018	AAYPR8281Q	Mumbai - 400 085	Science & Technology, Govt. of India
	2019	AAYPR8281Q	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085	Member of Technical Advisory Committee (TAC) of Gujarat State Science & Technology Council (GUJCOST), Dept. of Science & Technology, Govt. of Gujarat डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.वी.एन.आई./ H.B.N.I.

Dr Deep Prakash		AAYPR8281Q AJSPP1456E	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085 Professor	Inclusion of name & affiliation at 2019 edition of 'Marquis Who's Who in the World' DAE Group Achievement Award
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical	Ň
				DAE Scientific & Technical Excellence Award 2015 by Department of Atomic Energy, Government of India, under
			Research Centre,	Excellence in Science, Engineering and
De Kieshuk Dessusta	2015	AEUPD0499N	Mumbai	Technology Awards Scheme 2015
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical Metallurgy Division, Materials Group,	
		•	Bhabha Atomic Research Centre,	Fullbright Nehru Academic and professional excellence fellowship by
	2018	AEUPD0499N	Mumbai	University of Cincinnati, Cincinnati, OH. Vasvik Award (Materials Science &
Dr Vivekanand Kain	2018	ААВРК7826К	Professor	Technology)
K. K. Singh				Humboldt Fellowship for Post doctoral Research from Alexander vom
Dr. Drougon Kumor	2015	BAFPS1431M	Associate Professor	Humboldat foundation, Germany
Dr. Praveen Kumar	2017	АНСРК6311М	Associate Professor	Group Achievement Award SCIENTIFIC AND TECHNICAL EXCELLENCE
Anindya Chakravarty	2015	AEMPC3195C	Associate Professor	

