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Annual Newsletter | JAWAHARLAL NEHRU CENTRE FOR
ADVANCED SCIENTIFIC RESEARCH

JNC NEWS

Issue: 62
2024

Message from the President

It gives me great joy to present to you yet another issue of our newsletter, which serves as an important record of the significant achievements of our Centre, our colleagues, students, and other members. It is with immense pride that we see our Centre consistently ranked among the top institutions in the National Institutional Ranking Framework (NIRF). This year, we achieved an outstanding 34th rank in the Research Institutions category. The credit for this success goes to all our dedicated researchers, whose hard work and commitment continue to propel us forward.

Several of our members have been individually recognised on various prestigious platforms for their exceptional work. Notably, Bharat Ratna Prof. C. N. R. Rao's autobiography in Kannada, *Vijnanadolagonda Jeevana* (a translation of *A Life in Science*), was launched, a testament to Prof. Rao's unwavering dedication to the progress of science. He also received the highly deserving *Chemist of the Century* award from the Indian Chemical Society and the *Nagarjuna Award 2024* from the Hindu Research Foundation. Prof. Chandrabhas Narayan received the A.P.J. Abdul Kalam National Award, while Prof. Shobhana Narasimhan was featured in the "*Heroines of Science*" diary published by the University of Cambridge and appointed as a "*TUM Global Ambassador*" by the Technical University of Munich.

Several of our faculty members have been recognised with prestigious fellowships from leading science academies. Additionally, many faculty members have joined the editorial boards of reputed journals and committees both in India and internationally. These accolades highlight the Centre's continued excellence in research and academic achievements.

In the realm of sustainable development, I am pleased to share that some of our researchers have made remarkable strides toward achieving an energy-efficient India. Among them, Prof. Sebastian C. Peter, along with his startup company, Breathe Applied Sciences Pvt. Ltd., won the *Sustainability Champion Award* at the National Startup Awards 2023. I wish them continued success in their endeavours. We also participated in the 13th *Bengaluru INDIA NANO 2024* event, focused on 'Nanotechnology for Sustainability,' where our team won the *Bangalore India Nano Innovation Award 2024* for a Smart Glass Technology. Additionally, I commend all our students who have received best poster, best thesis, and travel awards, along with other recognition at various platforms in recent months.

Continuing our efforts in translational research and fostering innovation, we filed 18 patents in the past year, 6 of which

Contd...

have already been granted. We signed 21 agreements with industry partners and research collaborators and hosted R&D teams from different industries to discuss future collaboration opportunities. The inauguration of the *Innovation & Development Centre (IDC)* at our Arkavathi Campus by Prof. Abhay Karandikar, Secretary, DST has further boosted our efforts in translational research. The IDC serves as a platform to host laboratories focused on scaling up inventions and facilitating technology transfer. This initiative marks a significant step forward in our commitment to strengthening academia–industry partnerships.

On the academic front, we are pleased to welcome 130 new students who have joined us through the mid-year and regular admissions, taking our student strength to 447. We congratulate and welcome all our new students and wish them success in their academic journey. Additionally, we have awarded 101 graduate and diploma degrees to our graduating students.

Our Science Outreach wing has been highly proactive in reaching students from remote corners of the country through hands-on workshops on popular science. We have

seen the active participation of over 5,000 students and teachers across our various outreach programs, events, and workshops. It gives me immense pleasure to know that in addition to advancing the frontiers of science, we are also fostering scientific awareness among young minds.

I am immensely proud of our ability to strike the right balance between scientific research and innovation, outreach activities, academic programs, and the celebration of important milestones. I extend my sincere gratitude to all those who make this progress possible. Let us continue to make bold strides towards our shared goals and vision.

Finally, I would like to express my deep appreciation for the continued support we receive from the Department of Science and Technology, Government of India, which has been instrumental in our success.

Wishing all of you the best as we move forward in the pursuit of excellence.

Warm regards,

G. U. Kulkarni
President, JNCASR

■ Major Highlights

Book Launch of Prof. C. N. R. Rao's Autobiography

Prof. C. N. R. Rao's autobiography in Kannada '*Vijnanadolagonda Jeevana*,' translation of '*A Life in Science*,' was launched on 19th October 2023 at JNCASR by Dr. Chandrashekhara Kambara (a Jnanapeeta, Padma Shri, and Padma Vibhushan awardee). The event was jointly organised by JNCASR and Navakarnataka Publications and presided by Prof. G. U. Kulkarni, President, JNCASR. The event was live-streamed on YouTube: <https://www.youtube.com/watch?v=cf80SzWxixw>.



(From left to right): Dr. M. S. S. Murthy (translator), Bharat Ratna Prof. C. N. R. Rao, Linus Pauling Research Professor and Honorary President, JNCASR, Dr. Chandrashekhara Kambara, Prof. G. U. Kulkarni, President, JNCASR and Sri A. Ramesha Udapa (publisher).

Signing of Memorandum of Understanding

JNCASR and ICAR-NBAIR entered into a Technology License Agreement with ATGC Biotech Pvt. Ltd., Hyderabad on 19th March 2024 at the Centre.



(From right to left): Dr. Kesavan Subaharan, Inventor, ICAR-NBAIR, Dr. Markandeya, MD, ATGC Biotech Pvt. Ltd., Dr. S. N. Susheel, Director, ICAR-NBAIR and JNCASR Team (Prof. G. U. Kulkarni, President, JNCASR, Prof. M. Eswaramoorthy, Co-Inventor from JNCASR, Prof. K. R. Sreenivas, Dean R&D, Joydeep Deb, Administrative Officer and Dr. Paneer Selvam, Coordinator, R&D and F&E)

Interactive Meeting with DST Officials

A 12-member team of officers from the DST, Government of India, visited JNCASR on 11th March 2024. Prof. N. S. Vidhyadhiraja, Dean, F&E, gave a brief presentation on the research and academic activities at the Centre. The visiting team interacted with the President, JNCASR, senior officers of the Centre, and research students, and also visited the Chemistry Heritage Exposition, C. N. R. Rao Hall of Science, and a few key research laboratories at the Centre.



Review of DST-SAIF Programme

Prof. Abhay Karandikar, Secretary, DST, along with Dr. M. Mohanty, Head of the AI Division, and Dr. Pratishtha Pandey, Head of the R&D Infrastructure Division, visited JNCASR on 2nd April 2024 for the Empowered Committee meeting of the Sophisticated Analytical Instrument Facilities (SAIF) programme of DST and to review the Centre's research activities. Prof. G. U. Kulkarni, President, JNCASR gave a presentation on the academic and research activities of JNCASR, while Prof. Ramgopal Rao, Chair of the Council of Management, JNCASR, added to the deliberations. Deans and Officers of the Centre also participated.



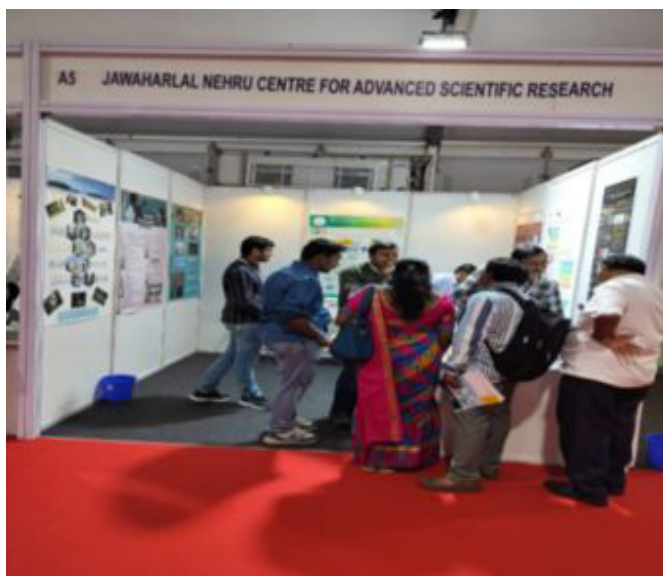
Interface Meeting with the Vice Chancellors of Deemed to be Universities

A review meeting with the Vice-Chancellors of Deemed to be Universities was held on 4th April 2024 at the University Grant Commission (UGC), New Delhi. Prof. M. Jagadish Kumar, Chairman, UGC discussed the priorities of policy implementation. Prof. G. U. Kulkarni, President, JNCASR, presented the Centre's academic and research activities and implementation status of NEP 2020.



Bengaluru INDIA NANO 2024

JNCASR participated in the 13th edition of India's flagship Nanotech event "Bengaluru INDIA NANO" held from 2nd-3rd August 2024 at The Lalit, Bengaluru with the focal theme, 'Nanotechnology for Sustainability - Climate, Energy and Healthcare'. The event was organised by the Department of Electronics, Information Technology, Biotechnology, and Science & Technology, Government of Karnataka, in collaboration with Karnataka's Vision Group on Nanotechnology. JNCASR showcased products related to inventions such as Smart Windows (PI: Prof. G. U. Kulkarni), Radiative Cooling Paint (PI: Prof. Bivas Saha), and Controlled Release Dispensers for Delivery of Semiochemicals (PI: Prof. M. Eswaramoorthy). Additionally, posters depicting academic, F&E, and Outreach programmes were displayed.



Leading News

NIRF Ranking 2024

JNCASR ranked 34th under the Research Institutions Category of the recently declared NIRF Rankings 2024

News reported by:

- NIRF (<https://www.nirfindia.org/Rankings/2024/ResearchRanking.html>)
- Twitter post by JNCASR, 13th August 2024 (rb.gy/h126l4)

'The Chemist of the Century' Award

The Indian Chemical Society conferred the 'Chemist of the Century' award to Prof. C. N. R. Rao on 23rd January 2024 in recognition of his pathbreaking contributions to the field of chemistry. Prof. Rao was felicitated by Prof. G. D. Yadav, President of the Indian Chemical Society, in the presence of Prof. G. U. Kulkarni, President, JNCASR, and Dr. Indumati Rao, Honorary Coordinator, ETU, JNCASR, as dignitaries.



Photos from the 'The Chemist of the Century' Award and Felicitation function

News reported by:

- Biospectrum, 9th February 2024 (<https://rb.gy/z0cke9>)
- SiliconIndia, 24th January 2024 (<https://rb.gy/uhulrr>)

'National Startup Award 2023'

Prof. Sebastian C. Peter from NCU and his startup company Breathe Applied Sciences Private Limited won the "Sustainability Champion Award" at the National Startup Awards 2023.

News reported by:

- Inc42, 16th January 2024 (<https://inc42.com/buzz/meet-the-20-winners-of-national-startup-awards-2023/>)
- TICE News, 17th January 2024 (<https://www.tice.news/tice-trending/national-startup-award-results-2022-meet-the-top-startups-of-2022-2388306>)
- Twitter post by Startup India, 17th January 2024 (<https://rb.gy/mt464g>)
- Twitter post by JNCASR, 20th January 2024 (<https://rb.gy/4w6k43>)



Co-founders of Breathe Applied Sciences Pvt. Ltd., Prof. Sebastian C. Peter and Dr. Rakshit receiving the award from Shri Piyush Goyal, Hon'ble Minister of Commerce and Industry.

