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Bi Annual  
Newsletter | JAWAHARLAL NEHRU CENTRE FOR  
ADVANCED SCIENTIFIC RESEARCH

# JNC NEWS

Issue: 63  
May 2025

## Message from the President

It gives me great pleasure to present to you the latest edition of our newsletter, where we celebrate the achievements, advancements, and continued progress of our Centre, its dedicated faculty, students, and staff. I am delighted to share that JNCASR has been ranked 12<sup>th</sup> in the Academic and 15<sup>th</sup> in the Overall category in India in the Nature Index 2024. We also ranked 11<sup>th</sup> in Biological Sciences, and 12<sup>th</sup> in both Chemistry and Physical Sciences. These accomplishments are a reflection of the collective excellence and hard work of our community.

I would also like to note that we received a Certificate of Appreciation from Dr. Jitendra Singh, Hon'ble Union Minister of State, for being among the top performers on the iGOT Karmayogi platform during National Learning Week 2024. Furthermore, we participated in the 1<sup>st</sup> All India Annual Meet of Administrative Heads of DST autonomous institutions, chaired by Prof. Abhay Karandikar, Secretary, DST. It was a valuable platform to deliberate on administrative challenges and practical solutions. We also took part in the Sci-Tech Expo at the India International Science Festival 2024, where our teams showcased the Centre's pioneering research.

Our research community has made remarkable strides. A collaborative study with BIAL has led to a predictive model

for fog conditions around Kempegowda International Airport, achieving a 75% success rate. Some significant developments include synthesis of a novel thermoelectric materials that can pave the way for sustainable power generation; and the development of a unique diagnostic platform for monkeypox virus detection – these are instances of our endeavour towards fulfilling our mission of taking science to society. The success of our scientific contributions is also evident from the many publications, patents granted, and awards and recognitions achieved by our faculty and students. Notably, Bharat Ratna Prof. C. N. R. Rao was named an inaugural ScholarGPS Highly Ranked Scholar and two special issues of *Synthesis* journal were dedicated to Prof. H. Ila! As a testament to our efforts to promote external collaborations and academia–industry partnerships, we have signed 13 new R&D agreements and have had visits from several R&D teams to discuss collaborative projects.

We continue to grow academically with five new students joining through mid-year admissions, bringing our current strength to 430. Two new Assistant Professors have also joined our faculty. I welcome all our new members and wish their association with the Centre is fruitful.

Contd...

On the infrastructure front, we inaugurated a state-of-the-art JEOL 500 MHz Liquid NMR spectrometer in January 2025, strengthening our NMR Facility. We also launched a New Advanced Research Facility Web Portal to provide seamless access to our scientific infrastructure and introduced the Dhanvantari e-platform to digitise and streamline the Health Centre's operations.

Our science outreach efforts remain strong, with 17 ETU events involving over 4,500 students and 375 teachers. Thirty-three students participated in various fellowships and extension programs. We actively commemorated national

days and contributed to Official Language implementation activities.

All of these developments inspire confidence, and I extend my heartfelt thanks to each of you for your contributions and commitment. May we continue to strive for excellence in all dimensions of science, innovation, and education.

Warm regards,

**G. U. Kulkarni**

President, JNCASR

## ■ Major Highlights

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

JNCASR ranked 12<sup>th</sup> in the Academic and 15<sup>th</sup> in the Overall category in India in the Nature Index 2024 rankings. Additionally, it ranked 11<sup>th</sup> in Biological Sciences and 12<sup>th</sup> in Chemistry and Physical Sciences in the country.



### News reported by:

- X post by JNCASR, 12<sup>th</sup> December 2024 ([rb.gy/axugno](https://rb.gy/axugno))

### NMR Facility at JNCASR upgraded

The JEOL 500 MHz Liquid NMR spectrometer has been added to the NMR facility at JNCASR. The spectrometer was inaugurated by Bharat Ratna Prof. C. N. R. Rao on 13<sup>th</sup> January 2025.

### News reported by:

- X post by JNCASR, 13<sup>th</sup> January 2025 ([rb.gy/99mf12](https://rb.gy/99mf12))



## Synchrotron X-Ray User Outreach Workshop

On February 25<sup>th</sup>–26<sup>th</sup>, 2025, IIT (BHU) Varanasi hosted the Synchrotron X-Ray User Outreach Workshop on the DESY Electron Synchrotron, organized by JNCASR and IIT-BHU, with support from the Department of Science & Technology.



*Prof. Abhay Karandikar, Secretary, DST at the JNCASR stall at the Sci-Tech Expo*

## Visit of IAS Officers

Twenty-five IAS officers from the Lal Bahadur Shastri National Academy of Administration, Mussoorie, visited JNCASR on 13<sup>th</sup> March 2025 to gain insights into the institute's research activities. Prof. K. R. Sreenivas, Dean (R&D), presented JNCASR's research areas, academic programs, startup incubation, industry collaborations, and intellectual property rights. The visit included an interactive Q&A, with the officers appreciating JNCASR's contributions to science and technology.