The 18,2020

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Name of full time teachers receiving awards from state Year of level, national level, Award PAN D	Designation	Name of the award, fellowship, received from Government or recognised bodies
Engineering Sciences Amit Sinha		The PMAI Guiding Hand Award for Faculty by Powder Metallurgy Association of India (PMAI), 2017
Arijit Laik	Professor, HBNI	Scientific & Technical excellence award of Department of Atomic Energy,
2017 ABMPL5404E Arijit Laik	Associate Professor	Government of India Excellence in Microscopy award 2018 by Electron Microscopy Society of India
Dr Archana Sharma	Associate Professor Outstanding Scientist, Head, PP&EMD, Head,	(EMSI) 2018
	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai -	
2017 ABAPS9045E Dr Archana Sharma	400 085 Outstanding Scientist, Head, PP&EMD, Head, PPSS, APPD,	Fellow of INAE (FNAE)
2017 ABAPS9045E Dr Archana Sharma	Bhabha Atomic Research Centre (BARC), Mumbai 400 085 Outstanding Scientist, Head,	- Fellow of IEI (FIE)
	PP&EMD, Head, PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai	<ul> <li>V for Electrical Engineering in INAE of</li> </ul>
2019 ABAPS9045E Dr Biswaranjan Diksł	400 085	new fellows of INAE Outstanding Reviewer Award 2016, from European Journal of Physics (IOP)
2016 ACEPD6661L Dr Biswaranjan Diksł	Scientific Officer	r (H) Publishing) Outstanding Reviewer Award 2018, from European Journal of Physics (IOP
2018 ACEPD6661L Dr D Mandal	Scientific Office Professor, HBNI Head Alkali	
2016 AFIPM2119	Material & Met Division, BARC	al Homi Bhabha Science & Technology Award 2016, Department of Atomic Energy, Govt. of India, 2017
	1000- 300 J 28,200	डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यस-रौक्षणिक (अभियांत्रकी विषय-]) भा.प.अ.कें. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr D Mandal	2016 AFIPM2115	Professor, HBNI &Head AlkaliGroup Achievement Award 2016,Material & MetalExcellence in Science & TechnologyDivision, BARCAward Scheme, Department of Atomic9MMumbai-85Energy, Govt. of India, 2017
Dr D Mandal		Professor, HBNI & Head Alkali Material & Metal Sisir Kumar Mitra Memorial Award 2016,
Dr D Mandal	2016 AFIPM211	Professor, HBNI & Head Alkali
Dr D Mandal	2017 AFIPM211	Material & Metal Division, BARC IIChE-NRC Award 2016, Indian Institute 9M Mumbai-85 of Chemical Engineers, 2017 Professor, HBNI & Head Alkali
Dr D Mandal	2018 AFIPM211	Material & Metal Division, BARC Fellow, Indian Institute of Chemical 9M Mumbai-85 Engineers Professor, HBNI & Head Alkali
Dr D Mandal	2018 AFIPM211	Material & MetalDivision, BARCChemical Distinguished Speaker Award,9MMumbai-85by Indian Institute of Chemical EngineersProfessor, HBNI &
	2018 AFIPM211	Head AlkaliJubiliant Award 2018 for OutstandingMaterial & MetalContribution in the area of ChemicalDivision, BARCProcess Design by Indian Institute of9MMumbai-85Chemical Engineers.
Dr Debanik Roy		
		Associate Professor, Scientist,
		Division of Remote
		Handling &Member of the Programme AdvisoryRobotics, BhabhaCommittee (PAC) on "Civil & MechanicalAtomic ResearchEngineering" of DST-SERB (Science &Centre, Trombay,Engineering Research Board, Dept. of
Dr Debanik Roy	2018 AAYPR828	
	2019 AAYPR828	Associate Professor, Scientist, Division of Remote Handling & Member of Technical Advisory Robotics, Bhabha Committee (TAC) of Gujarat State Atomic Research Science & Technology Council Centre, Trombay, (GUJCOST), Dept. of Science & 10 Mumbai - 400 085 Technology, Govt. of Gujarat
	2013 AATT 1020	डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.कें. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr Deep Prakash		AAYPR8281Q AJSPP1456E	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085 Professor	Inclusion of name & affiliation at 2019 edition of 'Marquis Who's Who in the World' DAE Group Achievement Award
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical	Ň
				DAE Scientific & Technical Excellence Award 2015 by Department of Atomic Energy, Government of India, under
			Research Centre,	Excellence in Science, Engineering and
De Kieshuk Dessusta	2015	AEUPD0499N	Mumbai	Technology Awards Scheme 2015
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical Metallurgy Division, Materials Group,	
		•	Bhabha Atomic Research Centre,	Fullbright Nehru Academic and professional excellence fellowship by
	2018	AEUPD0499N	Mumbai	University of Cincinnati, Cincinnati, OH. Vasvik Award (Materials Science &
Dr Vivekanand Kain	2018	ААВРК7826К	Professor	Technology)
K. K. Singh				Humboldt Fellowship for Post doctoral Research from Alexander vom
Dr. Drougon Kumor	2015	BAFPS1431M	Associate Professor	Humboldat foundation, Germany
Dr. Praveen Kumar	2017	АНСРК6311М	Associate Professor	Group Achievement Award SCIENTIFIC AND TECHNICAL EXCELLENCE
Anindya Chakravarty	2015	AEMPC3195C	Associate Professor	