Inauguration of the Innovation & Development Centre

The Innovation & Development Centre (IDC) of JNCASR and Hemavathi Hostel of CeNS was inaugurated on 8th July 2024 by Prof. Abhay Karandikar, Secretary to Govt. of India, DST in the presence of Bharat Ratna Prof. C. N. R. Rao, Prof. Ramgopal Rao, Chairperson, Council of Management, JNCASR, and Prof. K. N. Ganesh, Chairperson, Governing Council, CeNS. Prof. B. L. V. Prasad, Director, CeNS, and Prof. G. U. Kulkarni, President, JNCASR were also present on the dais. As part of the event, Tech Translation – a Poster Exhibition and Interaction with Industry session – was held at IDC, wherein innovations were showcased by 20+ exhibitors from autonomous institutions, Technical Research Centers of DST, Startups based on JNCASR Innovations, and Tech Translation Companies. A Round Table Discussion was also chaired by Prof. Karandikar.



Inauguration of Innovation & Development Centre on 8th July 2024 at Arkavathi Campus, JNCASR by Prof. Abhay Karandikar, Secretary to Govt. of India, DST

News reported by:

- JNCASR, 8th July 2024 (<https://www.jncasr.ac.in/all-events/inauguration-innovation-development-centre>)
- DST, 9th July 2024 (<https://dst.gov.in/innovation-development-centre-idc-jncasr-and-hemavathi-hostel-cens-bengaluru-inaugurated>)
- Press Information Bureau, 5th July 2024 (<https://pib.gov.in/PressReleasePage.aspx?PRID=2030963>)

Collaborative Research Agreement with Hindustan Zinc Ltd.

The signing and exchange of a Collaborative Research Agreement between JNCASR and Hindustan Zinc Ltd., Rajasthan was held on 21st August 2024. The MoU is based on the research work of Dr. Premkumar Senguttuvan and his team at NCU. Prof. Senguttuvan's group has built a robust research foundation in zinc-based batteries, which has led to significant advancements in the field.

News reported by:

- Press Information Bureau, 22nd August 2024 (<https://pib.gov.in/PressReleaselframePage.aspx?PRID=2047647>)
- DST, 22nd August 2024 (<https://dst.gov.in/jncasr-partners-hzl-scale-indigenous-zn-ion-battery-technologies>)
- Twitter Post by Hindustan Zinc Ltd., 22nd August 2024 (<https://in.investing.com/news/hindustan-zinc-jncasr-partner-for-newage-zincbased-battery-technology-4395616>)
- The Hindu, 26th August 2024 (<https://bit.ly/3AFQsFn>)

JNCASR Signs MoU with Tata Institute for Genetics and Society

The MoU was signed on 22nd August 2024 at JNCASR to carry out joint research on rare genetic disorders and infectious diseases with specific objectives and deliverables. The MoU presents a significant step towards bringing leading-edge developments in the domain of rare genetic disorders and infectious diseases for the benefit of society at large.



JNCASR signs MoU with Tata Institute for Genetics and Society. From right to left: Dr. Vasanth Thamodaran, Sr. Scientist, Joydeep Deb, Administrative Officer, Dr. Surabhi Srivastava, CSO, Dr. Runa Hamid, Sr. Scientist, Prof. K. R. Sreenivas, Dean, R&D, Prof. Tapas K. Kundu, MBGU, Dr. Rakesh Kumar Mishra, Director, TIGS, Prof. G. U. Kulkarni, President, JNCASR, Prof. Ravi Manjithaya, MBGU, Dr. Pankaj Gupta, Sr. Programme Manager and Dr. K. Panneer Selvam, Coordinator, R&D and F&E during the signing of MoU between JNCASR and TIGS.

Inauguration of New Transmission Electron Microscope

Bharat Ratna Prof. C. N. R. Rao inaugurated a new Transmission Electron Microscope (JEOL JEM F200) at ICMS, JNCASR on 13th September 2024.

Inauguration of new transmission electron microscope



Prof. Angshuman Nag (left) receiving the National Prize for Research in Chemical Physics

National Prize for Research in Chemical Physics

Prof. Angshuman Nag from IISER, Pune and Prof. Ranjani Viswanatha ICMS and NCU, JNCASR received the National Prize for Research in Chemical Physics in an event held on 25th September 2024 at JNCASR. Prof. Nag delivered a lecture on “Short-Wave Infrared Emitting Halide Perovskites” and Prof. Viswanatha presented on “Semiconductor Nanocrystals: Electronic Structure, Optics, Magneto-optics” on this occasion.

Outreach Programme on CO₂ Capture and Utilisation

As part of the CoE Outreach Initiative, National Centre for Carbon Capture and Utilization, in association with JNCASR, conducted an outreach programme at Jawahar Navodaya Vidyalaya, Doddaballapur on 19th August 2024.

News reported by:

- *Twitter post by SCP Group, 19th August 2024 (rb.gy/qox8u4)*

■ Celebrations of Events of National Importance

Rashtriya Ekta Diwas was celebrated on 31st October 2023 by oath-taking.

Khadi Mahotsav campaign 2023, conducted on 31st October 2023, focused on the theme 'Vocal for Local', and aimed to encourage the popularity of Khadi and local products.

Kannada Rajyotsava was celebrated on 1st November 2023, with the unfurling of Karnataka's state flag by Prof. G. U. Kulkarni, President, JNCASR.

8th Ayurveda Day celebration was held on 3rd November 2023 at JNCASR by the CCRAS-CARI Bengaluru research team. The event comprised of a health awareness talk, a medical camp, and the distribution of medicinal plants.

Vigilance Awareness Week 2023 was observed from 30th October to 5th November 2023. The Integrity Pledge was administered on 30th October by Vigilance Officer Prof. Kaustuv Sanyal.

75th Republic Day was celebrated at the Centre on 26th January 2024 with patriotism and great reverence.

National Science Day was celebrated as Open Day on 28th February 2024 on the theme "*Indigenous Technologies for Viksit Bharat*". About 500 students/teachers from 15 different schools and colleges in Bengaluru participated.

International Women's Day was celebrated with an Inter-institute Volleyball Tournament at JNCASR from 8th-10th March 2024. Students and faculty members of the Centre, IISc, RRI, IIA, NCBS, and ICTS participated. In an exciting final match, IISc Men's and Women's teams won, and teams from JNCASR in both categories became Runner-ups.



A **Blood Donation Drive** was organised at JNCASR in partnership with the NGO Sankalp India Foundation on 5th April 2024. Around 66 units of blood were collected, which may be helpful for patients suffering from thalassemia.



Blood Donation Drive

As per the directions of the Govt. of India, under the **Swachh Bharat Mission** by DST, JNCASR organised a Swachhata Pledge and Plantation Drive on 1st May 2024. The Pledge was administered in English and Hindi by Prof. N. S. Vidhyadhiraja, Dean, F&E and in Kannada by M. R. Chandrasekhar, Coordinator (Security, Legal, and Campus Management).



International Yoga Day: The JNCASR community celebrated International Yoga Day on 21st June 2024. Yoga Guru Anand from Patanjali presented an inspiring talk on “*Yoga, its benefits and importance in leading a healthy life*” followed by a demonstration of Yogasana by the students of the Centre.



Orientation Programme on Environmental Health and Safety: The orientation programme was conducted on 3rd August 2024, and included training on topics such as chemical, electrical, laser, bio safety, and fire and radiation safety and a firefighting demonstration.



Orientation on Anti-Ragging for New Students: As part of Anti-Ragging Day and Anti-Ragging Week, an orientation programme on anti-ragging policy and any form of harassment on campus was conducted on 9th August 2024 for new students by Prof. M. Eswaramoorthy, Dean Academic Affairs, JNCASR and Dr. Bivas Saha, Warden, JNCASR.



News reported by:

- Twitter Post by JNCASR, 22nd August 2024 (<https://x.com/jncasr/status/1826578535739166811>)

As part of ‘**Nasha Mukht Bharat Abhiyaan**’, organised by the Department of Social Justice and Empowerment, a country-wide mass pledge was administered, with this year’s theme being ‘*Viksit Bharat ka Mantra, Bharat ho Nashe se Swatantra*’. The pledge was administered in Hindi and English by Prof. N. S. Vidhyadhiraja, Dean, F&E on 12th August 2024 at JNCASR. The programme was attended by President, JNCASR, Administrative Officer, faculty members, officers, staff, and students of the Centre.



India celebrated its maiden **National Space Day** on 23rd August 2024, with the theme “*Touching Lives while Touching the Moon: India’s Space Saga*”. A series of events was organised on campus to commemorate the day, including a digital display screening of a video presentation on India’s Space Achievements across the campus. In addition, a Special Lecture was organised on 14th August 2024, wherein Dr. B. R. Guruprasad, Director of Jawaharlal Nehru Planetarium, Bengaluru (Former ISRO scientist) delivered a lecture on “*The Exciting Scientific Spacecraft Missions of India*”. A Science Outreach Program was also organised on the same day, with participation of around 180 students and teachers from Jawahar Navodaya Vidyalaya, Bengaluru. On 19th August 2024, an Essay Writing competition was organised in Hindi and English on “*Achievements of the Indian Space Programme*”.



News reported by:

- Twitter Posts by JNCASR, 23rd August 2024 ([rb.gy/8keiq6](https://twitter.com/jncasr/status/1826578535739166811); [rb.gy/u5ajbj](https://twitter.com/jncasr/status/1826578535739166811); <https://lnkfwd.com/u/L7t5TN51>)

78th Independence Day celebrations were held on 15th August 2024. Prof. G. U. Kulkarni, President of JNCASR, hoisted the National Flag at the Jakkur campus in the presence of the students, faculty members, and staff of the Centre, all of whom joined in singing the National Anthem.



News reported by:

- *Twitter post by JNCASR, 15th August 2024*
(<https://lnkfwd.com/u/L7uElauC>)

Swachhata Hi Seva 2024 campaign: In accordance with the directives of the Govt. of India under the Swachh Bharat Mission, JNCASR organised a series of events and activities as part of the Swachhata Hi Seva (SHS) 2024 campaign, held from 17th September to 2nd October 2024. The Swachhata Pledge was administered on 17th September 2024 in Hindi, Kannada, and English. A **Mega Cleanliness Drive** were held on the public road outside JNCASR Main Gate and Chokkanahalli Main Road on 19th and 20th September, respectively. **Awareness Programme on Cleanliness** was organised at JNCASR on 19th September 2024 for school children. The programme saw participation of over 150 students and teachers from five schools across Bengaluru. **Plantation Drives** were organised on 25th September 2024 along with visiting DST Team members. A photoshoot was also organised at the Selfie Point arranged in JNCASR to create awareness on the SHS 2024 campaign.



