



*Issue No. 08 | December 2022*

# अणुविद्या

**HBNI NEWSLETTER**

होमी भाभा राष्ट्रीय संस्थान

**Homi Bhabha National Institute**

( परमाणु ऊर्जा विभाग की सहायता प्राप्त संस्था और यूजीसी अधिनियम 1956 की धारा 3 के तहत विश्वविद्यालय माना जाता है )

( An Aided Institution of the Department of Atomic Energy and a Deemed-to-be University Under Section 3 of the UGC Act. 1956 )

## Awards and Honors received by HBNI Faculty

1. Prof. Sudhakar Panda, NISER, has been conferred the coveted 'Biju Patnaik Award for Scientific Excellence' for the year 2020 in recognition of his outstanding life-time contribution in the field of Science and Technology by Odisha Bigyan Academy, Govt. of Odisha.
2. Prof. B. Venkataraman, IGCAR, has been conferred the Honorary Fellowship of the Indian Society of Analytical Scientists, Mumbai.
3. Prof. John Philip, IGCAR, has been conferred the Honorary Fellowship of the Indian Society of Analytical Scientists, Mumbai. Prof. Philip has been appointed as Associate Editor of Frontiers in Nanotechnology (Nanomaterials), Frontiers Publishing, UK. He has also been selected as an Editorial board member of Smart Materials in Medicine, Elsevier, Netherland and, Materials Futures, Institute of Physics (IOP), UK.
4. Prof. S. M. Yusuf, BARC, has been elected as a Fellow of Indian National Science Academy w.e.f. 01.01.2023. He has also received the Distinguished Lectureship Award of the Materials Research Society of India (MRSI).
5. Prof. Aditi Sen De, HRI, has been elected as a fellow of Indian National Science Academy w.e.f. 01.01. 2023
6. Prof. A. K. Tyagi, BARC, has become a Fellow, Indian National Academy of Engineering. He has received Honorary Professorship from Jawahar Lal University, Delhi and also received NETZSCH - ITAS Award from Indian Thermal Analysis Society in 2022.
7. Prof. V. Gopika, BARC, has been elected as a Fellow of Indian National Academy of Engineering.
8. Prof. Sandip Dhara, IGCAR, has become a Senior Member of OPTICA (Optical Society of America) in 2022.
9. Prof. J. Mohanty, BARC, has become a member of Royal Society of Chemistry. She has also been selected for SERB POWER Fellowship from SERB, DST.
10. Prof. Shikha Verma, IoP, has become Endowment Chair Professor of Dr. K. C. Patel Research & Development Center (KRADLE), CHARUSAT, Gujarat.
11. Prof. T. Som, IoP, has become a member of the Review Committee for the IEST Solar PV Hub at IEST, Shibpur.
12. Prof. Sanjib Kumar Agarwalla, IoP, has been appointed as an Honorary Fellow of the Physics Department, University of Wisconsin-Madison, Madison, USA.



13. Dr. Ajit C. Balram, IMSc., has been elected as an Associate of Indian Academy of Sciences.
14. Dr. Sangram Bagh, SINP, has become a Fellow of the Royal Society of Chemistry in 2022.
15. Dr. Amit Kunwar, BARC, has been elected as a Fellow of Maharashtra Academy of Sciences in 2022.
16. Dr. Pratap Roy, VECC, has been awarded the IPA “Aswini Kumar Rath Memorial Award” in Nuclear Physics for the year 2022.
17. Dr. R. S. Ningthoujam, BARC, has been awarded MRSI medal for the year 2022.
18. Prof. Ranjan Mittal, BARC, received MRSI Materials Science Annual Prize for the year 2021.
19. Dr. M. Vasudevan, IGCAR, is co-recipient of W. H. Hobart Memorial Award from the American Welding Society National Award for the year 2021.
20. Dr. Rubel Chakravarty, BARC, has received SMC Bronze medal for the year 2022.
21. Dr. Shiba Prasad Acharya, SINP, received “International Best Researcher Award” in the field of nonlinear dynamics and plasma physics. The award has been instituted by ISSN International Science & Technology Awards and Congress (IISTAC-2022) in association with World Research Council (WRC).
22. Dr. Sunita Sonawane, RMC-BARC, has won Women Researcher Award in the International Scientist Award on Engineering, Science and Medicine, held during October 7-8, 2022, organised by VDGGOOD Professional association.
23. Prof. B. N. Pandey, BARC, has become Vice President, Asian Association for Radiation Research.
24. Prof. Veerendra K. Sharma, BARC, has been elected as a core-committee member in Indian National Young Academy of Sciences (INYNAS), INSA, New Delhi.
25. Prof. Venkatesh Raman, IMSc., Has been elected President of ACM India for the year 2022.
26. Prof. Arnab Pal, IMSc, has been awarded SERB Start-Up Research Grant (2022-24) by DST SERB to work on applications of first passage processes in natural sciences.
27. Dr. Subhankar Bedanta, NISER, has been appointed as Associate Editor for the journals Frontiers in Physics and Frontiers in Nanotechnology.
28. Prof. Manimala Mitra, IoP, has received Subham Memorial Award, 2022 by the NGO AWTE, Bhubaneswar.
29. Dr. Debasish Chaudhuri, IoP, was invited to visit LPTM CY Cergy Paris University, Paris, France with a Visiting Professorship from 26 September to 7 October, 2022.