The 18,2020

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Name of full time teachers receiving awards from state Year of level, national level, Award PAN D	Designation	Name of the award, fellowship, received from Government or recognised bodies
Engineering Sciences Amit Sinha		The PMAI Guiding Hand Award for Faculty by Powder Metallurgy Association of India (PMAI), 2017
Arijit Laik	Professor, HBNI	Scientific & Technical excellence award of Department of Atomic Energy,
2017 ABMPL5404E Arijit Laik	Associate Professor	Government of India Excellence in Microscopy award 2018 by Electron Microscopy Society of India
Dr Archana Sharma	Associate Professor Outstanding Scientist, Head, PP&EMD, Head,	(EMSI) 2018
	PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai -	
2017 ABAPS9045E Dr Archana Sharma	400 085 Outstanding Scientist, Head, PP&EMD, Head, PPSS, APPD,	Fellow of INAE (FNAE)
2017 ABAPS9045E Dr Archana Sharma	Bhabha Atomic Research Centre (BARC), Mumbai 400 085 Outstanding Scientist, Head,	- Fellow of IEI (FIE)
	PP&EMD, Head, PPSS, APPD, Bhabha Atomic Research Centre (BARC), Mumbai	<ul> <li>V for Electrical Engineering in INAE of</li> </ul>
2019 ABAPS9045E Dr Biswaranjan Diksł	400 085	new fellows of INAE Outstanding Reviewer Award 2016, from European Journal of Physics (IOP)
2016 ACEPD6661L Dr Biswaranjan Diksł	Scientific Officer	r (H) Publishing) Outstanding Reviewer Award 2018, from European Journal of Physics (IOP
2018 ACEPD6661L Dr D Mandal	Scientific Office Professor, HBNI Head Alkali	
2016 AFIPM2119	Material & Met Division, BARC	al Homi Bhabha Science & Technology Award 2016, Department of Atomic Energy, Govt. of India, 2017
	1000- 300 J 28,200	डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यस-रौक्षणिक (अभियांत्रकी विषय-]) भा.प.अ.कें. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr D Mandal	2016 AFII		Professor, HBNI & Head Alkali Material & Metal Division, BARC Mumbai-85	Group Achievement Award 2016, Excellence in Science & Technology Award Scheme, Department of Atomic Energy, Govt. of India, 2017
Dr D Mandal			Professor, HBNI & Head Alkali Material & Metal	Sisir Kumar Mitra Memorial Award 2016,
Dr D Mandal	2016 AFI	PM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2017 AFI	PM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	IIChE-NRC Award 2016, Indian Institute of Chemical Engineers, 2017
Dr D Mandal	2018 AFI	PM2119M	Division, BARC Mumbai-85 Professor, HBNI & Head Alkali Material & Metal	Fellow, Indian Institute of Chemical Engineers
Dr D Mandal	2018 AFI	PM2119M	Division, BARC Mumbai-85 Professor, HBNI &	Chemical Distinguished Speaker Award, by Indian Institute of Chemical Engineers
Dr Debanik Roy	2018 AFI		Head Alkali Material & Metal Division, BARC Mumbai-85	Jubiliant Award 2018 for Outstanding Contribution in the area of Chemical Process Design by Indian Institute of Chemical Engineers.
			Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay,	Member of the Programme Advisory Committee (PAC) on "Civil & Mechanical Engineering" of DST-SERB (Science & Engineering Research Board, Dept. of
Dr Debanik Roy	2018 AA	YPR8281Q	Mumbai - 400 085	Science & Technology, Govt. of India
			Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay,	Member of Technical Advisory Committee (TAC) of Gujarat State Science & Technology Council (GUJCOST), Dept. of Science &
	2019 AA	YPR8281Q	Mumbai - 400 085	Technology, Govt. of Gujarat डॉ. विवेकानंद केन / Dr. Vivekanand K

28,2020 Tub

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष-शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.कें. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

Dr Deep Prakash		AAYPR8281Q AJSPP1456E	Associate Professor, Scientist, Division of Remote Handling & Robotics, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085 Professor	Inclusion of name & affiliation at 2019 edition of 'Marquis Who's Who in the World' DAE Group Achievement Award
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical	Ň
				DAE Scientific & Technical Excellence Award 2015 by Department of Atomic Energy, Government of India, under
			Research Centre,	Excellence in Science, Engineering and
De Kieshuk Dessusta	2015	AEUPD0499N	Mumbai	Technology Awards Scheme 2015
Dr Kinshuk Dasgupta			Associate	
			Professor, Mechanical Metallurgy Division, Materials Group,	
		•	Bhabha Atomic Research Centre,	Fullbright Nehru Academic and professional excellence fellowship by
	2018	AEUPD0499N	Mumbai	University of Cincinnati, Cincinnati, OH. Vasvik Award (Materials Science &
Dr Vivekanand Kain	2018	ААВРК7826К	Professor	Technology)
K. K. Singh				Humboldt Fellowship for Post doctoral Research from Alexander vom
Dr. Drougon Kumor	2015	BAFPS1431M	Associate Professor	Humboldat foundation, Germany
Dr. Praveen Kumar	2017	АНСРК6311М	Associate Professor	Group Achievement Award SCIENTIFIC AND TECHNICAL EXCELLENCE
Anindya Chakravarty	2015	AEMPC3195C	Associate Professor	

The 18,2020

डॉ. विवेकानंद केन / Dr. Vivekanand Kain अध्यक्ष शैक्षणिक (अभियांत्रकी विषय-I) भा.प.अ.के. Dean-Academic (Engineering Stream-I) B.A.R.C. एच.बी.एन.आई./ H.B.N.I.