Swachhata Pledge held on 17th September 2024 at JNCASR



Mega Cleanliness Drive at Chokkanahalli Road



Mega Cleanliness Drive at Jakkur Main Road



Awareness Programme for School Children

■ Appointments & Promotions

New Appointment-Teaching Staff

- Prof. Ashok Misra, Honorary Professor
- Prof. Ranga Uday Kumar, Resident Honorary Professor
- Prof. H. Ila, INSA Honorary Scientist for a period of 3 years

New Appointments–Research Associates

- Dr. Chandan Ramanna, NCU
- Dr. Geetika Dhanda, NCU
- Dr. Jayita Pradhan, NCU
- Dr. Aswathy Narayanan, MBGU
- Dr. Manzoor Ahmed, CPMU
- Dr. Jyotshna Phukon, NCU
- Dr. Madhu R., NCU
- Dr. Abu Sufian, NCU
- Dr. Pankaj Sharma, MBGU
- Dr. Wagalgave Sopan Mahadev, NCU
- Dr. Amar Ghosh, NCU
- Dr. Anshu Kataria, CPMU
- Dr. Alakananda Maitra, EOBU
- Dr. M. Vijayarathy, NCBS
- Dr. Kediya Siddhiben Bakulbhai, NCU
- Dr. Keshav Kumar, NCU
- Dr. Momin Ahamed, CPMU
- Dr. Suryakanta Mishra, NCU
- Dr. Meenakshi Pahwa, CPMU
- Dr. Anindita Goswami, NCU
- Dr. K. Sriram, CPMU
- Dr. Amir Mehtab, NCU
- Dr. Resmi V. Nair, CPMU
- Dr. Sumukh Anil Purohit, CPMU
- Dr. Prashant Kumar, CPMU
- Dr. Vipin Raj K., TSU
- Dr. Sandip Biswas, CPMU
- Dr. Dipanjan Maity, CPMU

- Dr. Subarna Das, NCU
- Dr. Supriya Ghosal, TSU
- Dr. Manjunath K., ICMS

New Appointments–Provisional Research Associates

- Anirudha Mirmira, TSU
- Arti Bisht, CPMU
- Avula Venkata Siva Nikhil, CPMU
- Bidesh Biswas, CPMU
- Dheemahi, CPMU
- Jami Prashanti, TSU
- Monika Bhakar, NCU
- Sandeep Howlader, NCU
- Shadab Saifi, CPMU
- Sinay Simanta Behera, CPMU

New Appointments-Non-Teaching Staff

- Amruth A. Gowda, Junior Admin Assistant (w.e.f. 18th January 2024)
- Ande Akhil, Junior Admin Assistant (w.e.f. 2nd February 2024)
- Arun D, Technical Assistant (w.e.f. 1st May 2024)
- Arun Radhakrishnan, Technical Assistant (w.e.f. 12th March 2024)
- Dushyant Chaudhary, Junior Admin Assistant (w.e.f. 1st February 2024)
- Manasa M., Junior Admin Assistant (w.e.f. 18th January 2024)
- Srinivasa M., Junior Admin Assistant (w.e.f. 18th January 2024)
- Yadunath K., Junior Admin Assistant (w.e.f. 16th February 2024)

New Appointments-Contractual

- Dr. Dayananda B S, Section Officer (w.e.f. 19th August 2024)
- Dr. Divyashri Baraniya, Guest Instructor (w.e.f. 1st December 2023)
- Dr. I. Christiana, Guest Instructor (w.e.f. 26th February 2024)
- Lavanya K. N., Trainee Caretaker of Chem Expo (w.e.f. 1st January 2024)
- Dr. Lavanaya Sivashanmugam, Guest Instructor (w.e.f. 20th December 2023)
- Dr. Megha Singhal, Guest Instructor (w.e.f. 6th November 2023)
- Nagaraja B. S., Advisor (Establishment Matters) (w.e.f. 5th February 2024)
- Dr. Varuna H. P., Guest Instructor (w.e.f. 17th February 2024)

Promotions (Faculty)

- Dr. Bani Kanta Sarma, NCU promoted to Associate Professor (w.e.f. 22nd September 2023)
- Prof. T. N. C. Vidya, EOBU has been promoted from Associate Professor to Professor (w.e.f. 14th September 2023)

Superannuation

- A. Srinivasan, Sr. Secretary to President, Non-teaching staff
- H. Lingamurthy, Sr. Helper
- Prof. Ranga Uday Kumar, MBGU, Teaching staff
- Veena Maiya, Sr. Admin Assistant

Additional Responsibilities

- A. N. Jayachandra, Coordinator (Special Projects) as Nodal Officer for 'PM Surya Ghar: Muft Bijili Yojana'
- Prof. Subir K. Das, TSU will continue as Chairperson, TSU, until further orders
- Nabonita Guha, Senior Library cum Information Officer has been nominated as the Nodal Person to handle the matters related to Special Campaign 4.0
- Basavaraju G., Sr. House Keeper is entrusted with additional responsibility for monitoring the UPS unit at the Centre

Committees Constituted/Re-constituted

- NPS Oversight Mechanism Committee; Chairperson: Prof. Santosh Ansumali (w.e.f. 30th May 2024)
- Website Management Committee; Re-constituted; Chairperson: Prof. Santosh Ansumali (w.e.f. 30th May 2024)
- Annual Physical Stock Verification of Library Books/ Journals for 2023-2024; Chairperson: Prof. Sheeba Vasu (w.e.f. 14th June 2024)
- Committee to Scrutinise the Applications for the Position of Coordinator (Special Projects); Chairperson: Prof. K. R. Srinivas, Dean, Research and Development (w.e.f. 22nd July 2024)
- Administrative Screening Committee; Chairperson: Prof. Umesh V. Waghmare, Dean Faculty Affairs (w.e.f. 8th August 2024)
- Air Travel Booking with GoI Norms Committee; Chairperson: Prof. K. S. Narayan (w.e.f. 9th August 2024)
- Committee to look into Telecom Services at the Centre; Chairperson: Prof. Premkumar Senguttuvan (w.e.f. 20th August 2024)
- Committee to Scrutinise the Applications for the Position of Coordinator (PR) and Coordinator (Security, Legal and Campus Management); Chairperson: Prof. Ranga Uday Kumar (w.e.f. 22nd August 2024)

Visiting Scientists

- Dr. Deval Prasad Bhattarai, Assistant Professor, Tribhuvan University, Kathmandu, Nepal
- Prof. Praveen B. M., Srinivas University, Mangalore
- Dr. Shivanand Kumar Veeram, NIT-Calicut

Visiting Students

- Anusha A., Institute of Technology (MANIT)-Bhopal, Madhya Pradesh
- Keerthana, Kannur University, Kerala
- Joan K. Kiptarus, Moi University, Kenya
- Shaurya Shukla, NIT, Srinagar, Jammu and Kashmir
- Vijay, Cochin University of Science and Technology, Kerala

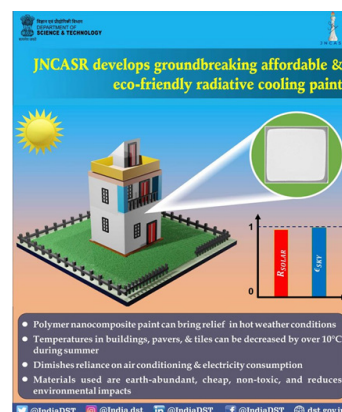
Research Highlights

Newly developed affordable radiative paint can reduce electricity consumption for cooling buildings

The findings of Prof. Bivas Saha and his research team indicate that the adoption of MgO-PVDF cooling paint in construction can significantly curtail the reliance on air conditioning, thus contributing to a reduction in associated environmental impacts. This work has been published in *Adv. Mater. Technol.* (doi: 10.1002/admt.202301174)

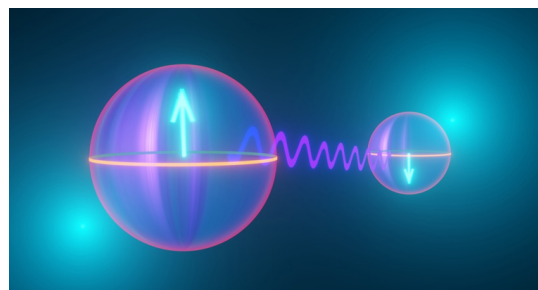
News reported by:

- *DST Vigyan Samachar*, 6th November 2023, <https://shorturl.at/niK0s>
- *DST Twitter*, 6th November 2023, <https://shorturl.at/KqUG7>
- *Press Information Bureau*, 6th November 2023, <https://shorturl.at/U7GwC>
- *Press Information Bureau Twitter*, 6th November 2023, <https://shorturl.at/iEsg3>



Understanding new materials using a novel quantum-based model

Prof. N. S. Vidhyadhiraja and his research team from TSU have identified a quantum-based model system that can help one understand unusual behaviours in materials near to a quantum critical point and may be used in comprehending entanglement and quantum computing. This work has been published in *Phys. Rev. B* (doi: 10.1103/PhysRevB.107.205104).



News reported by:

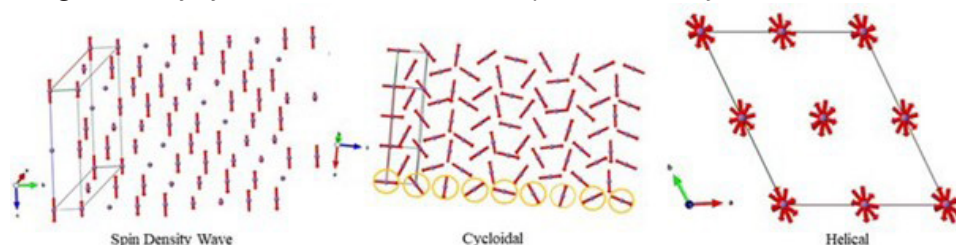
- *DST Vigyan Samachar*, 13th February 2024, <https://shorturl.at/OOJ4R>

An energy-efficient way to store data

Prof. A. Sundaresan and his research team identified a unique mechanism of electric polarisation via magnetic ordering in a novel mineral named “ MnBi_2S_4 ”. The mechanism represents a breakthrough in magnetoelectric coupling and has potential to revolutionise data storage by reducing energy consumption during writing processes. Additionally, these findings could theoretically help develop four-state logic memory systems. This work has been published in *Phys. Rev. B* (doi: 10.1103/PhysRevB.109.024401).

News reported by:

- *Press Information Bureau*, 16th February 2024, <https://shorturl.at/o3MCb>
- *DST Vigyan Samachar*, 19th February 2024, <https://shorturl.at/jDtkC>



Three distinct magnetic structures in the magnetoelectric multiferroic material studied by Prof. A. Sundaresan and his team at different temperatures.

Helping India march towards clean fuel

Prof. Sebastian C. Peter and his team have synthesised a novel and highly efficient photocatalyst that can convert CO_2 to high-value products ethene and ethylene. In another related study, the group accomplished the facile synthesis of the wurtzite phase of CuGaS_2 , a photocatalyst for CO_2 reduction reaction. These studies have been published in the *J. Am. Chem. Soc.* (doi/10.1021/jacs.2c10351) and *Angew. Chem. Int. Ed.* (doi/10.1002/anie.202216613). These

breakthroughs have facilitated the development of the country's 1st plant that can convert CO_2 into methanol.