*The delegation with Prof. G. U. Kulkarni, President, JNCASR and others*

## India International Science Festival 2024

JNCASR participated in the Sci-Tech Expo at the India International Science Festival 2024 held from 30<sup>th</sup> November to 3<sup>rd</sup> December 2024.

### News reported by:

- X post by JNCASR, 3<sup>rd</sup> December 2024 (<https://x.com/jncasr/status/1863813291153424752>)
- X post by JNCASR, 3<sup>rd</sup> December 2024 (<https://x.com/jncasr/status/1863812103926407585>)

## Launching of Dhanvantari e-platform

The Dhanvantari (Health Centre) e-platform software was launched by Prof. G. U. Kulkarni, President, JNCASR on 22<sup>nd</sup> January 2025. Using the platform, doctors can generate online prescriptions and access all patient medical records; nurses have access to all prescriptions; lab technicians can upload test reports; and all Dhanvantari users can readily access their medical records online.



## Inauguration of New Advanced Research Facility Web Portal

On 9<sup>th</sup> January 2025, Prof. C. N. R. Rao inaugurated the New Advanced Research Facility web portal, which provides the scientific community with seamless access to JNCASR's cutting-edge research facilities.

### News reported by:

- X post by JNCASR, 13<sup>th</sup> January 2025 (<https://x.com/jncasr/status/1878675975065817396>)



# ■ Leading News

## All India Annual Meet of Administrative Heads of Autonomous Institutions

JNCASR participated in the 1<sup>st</sup> All India Annual Meet of Administrative Heads of Autonomous Institutions under DST, held at Agharkar Research Institute, Pune on 16<sup>th</sup> and 17<sup>th</sup> January 2025. The meeting, chaired by Prof. Abhay Karandikar, Secretary, DST, focused on critical administrative challenges and explored practical solutions to improve institution functioning.

### News reported by:

- X post by DST Secretary, 17<sup>th</sup> January 2024 (<https://x.com/karandi65/status/1880237538591600730>)



## KLETU and JNCASR sign MoU for Research Collaboration

On 25<sup>th</sup> March 2025, KLE Technological University (KLETU) signed a Memorandum of Understanding (MoU) with JNCASR for facilitating collaborative research.

### News reported by:

- *The Hindu*, 25<sup>th</sup> March 2025 (<https://www.thehindu.com/news/national/karnataka/kletu-jncasr-sign-mou-for-research-collaboration/article69373097.ece>)



*Prof. P. G. Tewari, Vice-Chancellor, KLETU, and Prof. G. U. Kulkarni, President, JNCASR exchanging the MoU in the presence of Dr. Ashok Shettar, Pro-Chancellor, KLETU, and others*

## JNCASR Receives Appreciation Award

JNCASR received a Certificate of Appreciation from Dr. Jitendra Singh, Hon'ble Union Minister of State for being a top performer on the iGOT Karmayogi Platform during National Learning Week on 14<sup>th</sup> November 2024 at Vigyan Bhawan, New Delhi.

### News reported by:

- X post by JNCASR, 20<sup>th</sup> November 2024 (<https://x.com/jncasr/status/1859134628293984318>)



# ■ Celebrations of Events of National Importance

## National Learning Week

JNCASR observed National Learning Week from 19<sup>th</sup>–25<sup>th</sup> October 2024. During the week, a talk on “*Safety, Self-Motivation, and Communication Skills*” was organised for staff members and officers of the Centre.

## Vigilance Awareness Week

The Vigilance Awareness Week was celebrated from 28<sup>th</sup> October to 3<sup>rd</sup> November 2024. An integrity pledge was administered on 28<sup>th</sup> October 2024 at Kanada Auditorium by Prof. Ravi Manjithaya, Chief Vigilance Officer, and an online essay competition was held on the theme “*Culture of Integrity for Nation’s Prosperity*”. A “*Vigilance Awareness and National Unity Run*” marathon was organised on 2<sup>nd</sup> November 2024 to celebrate the awareness week as well as National Unity Day.

## Rashtriya Ekta Diwas

A pledge was administered in English and Hindi on 28<sup>th</sup> October 2024 at the Kanada Auditorium by Prof. N. S. Vidhyadhiraja, Dean, F&E, JNCASR.



## Kannada Rajyothsava Day

Prof. G. U. Kulkarni, President, JNCASR, paid tribute to Goddess Bhuvaneswari and hoisted the Kannada Rajyothsava flag. The staff presented Naadageete and few

Kannada songs. Bharat Ratna Prof. C. N. R. Rao participated and graced the function.



## Constitution Day (Samvidhan Diwas)

To commemorate the day of adoption of the Constitution of India, a reading of the Preamble to the Constitution of India was organised on 26<sup>th</sup> November 2024 in the Admin Foyer, JNCASR.



## Mission Recruitment - Rozgar Mela

JNCASR participated in the Rozgar Mela organised by DST at BSF Yelahanka, Bengaluru.



## Blood Donation Drive

In collaboration with the Sankalp India Foundation, a blood donation drive was successfully conducted at JNCASR on 13<sup>th</sup> December 2024, and led to the collection of 45 units of blood.