and the second

Physical Sciences							
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	ΡΔΝ	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)			
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics			
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award			
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal			
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences			
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence			
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award			
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences			
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014			
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award			
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award			
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE			
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD			

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents
Sudhir Ranjan Jain	1999	ABVPJ0519R	Professor	Anil Kumar Bose Memorial Award, INSA	
Sudhir Ranjan Jain	2006	ABVPJ0519R	Professor	NWO award, The Netherlands	
HARPHOOL KUMAWAT	2000-2002	АҮСРКЗ977А	Assistant professor	CSIR- JRF	
HARPHOOL KUMAWAT	2002-2004	АҮСРКЗ977А	Assistant professor	CSIR- SRF/JINR-FELLOWSHIP	
Dr. Yogesh Kumar Gupta	2014	AIGPG1414N	Assistant professor	Ashwini Kumar Rath Memorial Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Indian National Science Academy Medal for Young Scientists	
Dr. P. C. Rout	2015	AGZPR8843H	Assistant professor	DAE Young Scientist Award	
Dr. P. C. Rout	2014	AGZPR8843H	Assistant professor	Best Young Physicist colloquioum award(third), Indian Physical society, Kolkatta	
Dr. P. C. Rout	2017	AGZPR8843H	Assistant professor	Member of indian national young academy of science (INYAS) 2017-2021	
A. K. Gupta	2008	ACQPG0296A	Professor	DAE Group Achievement	
A. K. Gupta	2010	ACQPG0296A	Professor	DAE Group Achievement	
Shashwati Sen	2018	AHTPS2882C	Associate Professor	DAE Scientific and Technical Excellence	
Shashwati Sen	2012		Associate Professor	DAE Group Achievement	
Shashwati Sen	2009		Associate Professor	DAE Group Achievement	
Mohit Tyagi	2013	AELPT1454Q	Assistant professor	Department of Atomic Energy (DAE) Group Achievement award	
Mohit Tyagi	2014	AELPT1454Q	Assistant professor	t professor Department of Atomic Energy (DAE) Young Applied Scientist Award	
Mohit Tyagi	2015 AELPT1454Q Assistant professor Nucleonix best researcher award				

28/7/2020

Physical Sciences							
Name of full time teachers receiving awards from state level, national level, international level	Year of Award	PAN	Designation	Name of the award, fellowship, received from Government or recognised bodies	Link for the relevant documents		
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	DAE Group Achievement Award			
S. M. Yusuf	2018	AAAPY2660A	Senior Professor	D. Sc (Hon)			
S. M. Yusuf	2017	AAAPY2660A	Senior Professor	Fellow of the Indian Academy of Sciences			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	Raja Ramanna Prize Lecture in Physics			
S. M. Yusuf	2016	AAAPY2660A	Senior Professor	MRSI-ICSC Superconductivity & Materials Science Annual Prize			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	Fellow of The National Academy of Sciences, India			
S. M. Yusuf	2014	AAAPY2660A	Senior Professor	P. K. Iyengar Memorial Award for excellence in Experimental Physics			
Ranjan Mittal	2016	ACBPM8654R	Professor	Homi Bhabha Science & Technology Award			
Ranjan Mittal	2016	ACBPM8654R	Professor	Material Research Society of India (MRSI) Medal			
Ranjan Mittal	2014	ACBPM8654R	Professor	Fellow, Maharashtra Academy of Sciences			
Debasis Sen	2010	AHMPS8181M	Associate Prof	DAE Scientific and Technical Excellence			
Debasis Sen	2009	AHMPS8181M	Associate Prof	DAE SSPS Young Achiever Award			
Debasis Sen	2017	AHMPS8181M	Associate Prof	Fellow, Maharashtra Academy of Sciences			
Dr. (Ms.) Debarati Bhattacharya	2014	AGVPB3572H	Assistant Prof	DAE Group achievement award 2014			
Amit Kumar	2017	AKOPK9662N	Assistant Professor	DAE-SSPS-Young Achiever Award			
Amit Kumar	2018	AKOPK9662N	Assistant Professor	DAE Group Achievement Award			
Subhankur Mitra	2010	ABBPM5189Q	Associate Professor	Scientific and Technical Excellence Award, 2010 by DAE			
Dr. Surendra Singh	2014	AUHPS6643L	Associate Professor	DAE GROUP ACHIEVEMENT AWARD			