News reported by:

- *DST Vigyan Samachar*, 6th March 2024, <https://shorturl.at/zEGwK>
- *Bhaskar Live*, 7th March 2024, <https://shorturl.at/ptVQa>
- *The Hindu*, 14th March 2024, <https://shorturl.at/Kbnk7>

New material that promises efficient energy conversion

Prof. Kanishka Biswas and his research team from NCU have synthesised a material that exhibits the properties of both glass and metal and can efficiently convert waste heat from sources like industrial processes in power plants, households, and vehicle exhausts into electricity. This research has been published in *Adv. Mater* (doi/10.1002/adma.202307058).

News reported by:

- *DST Vigyan Samachar*, 6th March 2024, <https://shorturl.at/GPnRm>
- *Deccan Herald*, 7th March 2024, <https://shorturl.at/VLCPp>
- *Tweet by @IndiaDST*, 11th March 2024, <https://shorturl.at/LCcRY>



Images: (left) a stock image, (right) Prof. Kanishka Biswas and his research team

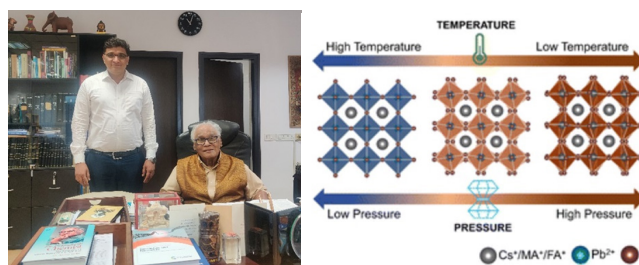
Clarifying the structural transitions in hybrid perovskites for renewable energy generation

Bharat Ratna Prof. C. N. R. Rao, Dr. Pratap Vishnoi, and their research team explored the precise atomic rearrangements that occur in each phase transition of lead iodide perovskites due to altered temperature and pressure and their resulting effects on optoelectronic properties. The team reviewed 100+ publications on reported phase transitions and crystal structures, with a focus on the experimental methodologies used. This review has been published in the *J. Mater. Chem. A* (doi/10.1039/D3TA05315F).

News reported by:

- *Press Information Bureau*, 11th March 2024, <https://shorturl.at/5y7tz>

- *DST Vigyan Samachar*, 11th March 2024, <https://shorturl.at/8hMwE>
- *Tweet by @IndiaDST*, 13th March 2024, <https://twitter.com/IndiaDST/status/176778228297848086>



(Left) Dr. Pratap Vishnoi and Prof. C. N. R. Rao; (right) The review seeks to understand the possible phase transitions of iodide perovskites. Image credit: *Journal of Materials Chemistry A*

New Insights into the chemical design of MVB-based 2D Materials

Work from Prof. U. Waghmare and Prof. C. N. R. Rao's lab led to groundbreaking insights into the unique properties and bonding nature of Group IV chalcogenide rocksalt crystals associated with metavalent bonding (MVB). The new study opens up avenues to design MVB-based 2D materials and their heterostructures for improved energy harvesting and power generation. This work was published in *Angew. Chem. Int. Ed.* (doi: 10.1002/anie.202313852).

A Smart System to Keep Blood Sugar Levels in Check

Prof. T. Govindaraju and his team from the Bioorganic Chemistry Laboratory, NCU built on a previously developed passive insulin release system, which utilises the silk protein fibroin, by modifying fibroin to create a super smart system that releases insulin in response to glucose levels in the blood. This work has been published in *ACS Appl. Mater. Interfaces* (doi: 10.1021/acsami.3c07060)

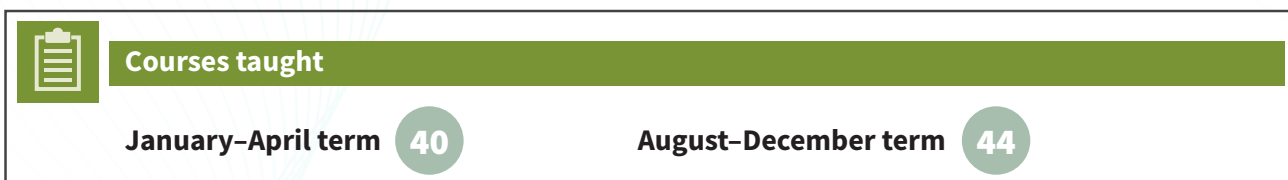
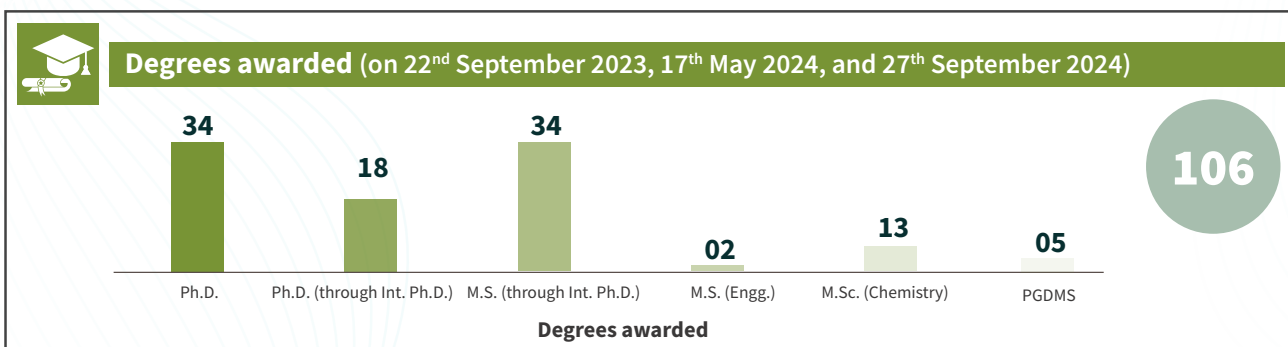
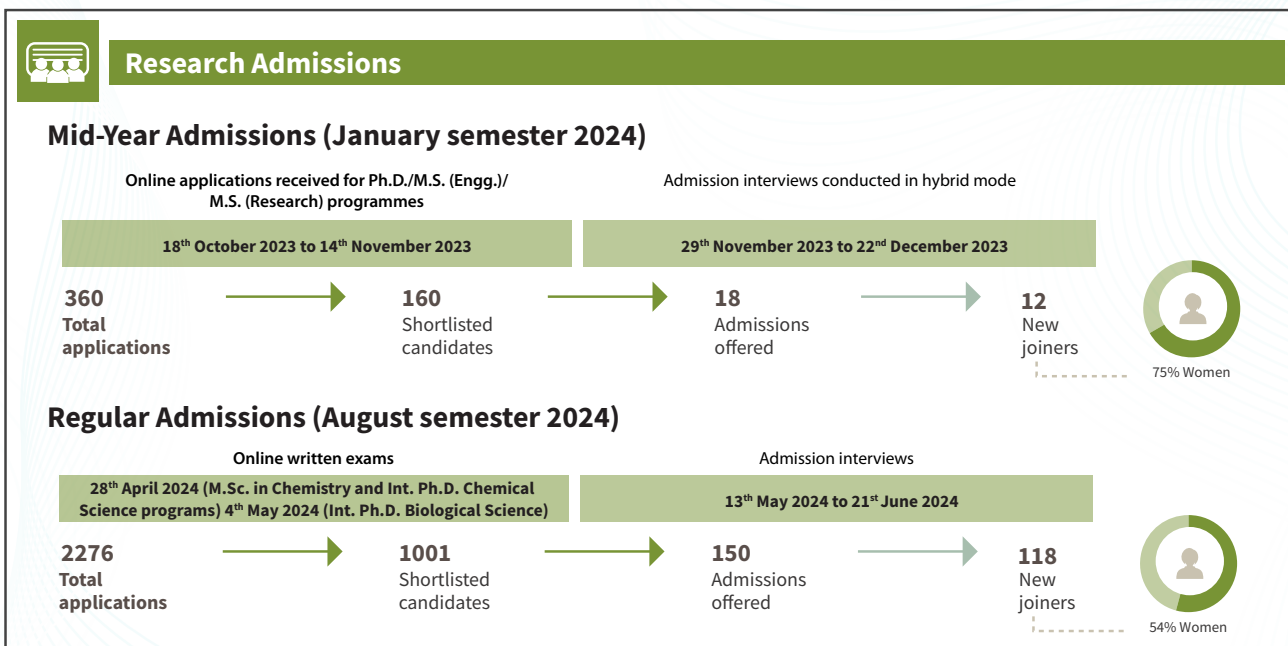
News reported by:

- *DST Vigyan Samachar*, 19th March 2024, <https://shorturl.at/N3SSt>

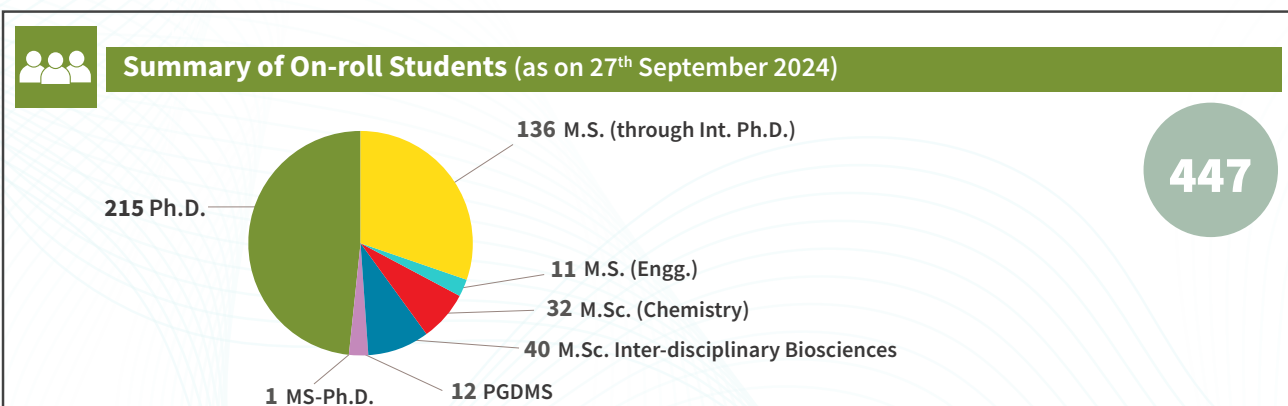
News reported by:

- *DST*, 20th June 2024 (<https://dst.gov.in/scientists-provide-groundbreaking-insights-new-class-materials-energy-harvesting-and-power>)
- *Press Information Bureau*, 20th June 2024 (<https://pib.gov.in/PressReleaseDetailm.aspx?PRID=2027008>)
- *The Hindu Business Line*, 23rd June 2024 (<https://www.thehindubusinessline.com/business-tech/incipient-metals/article68323991.ece>)
- *DD News*, 19th March 2024, <https://shorturl.at/hD4Yi>
- *The Times of India*, 20th March 2024, <https://shorturl.at/Cv5HI>
- *The Hindu*, 21st March 2024, <https://shorturl.at/TQ5JR>
- *DST*, 12th July 2024 (<https://dst.gov.in/scientists-develop-pancreas-mimicking-system-responsive-insulin-delivery-diabetes-treatment#>)
- *Twitter post by DST*, 12th July 2024 (<https://x.com/IndiaDST/status/1811683107398943171>)