# VIBES

NISER NEWSLETTER

**JULY - DEC 2022**  
**VOL 4, ISSUE II**

  
**Azadi Ka**  
**Amrit Mahotsav**



भारत 2023 INDIA

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- Dr. Jayesh Mahendra Goyal from NISER delivered a talk on **“Exoplanets and the Search for Habitable Worlds”** on November 18, 2022.

### Oorna Talks

- On the eve of World Wildlife Week 2022, Dr. Rittik Deb from the School of Biological Sciences delivered a talk on **“Tree Crickets use Tools to Amplify their Mating Calls - HOW and WHY?”** on October 21, 2022.
- Oorna organized a student talk during World Wildlife Week 2022, delivered by Ashlesh Pattnaik from the School of Biological Sciences, titled **“Pitch Perfect”** on October 23, 2022.

### The Free Radicals Talks

- TFR organized a student talk on **“Kinetic Investigations of the Catalytic Hydration of Nitriles to Amides”**, which was delivered by Shivam Mahapatra of Int. M.Sc. from the School of Chemical Sciences.
- Organized Alumni Talk on **“Local Excitations in Crystalline Point Defects with Multireference Density Matrix Embedding Theory”** by Mr. Abhishek Mitra from the University of Minnesota and **“Competing reaction dynamics with second-order saddles”** by Ms. Richa Rashmi from the University of California.



**Dr. Amaresh Jaiswal**  
The Recipient of the 'Young Achiever Award,' DAE Symposium on Nuclear Physics, 2022.



**Prof. Bedangadas Mohanty**  
Appointed as the Deputy Spokesperson of the ALICE experiments at the Large Hadron Collider in CERN starting January 2023 for three years. ALICE consists of 173 institutions from 42 countries and 1946 members. His role as the Deputy Spokesperson is to work with the ALICE team by providing directions from the field of Physics on upgrades to the detector and also to represent ALICE at various forums.



**Dr. Ponneri C. Ravikumar**  
Awarded with 'CRSI Bronze Medal' for significant contribution to research in Chemical Sciences.



**Dr. Satyaprasad P Senanayak**  
Selected for the 'Odisha Young Scientist Award' for his outstanding contributions to the field of science and technology. He received this award in the category of Odia young scientists working outside the state of Odisha in 2020.

## AWARDS & HONORS



**Prof. Sudhakar Panda, Director of NISER**  
Honoured with the prestigious 'Biju Patnaik Award for Scientific Excellence' for the year 2020 in recognition of his outstanding lifetime contributions to the field of

Science and Technology. Instituted by Odisha Bigyan Academy, Government of Odisha, the award is given to Odia Scientists working in India or abroad each year for their lifetime research contributions in the area of science and technology.

### STUDENT ACHIEVEMENTS



**Mr. Pushendra Gupta**  
Awarded the Best Poster Award at the Frontiers in Materials for Technological Applications (FIMTA-2022), IMMT Bhubaneswar.



**Mr. Satyapriya Nath**  
Received the Best Poster Presentation Award at the 27th Indian Society of Chemists and Biologists International Conference held at BIT Mesra, Ranchi.

# VIBES

Volume 5, Issue 1

75  
Azadi Ka  
Amrit Mahotsav

G20  
भारत 2023 INDIA  
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# NISER Newsletter

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January-June



2023

# AWARDS & RECOGNITIONS

## Faculty Achievements



Image by Dr. Arindam Ghosh, Associate Prof., via Facebook



Bedangadas Mohanty



Shamik Banerjee



Tapan Mishra



Himansu S. Biswal

### Prof. Bedangadas Mohanty

has been awarded the Honorary **D.Sc. degree** as a testament to his dedication to the nation and pioneering research by the Governor of Odisha, who serves as the Chancellor of Sambalpur University.

### Dr. Shamik Banerjee

has been bestowed with the esteemed **INSA Young Scientist Award 2022**. This accolade is in recognition of his exceptional strides in the study of asymptotic symmetries of quantum gravity and his contributions to the domain of flat space holography.