Dil 28/7/200 5 V. Ur डॉ. दिनेश वी. उडुपा / Dinesh V. Udupa डीन-रीक्षणिक / Dean - Academic भौतिक एवं गणितीय विज्ञान / Physical & Mathematical Science होमी भागा राष्ट्रीय संस्थान / Homi Bhabha National Institute अणुशक्ती नगर / Anushakti Nagar मुंबई / Mumbai - 400 094.

Scientific India

## SCIENTIFIC PLANET SOCIETY (SPS) YOUNG SCIENTIST AWARD

2018

Awarded to

Dr. Prabhat Kumar Singh. Assistant Professor. Homi Bhabha National Institute. Mumbai-91. Scientific Officer (F). Radiation & Photochemistry Division. Bhabha Atomic Research Centre. Trombay. Mumbai - 100 085 for his outstanding performance and contribution along with optimum dedication and sincerity towards the Science Research and Educational

community.

President Scientific Planet Society (SPS)

Vice-President Scientific Planet Society (SPS)

Scanned by CamScanner



**GOVERNMENT OF INDIA** 

सत्यमेव जयते

**DEPARTMENT OF ATOMIC ENERGY** 

## **EXCELLENCE IN SCIENCE, ENGINEERING & TECHNOLOGY AWARDS SCHEME**

## Group Achievement Award 2017

## Research on Turmeric and Development of its Healthcare Products

Bhabha Atomic Research Centre, Mumbai

Group Achievement Award for the year 2017 is conferred on Dr. Smt. Gunjan Verma, Member of the team of scientists / engineers / technical personnel for her successfully accomplishing the activity titled "Research on turmeric and development of its healthcare products".

The Chairman, Atomic Energy Commission, has great pleasure in presenting the "Group Achievement Award for the year 2017" to this Group in recognition of their invaluable contribution to the Department.

Chairman, Atomic Energy Commission & Secretary to the Government of India



No. NPCIL./HQ/HRP/3/8/20/2020 104

January , 2020

### Dear Shri R. N. Singh

Please accept my hearty congratulations that you have been selected for the Group Achievement Award of NPCIL under NPCIL High Performer's Annual Award Scheme for the year 2018.

The Group Award Carries:  $\gtrless$  20000/- to each eligible member, Silver Medal and Citation.

It is to inform you that, the medal and citation will be handed over to Smt. Dipti Bhachawat, Chief Engineer NPCIL as a Group Leader for presenting the medal and citation in a befitting manner.

With best wishes.

Yours sincerely,

(K. Parthasarathy Dy. General Manager (HRP)





## RECOGNIZES

# **Jitendra Kumar and Jose Savio Melo**

## FOR BEST POSTER

Conference on Electrochemistry in Advanced Materials, **Corrosion and Radiopharmaceuticals, CEAMCR-2018** 

**DAE** Convention Centre, **BARC-Mumbai** February 15-17, 2018

Physical Sciences							
Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teacher/research scholar/student			
Best poster award at International Conference on Magnetic Materials and Applications (ICMAGMA - 2018)	Madhu Ghanathe	ICMAGMA - 2018	2018	Magnetism			
Best poster award at DAE Symp on Nuclear Physics	Ananya Kundu	DAE-SNP	2015	Research scholar			
Best poster award at DAE Symp on Nuclear Physics	Dipayan Chattopadhyay	DAE-SNP	2018	Research scholar			
Best poster award at International Conference in Nuclear Physics with Energetic Heavy Ion Beams	Ananya Kundu	Punjab University, Chandigarh	2017	Research Scholar			
Best poster award in 63rd DAE Solid State Physics Symposium (DAE SSPS-2018)	Sajid Ahmed	DAE-SSPS	2018	Research scholar			
Best poster award at 32nd meeting of Astronomical Society of India	K K Yadav	Astronomical Society of India	2014	Teacher			