Academic Activities



- ## Current Status and Schedule of Academic Activities (2024)
- All newly admitted students have reported at the Centre
 - Welcome and Orientation Program was held on 9th August 2024, and saw attendance of 126 students
 - Mid-year admission announcement for January 2025 was made in October 2024



Awards & Achievements

Awards and accolades by faculty members

Prof A. Sundaresan

- Received Silver Jubilee Professorship of JNCASR, donated by the C. N. R. Rao Education Foundation

Dr. Achira Roy

- Awarded the IBRO Early Career Award 2024 by the International Brain Research Organization in August 2024
- Selected to attend the EMBO Lab Leadership Course, by EMBO Global Activities, Germany
- Awarded SERB Grant for Symposia/Conferences by DST-SERB, India

Dr. Anand Krishnan

- Received a travel award to attend the 2024 congress of the International Society for Behavioral Ecology in Melbourne, Australia.
- Invited speaker at the 2024 Annual talks, of the Department of Biological Sciences, TIFR, Mumbai

Prof. Chandrabhas Narayana (on lien)

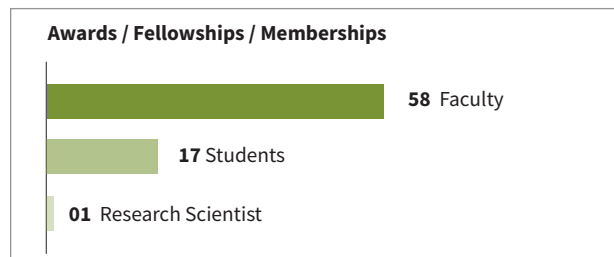
- Received the A. P. J. Abdul Kalam National Award, 2024 from Dr. A. P. J. Abdul Kalam Study Centre, Thiruvananthapuram
- Won the CRS Gold Medal 2024 from the Chirantan Rasayana Sanstha
- Received the Sir C. V. Raman Memorial Science Day Lecture Award 2023 from the Indian Photobiology Society

Prof. C. N. R. Rao

- Won the Nagarjuna Award from Hindu Research Foundation 2024
- Received the 'Chandan Ratna' award from School Chandan, Laxmeshwar, Gadag, Karnataka on 3rd January 2024
- Received the 'Champions of Change Karnataka' recognition in the field of Innovation and Science in the state of Karnataka by the Interactive Forum on Indian Economy (IFIE)
- Received the 'Chemist of the Century' award from the Indian Chemical Society

Prof. G. U. Kulkarni

- Won the Bangalore India Nano Innovation Award, 2024 (jointly with co-workers from CeNS and Saint Gobain Research India)



- Conferred with Honorary Doctorate by KL University, Vijayawada

Prof. H. Ila

- Received INSA Honorary Scientist position for the period of 3 years

Prof. Jayanta Haldar

- Received MRSI Medal from the Materials Research Society of India (MRSI)

Prof. Kanishka Biswas

- Received Research and Innovation Excellence Award at the Chirantan Rasayan Sanstha (CRS) Awards 2023

Prof. Kaustuv Sanyal

- Awarded G. N. Ramachandran Gold Medal for excellence in biological science and technology for the year 2022 by the Council of Scientific and Industrial Research (CSIR)

Prof. K. N. Ganesh

- Received Lifetime Achievement Award at the Chirantan Rasayan Sanstha (CRS) Awards 2023
- Received the CRSI Gold Medal for the year 2025

Prof. K. S. Narayan

- Distinguished Visiting Professor at IIT Mumbai (2024–2026)

Prof. Rajesh Ganapathy

- Adjunct Faculty of Raman Research Institute for a period of 2 years

Prof. Ranjani Viswanatha

- Won the C. N. R. Rao National Prize in Chemical Physics Award in May 2024

Prof. S. Balasubramanian

- Received the Prof. A. K. Chandra Memorial Award for his contribution to Chemical Sciences, from Institute of Chemical Technology, Mumbai

Prof. Sebastian C. Peter

- Received Materials Science Annual Prize 2023
- Won the National Startup Awards 2023 for BREATHE Applied Sciences Pvt. Ltd.
- Received International Association for Advanced Materials (IAAM) Scientist Medal
- Selected for Rajib Goyal Prize for Young Scientists in the category of Chemical Sciences, awarded by Kurukshetra University, Haryana
- Received Research Partnerships and Industry Translation Medal at the Chirantan Rasayan Sanstha (CRS) Awards 2023

Prof. Shobhana Narasimhan

- Appointed as a “TUM Global Ambassador” by the Technical University of Munich
- Featured in a desk diary “Heroines of Science” brought out by the University of Cambridge

Prof. Srikanth Sastry

- Awarded Gauss-Professorship in 2024 by the Göttingen Academy of Sciences and Humanities, Germany
- Distinguished Visiting Professor in the Department of Chemical Engineering of IIT Bombay.

Prof. Subi J. George

- Received Research and Innovation Excellence Award at the Chirantan Rasayan Sanstha (CRS) Awards 2023
- Won the Prof. C. N. R. Rao Oration Award 2024

Prof. Swapan K. Pati

- Adjunct Research Professor at IISER, Kolkata for a period of 2 years
- Appointed as a member of the Research and Academic Council and Honorary Visiting Professor of INST, Mohali (2024–2027)
- Appointed as a Distinguished Visiting Professor of IIT Bombay (2024–2025)

Prof. T. Govindaraju

- Received the VASVIK Award for the year 2022 for outstanding contributions in chemical biology of ‘functional & disease amyloids’, awarded by Vividhlaxi Audyogik Samshodhan Vikas Kendra (VASVIK)

Prof. Umesh V. Waghmare

- Won the CRS Gold Medal 2024 from the Chemical Rasayan Sanstha

Fellowships and Memberships

Prof. Amitabh Joshi

- Chief Editor of the IASc journal *Dialogue: Science, Scientists, and Society* from 1st January 2024 for a three-year term

Prof. C. N. R. Rao

- Distinguished Fellow from International Engineering and Technology Institute 2024

Prof. G. U. Kulkarni

- Member of Senate of IISER Berhampur
- Fellowship of the Royal Society of Chemistry, 2024

Prof. Hemalatha Balaram

- Appointed as the Chairperson of Science Academies Education Panel from 1st June 2024 to 31st May 2027

Prof. Jayanta Haldar

- Fellow of the Indian Academy of Sciences

Prof. K. S. Narayan

- Editorial Board Member of *Synthetic Metals*
- Expert Member for DST-SAIF

Dr. Kushagra Bansal

- Membership of The Society of Biological Chemists (India)

Prof. Rajesh Ganapathy

- Fellow of the Indian Academy of Sciences

Prof. Ranjani Viswanatha

- Executive Editorial Board member of *Nano Futures* since Jan 2024

Prof. S. Balasubramanian

- Expert member of the University Research Council of SRM Institute of Science and Technology, Chennai for two years

Prof. Sebastian C. Peter

- Fellow of the Indian Academy of Sciences

Prof. Srikanth Sastry

- Royal Society Wolfson Visiting Fellowship 2024

Prof. Tapas K. Maji

- Member of the International Advisory Board of *Angewandte Chemie*, the prestigious chemistry journal published by Wiley VCH

Prof. Umesh V. Waghmare

- Member of the Editorial Advisory Board of the *Journal of American Chemical Society* (2024)
- Member of the Editorial Advisory Board of *Materials Today* (2024)

Awards Received by Research Scientists

- **Dr. Jaishri Sanwal Bhatt** received the “*SHE FOR STEM*” award by the Regional Science Centre Dehradun, Uttarakhand State Science and Technology Council.

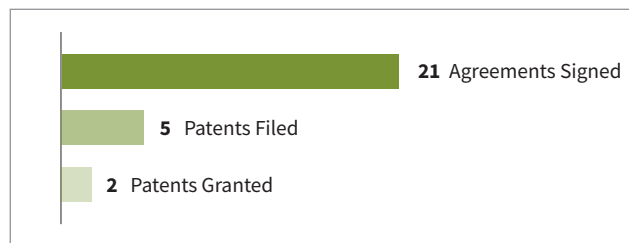
Student Achievements

- **Adrija Ghosh** (Int. Ph.D. student, NCU; Research Supervisor: Prof. Tapas K. Maji) won the Best Talk Award for her presentation (virtual mode) at ACS Fall, 2024 held at Denver, Colorado.
- **Amit Kumar** (Ph.D. student, MBGU; Research Supervisor: Dr. Kushagra Bansal) received the Best Poster and Travel Award at Global Immunology Summit 2024 (GIS-2024) held at THSTI, Faridabad from 15th–17th February 2024.
- **Animesh Bhui** (Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) won the Graduate Student Award from the International Thermoelectric Society.
- **Anjana Joseph** (Ph.D. student, CPMU; Research Supervisor: Prof. Chandrabhas Narayana) received Materials Research Society India Prize for the Best Poster at the 5th Indian Materials Conclave at the Indian Institute of Technology (BHU) Varanasi.
- **Anvitha S.** (M.S.-Ph.D. student, EOBU; Research Supervisor: Prof. T. N. C. Vidya) jointly received the 2nd Prize at the International Conference on Human-Elephant Conflict Management held on 12th August 2024.
- **Athira T. K.** (Ph.D. student, EOBU; Research Supervisor: Prof. T. N. C. Vidya) won a Travel Award from the International Society for Behavioural Ecology (ISBE) to attend the ISBE Congress 2024, Australia; won a Conference Attendance Grant from the Association for the Study of Animal Behaviour to present her work at the European Conference on Behavioural Biology 2024; and was jointly awarded the 2nd prize at the International Conference on Human Elephant Conflict Management held on 12th August 2024.
- **Debattam Sarkar** (Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) was awarded KPIT Shodh Best Research Award (Best Ph.D. Thesis).
- **Ivy Maria** (Int. Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) won the Best of Category Award in Engineering at TASME 2024, Canada.
- **Pallawi Choubey** (Int. Ph.D. student, MBGU; Research Supervisor: Dr. Kushagra Bansal) received the Best Poster Award in GIS-2024 held at THSTI, Faridabad from 15th–17th February 2024.
- **Prerana Muralidhara** (Ph.D. student, MBGU; Research Supervisor: Dr. Kushagra Bansal) received a travel grant from SERB to present at the ‘Gene Expression & Signalling in the Immune System’ meeting held at Cold Spring Harbor Laboratory, New York from 16th–20th April 2024.
- **Rahul Kumar** (Ph.D. student, CPMU; Research Supervisor: Prof. A. Sundaresan) was awarded the Distinguished Student award by the American Physical Society.
- **Riddhimoy Pathak** (Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) received the Young Researcher Award from the European Materials Research Society during its Spring Meeting, 2024 held in Strasbourg, France.
- **Saravanan B.** (Ph.D. student, EOBU; Research Supervisor: Dr. Anand Krishnan) won a Travelling Fellowship from the Company of Biologists (Sponsored by the Journal of Experimental Biology); and won the Frank Chapman Collections Study Grant’ from the American Museum of Natural History, New York for collaborative research with Dr. Sushma Reddy, University of Minnesota, USA.
- **Shuva Biswas** (Int. Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) won Chanakya Fellowship from I-Hub Quantum Technology Foundation, IISER Pune.
- **Soumi Mondal** (Ph.D. student, NCU; Research Supervisor: Prof. Sebastian C. Peter) won Best poster prize at the 5th Indian Materials Conclave and 34th AGM of MRSI, IIT, BHU.
- **Sourav Rudra** (Ph.D. student, ICMS; Research Supervisor: Dr. Bivas Saha) won the Karnataka DST Nanoscience Fellowship Award 2024.
- **Thanikodi C. M.** (Project Associate II, EOBU; Research Supervisor: Prof. T. N. C. Vidya) won the 3rd Prize for Paper Presentation at the International Conference on Human-Elephant Conflict Management held on 12th August 2024.