## Alumni Achievements



**Mr. Debasish Jena** (Int. MSc/2019/School of Biological Sciences) is selected for the esteemed Indian Forest Services by securing the 70th rank.

His journey from the School of Biological Sciences to this significant accomplishment highlights the depth of talent nurtured at NISER.

**Dr. Sourav Kundu** (Ph.D./2020/School of Physical Sciences) attained the Experimental Physicist staff position at the Centre Européen de la Recherche Nucleaire (CERN).

Remarkably, he is the first Indian student to hold this position within the CERN EP department.



### Dr. Tapan Mishra

has won the **SERB Science and Technology Award** for Research (SERB-STAR) for the year 2022 for his dedicated research efforts as a testament to his exceptional contributions to the field.

### Prof. Himansu Sekhar Biswal

from the School of Chemical Sciences, has recently been honoured with the esteemed distinction of becoming a **Fellow of the Royal Society of Chemistry (FRSC)**.

## Swachhata Pakhwada



Besides routine cleaning, the Swachhata Committee and NISER students proactively arrange dedicated cleanliness drives and awareness initiatives to maintain a hygienic environment. Student volunteers have taken on a pivotal role by regularly conducting cleanliness campaigns within the hostel premises. This year's campaign, held between March 18 and 31, 2023, encompassed a variety of engaging activities, including Street Play, Quiz, Debate, Drawing, and Painting, all aimed at enabling active student participation.

**N.16: Awards and Honours**
**N.16.1: Award of Doctor of Philosophy (Ph. D.) Degree**

The Homi Bhabha National Institute (HBNI), a Deemed University has awarded Ph. D. Degree to following employee / students of RRCAT:

1. **Dr. Megha** was awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “Theoretical investigations on reactivity of pure and mixed nanoclusters towards some environmentally important gases”, which was supervised by Dr. Arup Banerjee.



2. **Dr. Preeti Pokhriyal** was awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “Study of structural and physical properties of transition metal and rare earth based multiferroic oxides”, which was supervised by Dr. Archana Sagdeo.



3. **Dr. Rijul Roychowdhury** was awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “Spectroscopic investigations on MOVPE grown gallium phosphide epi-layers integrated on polar and non-polar substrates”, which was supervised by Dr. Vijay Kumar Dixit.



4. **Dr. Durga Prasad Khatua** was awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “Ultrafast photoexcited carrier dynamics in two-dimensional molybdenum disulfide”, which was supervised by Dr. Jesumony Jayabalan.



5. **Dr. Tirtha Mandal** was awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “Investigation on intense, ultra-short laser foil interaction through fast electron generation, characterization and x-ray studies”, which was supervised by Dr. Anand Moorti.


**N.16.2: Best Thesis Awards**

1. **Dr. Tirtha Mandal**, SO/E, Laser Plasma Division, Laser Group, RRCAT received Best Thesis Award sponsored by the Indian Laser Association (ILA), during 31<sup>st</sup> DAE-BRNS National Laser Symposium (NLS-31) held at IIT



Kharagpur during December 3-6, 2022. The title of the thesis was “Investigation on intense, ultra-short laser foil interaction through fast electron generation, characterization and x-ray studies”. The award carries a certificate and a cash prize of ₹5000.

2. **Dr. Chiranjit Debnath**, SO/E, Laser Biomedical Applications Division, Materials Science and Advanced Technology Group, RRCAT received Best Thesis Award sponsored by the Indian Laser Association (ILA), during 31<sup>st</sup> DAE-BRNS National Laser Symposium (NLS-31) held at IIT Kharagpur during December 3-6, 2022. The title of the thesis was “Synthesis and characterization of lithium niobate nanoparticles and nanocomposites for optical applications”. The award carries a certificate and a cash prize of ₹5000.


**N.16.3: Best Poster / Paper Awards**

1. One paper of RRCAT received the Best Poster Award sponsored by Material Research Society of India (MRSI) in International Union of Materials Research Societies-

International Conference in Asia-2022 (IUMRS-ICA-2022) held at Indian Institute of Technology Jodhpur during December 19-23, 2022. The award carries a certificate. The details of the paper are given below:



*Title:* Electronic and Magnetic Properties of a 2D van der Waal Ferromagnetic Semiconductor CrGeTe<sub>3</sub>,  
*Authors:* Kritika Vijay, D. S. Vavilapalli, A. Arya, K. Kumar, and Soma Banik.

**Ms. Kritika Vijay**, HBNI Ph.D. Scholar, Accelerator Physics and Synchrotrons Utilization Division, RRCAT working under the guidance of Dr. Soma Banik, presented the poster and received the award.