Dif 28/7/2010

Physical Sciences								
Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teacher/research scholar/student				
Best poster award at International Conference on Magnetic Materials and Applications (ICMAGMA - 2018)	Madhu Ghanathe	ICMAGMA - 2018	2018	Magnetism				
Best poster award at DAE Symp on Nuclear Physics	Ananya Kundu	DAE-SNP	2015	Research scholar				
Best poster award at DAE Symp on Nuclear Physics	Dipayan Chattopadhyay	DAE-SNP	2018	Research scholar				
Best poster award at International Conference in Nuclear Physics with Energetic Heavy Ion Beams	Ananya Kundu	Punjab University, Chandigarh	2017	Research Scholar				
Best poster award in 63rd DAE Solid State Physics Symposium (DAE SSPS-2018)	Sajid Ahmed	DAE-SSPS	2018	Research scholar				
Best poster award at 32nd meeting of Astronomical Society of India	K K Yadav	Astronomical Society of India	2014	Teacher				

Dif 28/7/2010

	Drishty Satpati Balaji Prasad Mandal	2017 2017	ANSPS2915H ALJPM0787E	SO/F, Assistant Professor Asst. Prof	DAE Scientific and Technical Excellence Award DAE-SSPS Young Achiever Award
	Balaji Prasad Mandal	2016	ALIPM0787E		The National Academy of Sciences, India DAE HomiBhabhaScience & Technology
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Award Fellow, Maharashtra Academy of
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	Sciences Fellow, National Academy of Sciences,
	Dr. Tapan K Ghanty	2014	AAEPG0448G	Scientific Officer-H	India "Group Achievement Award" from DAE,
	Dr. Amit Kunwar	2018	AQCPK5447K	Assistant professor	GOI
	Dr. Amit Kunwar	2016	AQCPK5447K	Assistant professor	"Young Scientist Award" from SFRR, India "Outstanding Doctoral Thesis Award"
	Dr. Amit Kunwar	2015	AQCPK5447K	Assistant professor	from HBNI, India
					"Richard and Edith Strauss Postdoctoral Fellowship in Respiratory Medicine"
	Dr. Amit Kunwar	2013	AQCPK5447K	Assistant professor	from Strauss Foundation, Canada
	Dr. Amit Kunwar	2011	AQCPK5447K	Assistant professor	"Young Scientist Award" from DAE, GOI "Lester Pecker Young Investigator
	Dr. Amit Kunwar	2010	AQCPK5447K	Assistant professor	Award" from Oxygen Club California, USA "Archives of Biochemistry and Biophysics
17 3055 17	Dr. Amit Kunwar	2007	AQCPK5447K	Assistant professor	Young Investigator Award" from SFRR, India DAE-Scientific & Technical Excellence
State of	Dr. Virendra Kumar	2016	ALOPK6863C	SO/G	DAE-Scientific & Technical Excellence Award- 2016
	Dr. Virendra Kumar Dr. Virendra Kumar	2016		SO/G	Award- 2016 DAE-Group achievement award- 2016 DAE-Group achievement award- 2016 The definition of the sciences
	a star and the			х.	Theorem

-

	Dr.(Mrs.) Jyotirmayee Mohanty	July 2015-June 2018			Awarded a three-year membership in the "American Chemical Society"
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	Advances in Science, Engineering and Technology (ASET) Colloquium, TIFR
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	IAEA Expert Mission on Radiopharmaceuticals, Jakarta, Indonesia
	Dr. Sharmila Banerjee	2018	AAVPB8913G	OS	DAE Group Achievement Award
	Dr. Sharmila Banerjee	2017	AAVPB8913G	OS	Homi Bhabha Memorial Oration Award, Indian College of Nuclear Medicine
	Dr. Sharmila Banerjee	2016	AAVPB8913G	H+	DAE Group Achievement Awards (2)
	Dr. Sharmila Banerjee	2014	AAVPB8913G	н	DAE Group Achievement Awards Fellow, National Academy of Science,
	DR. R. S. Ningthoujam	2016	AFRPN1884R	Fellow	India
	Dr Sangita D. Kumar Atindra Mohan	2014	ААСРК7715Q	SO/H	DAE Group Achievement Award Post-Doctoral Fellowship, University of
	Banerjee Atindra Mohan	2013-14	AJYPB5211F	SO (E), BARC	Kansas, USA
	Banerjee Atindra Mohan	2014	AJYPB5211F	SO (E), BARC	DAE, Yong Scientist Award ITAS (Indian Thermal Analysis Society)
110	Banerjee	2016	AJYPB5211F	SO (E), BARC	Young Scientist Award The Japanese Photochemistry Association Lectureship Award for Asian and Oceanian Photochemist Sponsored by Fikohshaby Japanese Photochemistry
	Dr. A. C. Bhasikuttan	2017	NA		and Oceanian Photochemist Sponsored by Eikohshaby Japanese Photochemistry Association, 2017 Association, 2017 Associatio