■ Research & Development

Agreements Signed

- A Memorandum of Understanding (MoU) was signed with the Singareni Collieries Company Limited (A Government Company), SCCL, Telangana by Prof. Sebastian C. Peter, JNCASR on 4th September 2023.
- An MoU was signed with NIPER-Kolkata by Prof. Tapas K. Kundu on 11th January 2024.
- An MoU was signed with National Brain Research Centre, Haryana by Prof. Ravi Manjithaya on 5th April 2024.
- An MoU was signed with Healthcare Global Enterprises Ltd., Bengaluru by Prof. Ravi Manjithaya on 7th June 2024.
- An MoU was signed with TIGS, Bengaluru by Prof. Ravi Manjithaya on 22nd August 2024.
- An MoU was signed with Aster Hospitals, Bengaluru by Prof. Kushagra Bansal on 9th August 2024.
- A Memorandum of Agreement (MoA) was signed with the Department of Biotechnology, Ministry of Science and Technology, Govt. of India, New Delhi by Prof. Sarit S. Agasti on 26th December 2023.
- An MoA was signed with DBT on 30th May 2024 to carry out the project titled: *“Elucidating the role of unconventional myosins in maintaining the dynamics of autophagic flux”* by Prof. Ravi Manjithaya on 30th May 2024.
- A Non-Disclosure Agreement (NDA) was signed with Immuneel Therapeutics Pvt. Ltd., Bengaluru by Prof. Kushagra Bansal on 27th February 2024.
- An NDA was signed with Exide Energy Solutions Ltd., Kolkata by Prof. Premkumar Senguttuvan on 13th May 2024.
- An NDA was signed with Microvioma Pvt Ltd., Bengaluru by Prof. Jayanta Haldar on 24th June 2024.
- An NDA was signed with Naval Science & Technological Laboratory (NSTL), DRDO, Ministry of Defence, Govt. of



India by Prof. Premkumar Senguttuvan on 15th July 2024.

- An NDA was signed with Fluoresight Bioprobes Pvt. Ltd., Goa by Prof. Ravi Manjithaya on 30th July 2024.
- An NDA was signed with Sai Life Sciences Pvt. Ltd., Hyderabad by Prof. Ravi Manjithaya on 12th August 2024.
- An NDA was signed with Ingersoll-Rand Technologies and Services Pvt. Ltd., Bengaluru by Prof. Tapas K. Maji on 22nd August 2024.
- An NDA was signed with Hindustan Zinc Ltd. (HZL), Udaipur, Rajasthan by Prof. Santosh Ansumali on 17th Sept. 2024.
- A Research Agreement was signed with TATA Steel Ltd., Mumbai by Prof. Sebastian C. Peter on 23rd February 2024.
- A Research Agreement was signed with TATA Steel Ltd., Jamshedpur to carry out the project titled: *“Synthesis of High-Performance Pb-Free p-Type Cubic Metal Tellurides Thermoelectric Materials for Mid-Temperature Waste Heat to Electricity Conversion”* by Prof. Kanishka Biswas on 26th March 2024.
- A Collaborative Research Agreement (CRA) was signed with the National Institute of Pharmaceutical Education & Research, Kolkata (NIPER-Kolkata) by Prof. Tapas K. Kundu on 16th October 2023.
- A CRA was signed with NIPER-Kolkata by Prof. Kushagra Bansal on 11th February 2024.

- A CRA was signed with RGCB, Thiruvananthapuram to carry out study on “*Genetic and Epigenetic drivers of chewing tobacco Kaddipudi habited woman oral cancer patients*” by Prof. Tapas K. Kundu on 8th May 2024.
- A CRA was signed with Climate ETC Technology Services Pvt Ltd., Bengaluru to design, develop and produce suitable MOF material to analyse, test, and produce as per the requirement by Prof. Tapas K. Maji on 20th May 2024.
- A CRA was signed with the Foundation for Neglected Disease Research (FNDR), Bengaluru to collaborate on the research project entitled “*Antiviral screening of compounds against flaviviruses*” by Dr. Shwetha Shivaprasad on 26th June 2024.
- A Consortium Agreement was entered between JNCASR, IISc, ICTS, RRI, and NCBS to collaborate to establish membership in the Institute of Complex Adaptive Matter (ICAM) by Prof. N. S. Vidhyadhiraja on 26th June 2024.
- A CRA was signed with William Marsh Rice University, USA to achieve joint research collaborations between faculty groups at JNCASR and Rice University in the broad area of energy and sustainability by Prof. Sebastian C. Peter on 18th July 2024.
- A CRA was signed with Hindustan Zinc Ltd., Udaipur to synthesise, develop, study and test Zn-based anode and electrolyte materials suitable for Zn-ion batteries by Prof. Premkumar Senguttuvan on 3rd August 2024.
- A CRA was signed with Climate ETC Technology Services Pvt Ltd., Bengaluru on to design and develop radiative paint with certain polymers which have high reflectivity and emissivity properties by Prof. Bivas Saha on 12th August 2024.
- A tripartite Know-how License Agreement between JNCASR, ICAR-NBAIR and Krishi Vikas Sahakari Samiti Ltd., Haryana was executed for the transfer of the technology co-developed by JNCASR and ICAR-NBAIR, viz., “*Controlled Release Dispensers for Delivery of Semiochemicals*” by Prof. Eswaramoorthy on 19th July 2024.

- An IP License and Share Transfer Agreement was signed with M/s. Hbaromega Pvt Ltd., Bengaluru by Prof. K. S. Narayan on 1st November 2023.
- An R&D Research Support Agreement was signed with M/s. WATSAN Envirotech Pvt, Ltd., Tamil Nadu by Prof. Tapas K. Maji on 1st December 2023.

Visit of R&D Teams

R&D teams from the following institutions visited the Centre to discuss potential collaborative research projects and funding opportunities:

- R&D team from ITC, Bengaluru
- R&D team from WATSAN Envirotech Pvt. Ltd., Tamil Nadu
- R&D team from TATA Steel, Chennai
- Meeting with CNRS delegate to discuss about Indo-French Centre for Applied Mathematics
- R&D team from Dheya Engineering Technologies Pvt. Ltd. (DheyaTech), Bangalore
- Dr. Vamsi Krishna Devabathi, Software Engineer from Google
- RAKNOR, UAE
- Climate ETC Technology Services Pvt. Ltd. (Trane Technologies), Bengaluru
- Danaher (C CAMP)
- Krishi Vikas Sahakari Samiti Ltd. (KVSSL), Haryana
- Hindustan Zinc Ltd. (HZL), Udaipur/Rajasthan
- Tokyo Electron Thin Film R&D
- JIS University, Kolkata
- TIGS, Bengaluru
- Tokyo Electron Limited (TEL), Japan
- Durham University

Intellectual Property



Patents Granted

India

- Patent (No. 476612) for “Self-Cleaning Nanoscale Metal-Organic Frameworks and Process of Preparation Thereof” developed by Prof. Tapas Kumar Maji *et al.*
- Patent (No. 478362) for “Method and System to Assess Solar Cells” developed by Prof. K. S. Narayan *et al.*
- Patent (No. 482649) for “Topochemical Bottom-up Processes and Implementations Thereof” developed by Prof. Premkumar Senguttuvan.
- Patent (No. 504815) for “Dynamic Host-Guest Interactive System” developed by Prof. Sarit Sekhar Agasti *et al.*
- Patent (No. 544000) for “Small Molecular Probes, Processes and Use Thereof” developed by Prof. Govindaraju Thimmaiah *et al.*
- Patent (No. 532159) for “Artificial Synaptic Devices” developed by Prof. Bivas Saha *et al.*



Patent Applications Filed

India, Provisional

- Prof. Sebastian Chirambatte Peter *et al.* (No. 202341079163, filed on 21st November 2023)
- Prof. Jayanta Haldar *et al.* (No. 202341083890, filed on 8th December 2023)
- Prof. Tapas K. Maji *et al.* (No. 202441020616, filed on 19th March 2024)
- Prof. Jayanta Haldar *et al.* (No. 202441044869, filed on 10th June 2024)
- Prof. Sebastian Chirambatte Peter *et al.* (No. 202441057080, filed on 26th July 2024)
- Prof. Umesh Waghmare *et al.* (No. 202441059434, filed on 6th August 2024)

India, Complete

- “An Electrode Composite and Processes Thereof” developed by Prof. Eswaramoorthy Muthusamy *et al.* (No. 202341066630, filed on 4th October 2023)
- “An Electrochromic Device, an Anode and Processes Thereof” developed by Prof. Giridhar Udapi Rao Kulkarni *et al.* (No. 202341090016, filed on 29th December 2023)
- “A Nasicon-type Anode Active Material and Processes Thereof” developed by Prof. Premkumar Senguttuvan *et al.* (No. 202441015484, filed on 1st March 2024)

International, PCT

- “A Method for the Treatment of Epilepsy” developed by Prof. James Premdoss Clement Chelliah *et al.* (No. PCT/IN2023/051224, filed on 26th December 2023)
- “A Polymer Nanocomposite for Radiative Cooling” developed by Prof. Bivas Saha *et al.* (No. PCT/IN2024/050777, filed on 12th June 2024)

Contd....