2. One paper of RRCAT received the Best Poster Award in 66<sup>th</sup> DAE-Solid State Physics Symposium held at Birla Institute of Technology Mesra, Ranchi (Jharkhand), during December 18-22, 2022. The award carries a certificate and a trophy. The details of the paper are given below:



*Title:* Study of Higher Harmonic Contamination in Indus-2 Soft X-ray Reflectivity Beamline  
*Authors:* Raj Kumar Gupta, Shruti Gupta, Praveen Kumar Yadav, Mohammed H. Modi.

**Shri Raj Kumar Gupta**, SO/D, Soft X-ray Applications Lab, Accelerator Physics and Synchrotrons Utilization Division, Electron Accelerator Group has received best poster award. The poster was presented by Ms. Shruti Gupta, SO/C.



3. One paper of RRCAT received the Best Paper Award in 28<sup>th</sup> National Symposium on Cryogenics and Superconductivity (NSCS28) held at IIT Kharagpur during Oct. 18-21, 2022. The award carries a certificate and a cash prize of ₹ 5000. The details of the paper are given below:



*Title:* PLC based control system for LN<sub>2</sub> based reefer SHIVAY  
*Authors:* S. C. Patidar, C. Gupta, P. Khare, A. Tiwari, H. K. Patel, S. G. Gilankar, G. Agrawal, D. Sinnarkar

**Shri Suresh Chandra Patidar**, SO/E, Cryomodule Development & Cryoengineering Application Section, Proton Accelerator Group, RRCAT, who presented the paper, received the award.

4. Six posters of RRCAT received the Best Poster Awards sponsored by the Indian Laser Association (ILA), during 31<sup>st</sup> DAE-BRNS National Laser Symposium (NLS-31) held at IIT Kharagpur during December 3-6, 2022. The award carries a certificate and a cash prize of ₹ 2000. The details of the posters are given below:

4.1 *Title:* Programmable versatile fast high voltage pulse generator with matched rise-fall times for Paul trap experiments  
*Authors:* Jankee Upadhyay, Sudhir Kumar, P. Saxena, R. Arya



**Smt. Jankee Upadhyay**, SO/G, Laser Electronics Division, Laser Group, RRCAT, presented the poster and received the award.

4.2 *Title:* Tilted fiber Bragg grating cut-off mode based highly sensitive refractive index sensor  
*Authors:* P. K. Saini, J. Kumar, R. Mahakud, S. Kumar, O. Prakash, S.V. Nakhe



**Shri Pankaj Kumar Saini**, SO/E, Fibre Sensors & Optical Spectroscopy Section, Materials Science and Advanced Technology Group, RRCAT, presented the poster and received the award.

4.3 *Title:* Preparation and evaluation of a light activable drug loaded composite film for antimicrobial photodynamic therapy application



*Authors:* Sourabrata Chakraborty, Khageswar Sahu, Shivangi, Shovan Kumar Majumder

**Shri Sourabrata Chakraborty**, SO/C, Laser Biomedical

Applications Division, Materials Science and Advanced Technology Group, RRCAT, presented the poster and received the award.

4.4 *Title:* Development of underwater laser cutting tool and technique for removal of central cobalt pin from 19-pin PHWR fuel bundle



*Authors:* R. K. Jain, Rajpal Singh, M. K. Bairwa, Pawan Kumar, Ranveer Singh Meena, Sunil Kumar Sharma, Vijay Shukla, B. K. Saini, Dhruvdeep Narwat, B. N. Upadhyaya, R. Arya, K. S. Bindra.

**Shri R. K. Jain**, SA/G, Industrial Lasers & Applications Section, Laser Electronics Division, Laser Group, RRCAT, presented the poster and received the award.

4.5 *Title:* Laser cladding of tungsten carbide on SS 304 steel using LDED process



*Authors:* C. H. Prem Singh, Upendra Kumar, A. K. Rai, G. K. Mishra, C. P. Paul, S. K. Dixit and K. S. Bindra

**Shri C. H. Prem Singh**, SA/E, Laser Technology Division, Laser Group, RRCAT, presented the poster and received the award.

4.6 *Title:* High precision measurement of effective thermal expansion coefficients of low-coefficient of thermal expansion (CTE) materials using low-coherence interferometry



*Authors:* K. K. Malakar, S. Chakraborty, B. C. Pant, T. S. Reddy, Y. Verma, Sendhil Raja S.

**Shri K. K. Malakar**, Ph. D. Scholar, Advanced Electro-Optics Systems Section, Laser Group, RRCAT, presented the poster and received the award.

Supporting link of HRI, Prayagraj, with respect to incentives to teachers who receive state, national and international recognitions/awards

<https://www.hri.res.in/awards/>