Physical Sciences								
Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teacher/research scholar/student				
Best poster award at International Conference on Magnetic Materials and Applications (ICMAGMA - 2018)	(Madhu Ghanathe )	ICMAGMA - 2018	2018	Magnetism				
Best poster award at DAE Symp on Nuclear Physics	Ananya Kundu	DAE-SNP	2015	Research scholar				
Best poster award at DAE Symp on Nuclear Physics	Dipayan Chattopadhyay	DAE-SNP	2018	Research scholar				
Best poster award at International Conference in Nuclear Physics with Energetic Heavy Ion Beams	Ananya Kundu	Punjab University, Chandigarh	2017	Research Scholar				
Best poster award in 63rd DAE Solid State Physics Symposium (DAE SSPS-2018)	Sajid Ahmed	DAE-SSPS	2018	Research scholar				
Best poster award at 32nd meeting of Astronomical Society of India	K K Yadav	Astronomical Society of India	2014	Teacher				

Dif 28/7/2010

Physical Sciences								
Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teacher/research scholar/student				
Best poster award at International Conference on Magnetic Materials and Applications (ICMAGMA - 2018)	Madhu Ghanathe	ICMAGMA - 2018	2018	Magnetism				
Best poster award at DAE Symp on Nuclear Physics	Ananya Kundu	DAE-SNP	2015	Research scholar				
Best poster award at DAE Symp on Nuclear Physics	Dipayan Chattopadhyay	DAE-SNP	2018	Research scholar				
Best poster award at International Conference in Nuclear Physics with Energetic Heavy Ion Beams	Ananya Kundu	Punjab University, Chandigarh	2017	Research Scholar				
Best poster award in 63rd DAE Solid State Physics Symposium (DAE SSPS-2018)	Sajid Ahmed	DAE-SSPS	2018	Research scholar				
Best poster award at 32nd meeting of Astronomical Society of India	K K Yadav	Astronomical Society of India	2014	Teacher				

Dif 28/7/2010

Physical Sciences				
Title of the innovation	Name of the Awardee	Name of the Awarding Agency with contact details	Year of Award	Category- institution/teacher/research scholar/student
Best poster award at International Conference on Magnetic Materials and Applications (ICMAGMA - 2018)	Madhu Ghanathe	ICMAGMA - 2018	2018	Magnetism
Best poster award at DAE Symp on Nuclear Physics	Ananya Kundu	DAE-SNP	2015	Research scholar
Best poster award at DAE Symp on Nuclear Physics	Dipayan Chattopadhyay	DAE-SNP	2018	Research scholar
Best poster award at International Conference in Nuclear Physics with Energetic Heavy Ion Beams	Ananya Kundu	Punjab University, Chandigarh	2017	Research Scholar
Best poster award in 63rd DAE Solid State Physics Symposium (DAE SSPS-2018)	Sajid Ahmed	DAE-SSPS	2018	Research scholar
Best poster award at 32nd meeting of Astronomical Society of India	K K Yadav	Astronomical Society of India	2014	Teacher

Dif 28/7/2010



## Certificate of Completion

The J. William Fulbright Foreign Scholarship Board and the Bureau of Educational and Cultural Affairs

> of the United States Department of State award this certificate to

## Babita Tiwari

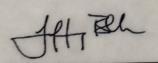
in recognition of successful completion of the

## Fulbright Scholarship Program

June 2019 Washington, DC

Marin Royce

Marie Royce Assistant Secretary of State Bureau of Educational and Cultural Affairs



Jeffrey L. Bleich Chair, J. William Fulbright Foreign Scholarship Board

**FULBRIGHT**