Patent Applications Filed

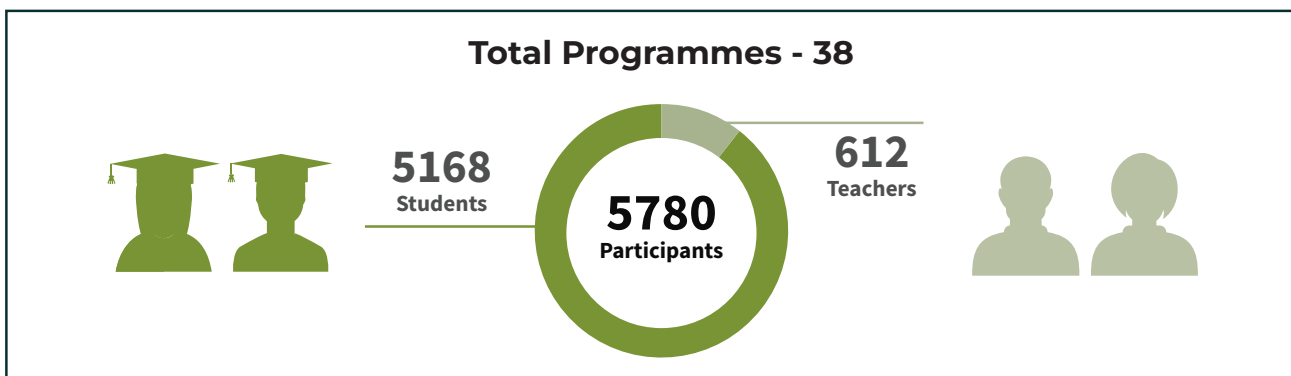
National Phase, USA

- “Indirubin Compounds and Methods Thereof” developed by Prof. James Premdoss Clement Chelliah *et al.* (No. 18/557,800, filed on 27th October 2023)
- “Soluble Analogues of 6Bio Thereof and Implementation Thereof” developed by Prof. James Premdoss Clement Chelliah *et al.* (No. 18/557,822, filed on 27th October 2023)
- “Small molecule modulator targeting a rare histone modification, regulating adipogenesis and pharmaceutical formulation” developed by Prof. Tapas K. Kundu *et al.* (No. 18/565,911, filed on 30th November 2023)
- “A Catalyst, Its Application in Production of Hydrogen” developed by Prof. Sebastian Chirambatte Peter *et al.* (No. 18/684,615, filed on 16th February 2024)

National Phase, Europe

- “Indirubin Compounds and Methods Thereof” developed by Prof. James Premdoss Clement Chelliah *et al.* (No. 22795166.2, filed on 29th November 2023)
- “Soluble Analogues of 6Bio Thereof and Implementation Thereof” developed by Prof. James Premdoss Clement Chelliah *et al.* (No. 22795165.4, filed on 29th November 2023)
- “Small molecule modulator targeting a rare histone modification, regulating adipogenesis and pharmaceutical formulation” developed by Prof. Tapas K. Kundu *et al.* (No. 22815524.8, filed on 2nd January 2024)

■ Outreach Activities - Education Technology Unit (ETU)



A series of outreach programs were held across various regions and aimed to promote science education, encourage hands-on learning, and inspire future scientific exploration across India.

6th October 2023: The 3rd Prof. K. S. Valdiya Memorial Lecture titled ‘Unearthing Earth’s Past: How Geology Reveals the Story of Our Planet’ was delivered by Dr. R. Sajeev, Director, Geological Survey of India, Karnataka & Goa. The program was attended by 200 students and 30 teachers from around 12 colleges/schools.

20th October 2023: An Interactive Lecture Program in Physics and Biology was organised comprising two sessions: ‘The Fascinating World of RNA Viruses’ by Dr. Arun Panchanan, JNCASR and ‘Fun with Physics Experiments’ by Vinayak Pattar, JNCASR. About 180 students and 20 teachers participated.

27th–29th October 2023: In collaboration with Sagar Science Forum in Sagara, Shimoga District, ETU organised the Annual Science Camp for PUC Students, sponsored by the C. N. R. Rao Education Foundation. The event featured interactive workshops and hands-on activities and talks by Dr. A. S. Kiran Kumar, Former Chairman of ISRO, Dr. N. S. Vidhyadhiraja

from JNCASR, Sri S. Hiriyanna, Sri Manjunath from ISRO, Dr. H. S. Jeevan, Sri H. R. Madhusudan from Nehru Planetarium Bangalore, and Dr. L. K. Sripathi and Dr. Dwijesh Ray from PRL Ahmedabad. About 56 students (grades XI and XII) and 8 teachers participated.



30th–31st October 2023: A ‘Fun with Science Experiments and Lab Visit’ event was led by Dr. Pratap Vishnoi and Vinayak Pattar. Forty students (grades XI and XII) and four teachers from Shikshayatan School, Kolkata, participated.

21st November 2023: The ‘Science in Action: Workshop for Teachers’ saw participation of ~30 teachers from across Karnataka.

3rd December 2023: Vijnana Manthana, sponsored by the C. N. R. Rao Education Foundation and hosted at Sagar Science Forum in Sagara, Shimogga District, featured Sri Venkatesh K. S. from Shivamogga. Around 20 students (grades XI and XII) and teachers participated.

10th–12th December 2023: A Science Outreach Program was hosted at School Chandan, Laxmeshwar, sponsored by the C. N. R. Rao Education Foundation. Around 300 students and teachers (grades X, XI, and XII) participated.

22nd December 2023: The ‘Science in Action: Fun with Science Experiments’ included demonstration of physics and chemistry experiments and a lecture on “Origin of Life on Earth” by Prof. Vinod Chandra Tewari from the Wadia Institute of Himalayan Geology, Dehradun. The program was attended by 230 students (10th, 11th, 12th, and B.Sc. levels) and 20 teachers.



6th January 2024: A half-day session, attended by 76 students, on Nano Science and Technology and Experiment Demonstration was held at Government Degree College, Chitradurga.

7th January 2024: ‘Vijnana Manthana’ program, attended by 24 students and teachers, focused on Nano Science and Technology and Fun with Science Experiments. It was hosted at Sagar Science Forum in Sagara, Shimoga District, and sponsored by the C. N. R. Rao Education Foundation.



13th January 2024: An interactive Lecture Program in Science was organised at Dr. Ambedkar Residential School in Badami, and attended by 134 students.

18th January 2024: ‘Learning Science Through Experiments’ program, led by Vinayak Pattar, attracted 104 students (primarily grade X).

20th January 2024: The Nano Fertilizer Awareness Program, sponsored by the C. N. R. Rao Education Foundation, was hosted in collaboration with IFFCO and Sagar Science Forum at Sagara. The event featured Dr. H. S. Jeevan, Sri Rajendra Prasad, and Sri B. L. Raju. About 25 farmers from Sagara, Shimoga district, participated in the program.

1st February 2024: An interactive Lecture Program in Physics and Learning Science Through Experiments was organised and attended by 52 students.



18th February 2024: A Star Gazing session was organised at Jawahar Navodaya Vidyalaya Urban, Bengaluru, led by Dr. Arun Panchapakesan, Chhavi Saini, Swarnima Mishra, and Hrimkar Buch. There were about 271 participants (grades IX to XII).



23rd February 2024: As part of the “राजभाषा सम्मेलन” (Joint Official Language Conference), a half-day Science Outreach Program was conducted, with lectures delivered by Prof. Amitabh Joshi and Dr. Jaishri S. Bhatt. About 105 students from grades X and XI from JNV urban and rural areas participated.

28th February 2024: An Open Day event was organised by ETU and F&E to celebrate National Science Day on the theme “*Indigenous Technologies for Viksit Bharat*”. Around 525 students (grades IX, X, XI, XII, B.Sc., M.Sc., and Ph.D.) participated.

7th March 2024: An Institutional Visit was conducted by ETU and F&E as part of an International Conference held at Kristu Jayanti College in Bengaluru and was attended by a diverse group of 70 research scholars from across India.

14th March 2024: Visit to Galleries and ChemExpo and experiment demonstrations were arranged as part of the *India@DESY Users’ Workshop*, JNCASR. The event was attended by 90 M.Sc. and Ph.D. students and 10 faculties from Jain University and Reva University, Bengaluru.

19th March 2024: Writing Research Proposal, Nano Science and Experiment Demonstration program was hosted at Karnataka Science and Technology Academy, Bengaluru, and was attended by 35 B.Sc. students and 20 faculties of the degree college.

14th June 2024: An interactive biology lecture and teacher training session were attended by 150 students and 30 teachers.

1st July 2024: The “*Outstanding Science Teachers Award*” event at JNCASR honored science educators, with 530 students and 95 teachers from Uttarakhand, Laxmeshwar, Sagar, and Bengaluru. The program featured lectures, science demonstrations, and a visit to ChemExpo. Prof. Ragavendra Gadagkar gave a special lecture on “*Science for All*”.

20th July 2024: The Pratibha Puraskara event, organized by Karnataka Jnana Vijnan Samiti in collaboration with Sumangali Sevashrama, Bengaluru, and ETU, reached 155 participants, including 120 orphaned and disabled students from grades VI to X and 35 teachers. The program focused on encouraging scientific exploration.

14th August 2024: A Science Outreach program was organised which was participated by 180 students and teachers from Jawahar Navodaya Vidyalaya, Bengaluru. Dr. B. R. Guruprasad, former ISRO scientist and Director of Jawaharlal Nehru Planetarium, delivered a lecture on India’s space missions.

20th – 21st August 2024: A two-day Small-Scale Chemistry Workshop, held in collaboration with IISc and other organizations, trained 110 high school chemistry teachers from across India on small-scale experiments. 100 chemistry kits were distributed to participants.

22nd August 2024: An interactive lecture program in science for 40 orphan students and 10 teachers from Sumangali Ashram, Hebbal.

26th August 2024: A Physics and Biology interactive lecture for 45 students and 4 teachers, organized with the Indian Academy Trust and the Indian Academy of Sciences.

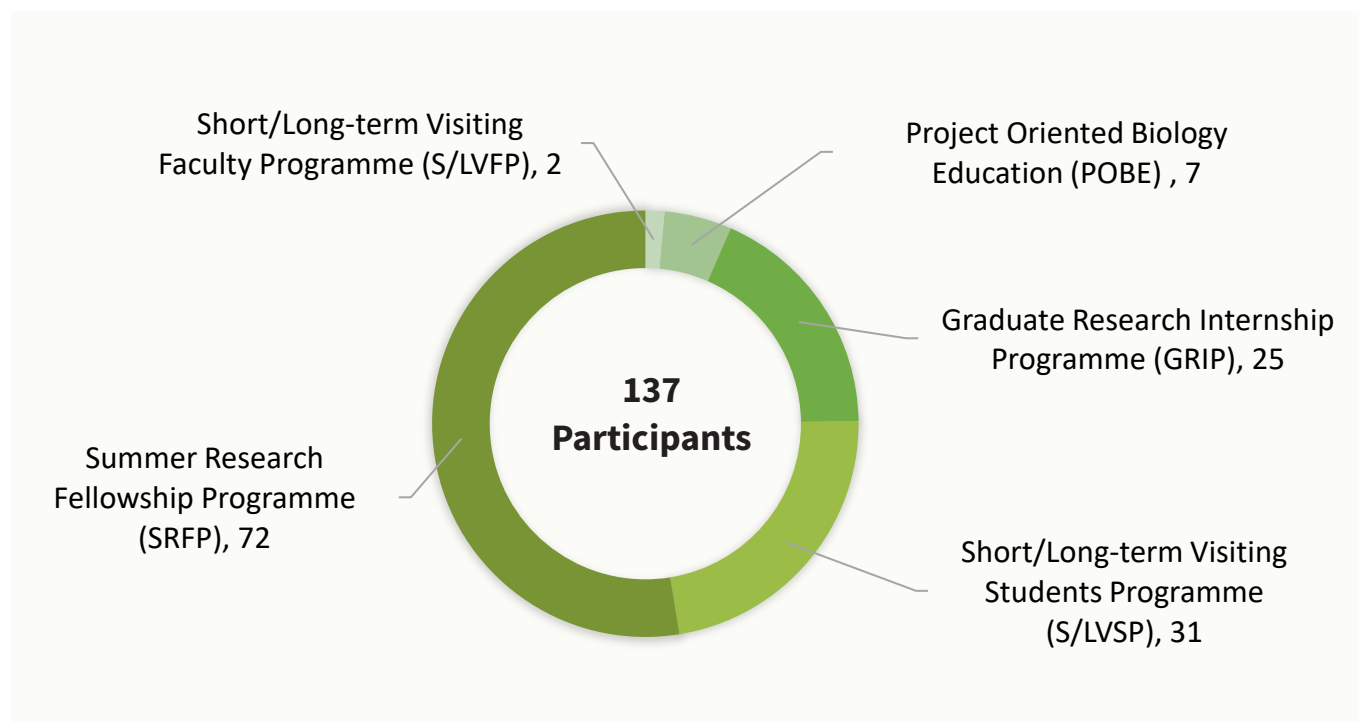
28th August 2024: Another Science Outreach program, blending historical and contemporary science, engaged 72 students and 6 teachers from classes 8-12.

12th September 2024: A program on “*NanoScience: Small Science, Big Impact*” engaged 105 students from classes 10-12 and 8 teachers.

19th September 2024: A second program, “*Curiosity Above All: Science is Everywhere*” was attended by over 160 students and 15 teachers, focusing on fostering scientific curiosity.

■ Outreach Activities - Fellowships & Extension (F&E) Programmes

Fellowship Programmes



Short-term Visiting Fellowship Programme

Two researchers availed of this programme under in the lab of Prof. M. Eswaramoorthy, ICMS - Dr. Meegle S. Mathew, Assistant Professor, Dept. of Chemistry, Mar Athanasius College, Kothamangalam, Kerala and Dr. A. Kumaravel, Assist. Professor, Dept. of Chemistry, PSG Institute of Technology and Applied Research, Coimbatore, Tamil Nadu.

Institutional Visit Programme (IVP)

A total of 36 students pursuing M.Sc. in Chemistry from M. S. Ramaiah College of Arts, Science and Commerce, Bengaluru along with four teachers visited the research labs in NCU, CPMU, ICMS, the Chemical Exposition, and the C. N. R. Rao Hall of Science Gallery on 30th May 2024.

■ Implementation of Official Language (Hindi Cell)

Official Language (OL) Conference

A two-day Official Language Sammelan was organised at JNCASR on 22nd and 23rd February 2024 in association with IIA and RRI. Ms. A. Dhanalakshmi, Joint Secretary, DST, Prof. G. U. Kulkarni, Chairperson, OL Implementation Committee and President, JNCASR, Shri Anirban Kumar Viswas, Deputy Director (Implementation), Ministry of Home Affairs, Kendriya Sadan, Bengaluru and Dr. Kamakhya N. Singh, Deputy Director (OL), DST, New Delhi were present as dignitaries. The event comprised lectures on topics such as “Rajbhasha and government policy”, “Responsibility of implementation of the Official Language”, “Hands-on training for usage of the latest Hindi software in PCs”, and “Other inspection authorities of OL and our responsibilities”. On day 2, a Science Outreach lecture programme in Hindi, led by Prof. Amitabh Joshi and Dr. Jaishri Sanwal, was attended by 80 students (class 11) from Jawahar Navodaya Vidyalaya of Bangalore Rural and Urban.



OLIC Meetings

In the past six months, two OLIC meetings were organised to monitor OL implementation at the Centre.

Hindi Workshops

A two-day Hindi Computer Training Programme and two Hindi Workshops – one on “*Hindi Grammar*” and another on “*OL Policy and our Responsibilities*” – were conducted.

Essay Competition

As part of the National Space Day celebrations on 19th August 2024, the OL Section organised an Essay Competition on “*Achievements of Indian Space Programme*” in Hindi and English.

Hindi Fortnight Celebrations 2024

Various Hindi competitions and Hindi Fortnight Celebrations were organised. The events included Hindi Essay Competition, Noting & Drafting, Hindi Quiz, and Hindi Antakshari. An “*Indian Languages Harmony Day*” was observed to maintain Harmony amongst the Languages; on this occasion, “*Indian Languages Singing Competition*” was organised. About forty individuals participated across the events.

Lectures, Seminars, and Conferences

- **Annual Faculty Meeting & In-House Symposium (AFM-IHS 2023):** The two-day AFM-IHS 2023 was held on 16th and 17th November 2023. AFM began with an address by Prof. G. U. Kulkarni, President JNCASR, and remarks by Prof. Umesh V. Waghmare, Dean, Faculty Affairs on the Centre's key progress in the past year. The event comprised 12 faculty talks, 2 guest lectures, 18 student talks, and 66 poster presentations. IHS concluded with the Degree Award Ceremony and IHS Awards.
- The annual **International Winter School "Frontiers in Materials Science"** was held from 4th–6th December 2023 at JNCASR. The event featured poster presentations and speakers from eminent institutes in India and abroad, and participants delved into the frontier areas of materials science.



- **Recent Advances in Materials (RAM-90) Conference** was organised at JNCASR from 6th–9th December 2023. Several eminent scientists, JNCASR faculty members, and alumni discussed their latest research in the area of materials science – from quantum entanglement to oxides, semiconductors and many others.

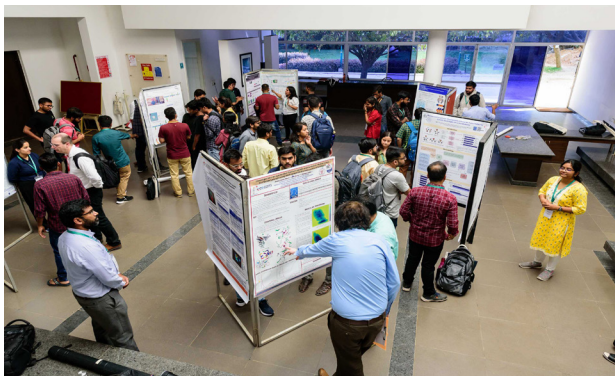


- **13th Sheikh Saqr Materials Lecture** was presented by Prof. Ram Seshadri on "Seeking new low-k dielectrics and topological superconductors" on 6th December 2023.
- JNCASR students and faculty members showcased the Centre's research and innovation at our exhibition stall under DST Pavilion at the **India International Science Festival 2023**, held from 17th–20th January 2024 at DBT THSTI-RCB Campus, Faridabad, Haryana. Notable visitors to our stall include the Chief Minister of Haryana, the Secretary, DST, and the Chairman of ISRO.



- A two-day symposium, **EOBU@25**, from 16th–17th February 2024 was organised in hybrid mode to commemorate 25th year of establishment of Evolutionary & Organismal Biology Unit (EOBU). The symposium comprised talks presented by the unit members, alumni and their research collaborators. In addition, the **Darwin Lecture** (8th in the series) was delivered by Prof. Erik Svensson, Lund University, Sweden, on the topic "Reflections upon latitudinal diversity gradients and how to link micro-and macroevolution: Insights from an old insect order".
- The **JNCASR-CECAM International Conference MD@60** was held from 26th–29th February 2024 at JNCASR to celebrate Dr. Anees Rahman's pioneering contribution to Molecular Dynamics (MD) simulation 60 years ago. The conference was co-organised with the European Center for Atomic and Molecular Calculations (CECAM)

and convened by Prof. S. Balasubramanian from CPMU and Prof. Umesh V. Waghmare from TSU, JNCASR.



MD@60 conference Poster session

- The American Chemical Society (ACS) in association with JNCASR conducted an interactive lecture programme ‘**ACS on Campus**’ on 1st March 2024 at JNCASR. The programme made 180+ student and faculty participants aware about the best practices of publishing scientific articles and science communication.
- Celebrating the **10th year of the Neuroscience Unit (NSU)** and the **35th anniversary of JNCASR**, the Unit hosted “*Nerve-storming: from molecules to behaviour*” symposium on 8th and 9th March 2024, co-organised by Dr. Achira Roy and Prof. Sheeba Vasu. This event, which had 33 invited speakers from India and abroad, covered sessions on diverse themes in the field of neurobiology across diverse model systems. Additionally, there was a panel discussion on potential avenues towards strengthening neuroscience research in India and an interactive session with eLife editor, where Prof. Vidita Vaidya, TIFR Mumbai, discussed on the nuances of peer review and publication.



Experts sharing their insights during Panel discussion in Nerve-storming: from molecules to behaviour symposium

- JNCASR organised the **India@DESY Users Workshop** from 12th–14th March 2024. The event, an international collaboration between JNCASR and DESY Germany, sponsored under Nano Mission scheme of the Department of Science and Technology, Government of India, saw over 100 participants from India and abroad, including representatives from DST.



*In the photographs above,
(top) Lecture during the user meeting;
(bottom) Group photo session*

- **ACS Ignite 2024** was organised at JNCASR in association with the International Student Chapter of the American Chemical Society on 13th June 2024. Prof. Rishikesh T. Krishnan, Director, IIM Bangalore discussed about “*Building Deep Science Ventures: A Strategic Perspective*” and Dr. Premnath Venugopalan, Founder Director, Venture Center, presented a talk on “*Deep Science Startups: Selected Challenges and Remedies*”.

- **Dhwani Talk** on the topic “*The Monsoon Melodies: Nature’s Symphony of Wind and Rain*” was delivered on 15th March 2024 at JNCASR by Dr. Indumati Rao from ETU and Dr. Jaishri Sanwal Bhatt from GDU.



- Another **Dhwani Talk** on the topic “*The same and not the same: Mirror symmetry in life*” was delivered by Prof. Krishna N. Ganesh, DST National Science Chair at NCU, on 28th March 2024. A third Dhwani Talk on “*Water scarcity in Bengaluru with rapid unplanned urbanization and climate change*” was given by Dr. T. V. Ramachandra on 19th April 2024.



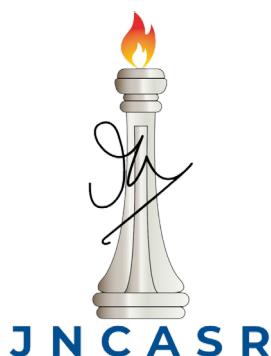
- On **CPMU Day** (14th September 2024), Dr. R. Boomi Shankar, IISER Pune, delivered the Annual Alumni Materials Lecture on “*Organic and Hybrid Ferroelectrics for Piezoelectric Energy Harvesting Applications*”; and Dr. Kalyan, IIT Guwahati delivered a talk on “*Reconstructed Layered Materials: A Noble Platform for Ionic Thermoelectric Studies*”.
- **Prof. K. S. Valdiya Memorial Lecture** on “*Indian Space Program: Space for National Development*” was delivered by Prof. V. S. Hegde former Scientific Secretary, ISRO on 3rd October 2024.

Apart from the above, 75+ other events were cumulatively organised by each unit of the Centre, including seminars, lectures, workshops, and conferences.

■ Upcoming Lectures / Meetings / Seminars

- **Annual Faculty Meeting and In-House Symposium** from 21st–22nd November 2024.
- **A Chemical Science** meeting on 12th December 2024 at JNCASR (organised by the Royal Society of Chemistry).
- **6th International Chromosome Stability** Meeting (CS2024) from 13th to 17th December 2024 at JNCASR.

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