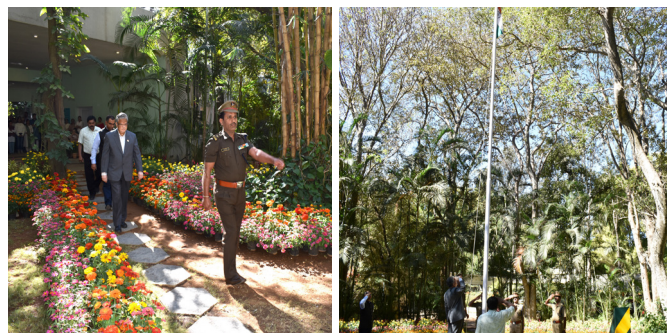


## Awareness on Earthquakes

To enhance public understanding and readiness for seismic events, GSU, in collaboration with the Safety Committee at JNCASR, organised a talk on 'Awareness on Earthquake Preparedness & Hazard Mitigation' on 21<sup>st</sup> January 2025 by Dr. Ajay Paul, Senior Scientist at the Wadia Institute of Himalayan Geology, Dehradun.

## Republic Day celebration

As part of the 76<sup>th</sup> Republic Day celebrations at the Centre on 26<sup>th</sup> January 2025, the national flag was hoisted by Prof. G. U. Kulkarni, President, JNCASR in the presence of Bharat Ratna Prof. C. N. R. Rao, Mrs. Rao, and over 400 faculty, students, and staff. The student cultural group sang the National Anthem, followed by patriotic songs. The Constitution of India book was showcased in the Administrative Block.



## Matribhasha Diwas

JNCASR celebrated Matribhasha Diwas at the Centre on 21<sup>st</sup> February 2025 with an Essay Competition conducted for its members on the theme "Talent and Ability Development through Mother Tongue"- emphasising the role of language in fostering creativity, intellect, and personal growth. The winners were given cash prizes.

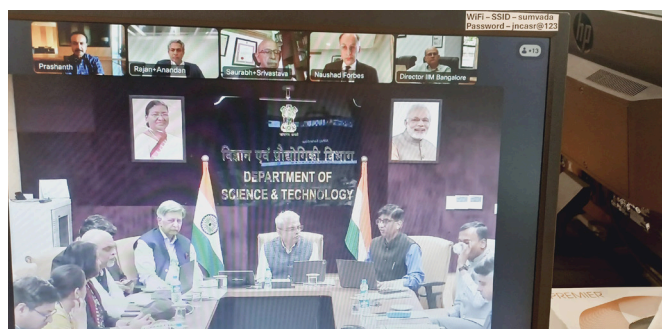
## National Science Day

JNCASR celebrated National Science Day 2025 as Open Day by organising scientific events for ~1200 students and teachers from schools and colleges and the general public. The theme for the celebration was "Empowering Indian Youth for Global Leadership in Science & Innovation for Viksit Bharat", focused on encouraging young minds, recognising groundbreaking contributions, and celebrating India's scientific achievements. The event featured guided lab tours, visit to Chemical Heritage Exposition and C. N. R. Rao Archives and Galleries, live science demonstrations and hands-on experiments, science quiz and interactive sessions, career guidance, talks, and an opportunity to meet JNCASR scientists.



## Post Budget Webinar 2025

JNCASR participated in the Post-Budget Webinar on "Investing in People" with participation from the President, JNCASR, Deans, Faculty Members, Officers, Research Scholars, and students.



## Other Events

### International Women's Day

JNCASR celebrated International Women's Day through various activities focused on the theme *"For All Women and Girls: Rights, Equality, Empowerment"*. On 8<sup>th</sup> March, a marathon was organised, with ~50 women participating. Prof. Prita Pant, IIT Bombay, gave a talk titled *"Science, Gender, and the power of change"*, on 10<sup>th</sup> March 2025; the talk addressed the gender-based equality issue in the sphere of teaching and research. The same day, a pot painting competition was organised.



Notably, Surabhi Menon, a TSU student working with Prof. Umesh V. Waghmare, featured in this year's celebratory collection of Nanoscience publications by Royal Society Chemistry, released on International Women's Day, to showcase some of the excellent women conducting nanoscience research.

### Visit of Delegation from the Royal Society, London

A delegation from the Royal Society, London, visited JNCASR on 5<sup>th</sup> November 2024 to discuss the Centre's role in the development of Indian R&D and opportunities related to UK-India scientific partnerships.



Prof. Eshwaramoorthy, Dean, Academic Affairs,  
Prof. N. S. Vidhyadhiraja, Dean, F&E, Prof. G. U. Kulkarni,  
President, JNCASR, Prof. K. R. Sreenivas, Dean, R&D,  
Prof. Alison Noble, Society's Foreign Secretary, Mr. Ian  
Wiggins, Director of International Affairs & Dr. K. Panneer  
Selvam, Coordinator, R&D & F&E

### Dr. V. K. Saraswat's Visit

On 12<sup>th</sup> December 2024, Dr. V. K. Saraswat, an esteemed member of the NITI Aayog, visited JNCASR as the Chief Guest at the prestigious International Conference on Carbon

Capture and Utilization (ICCCU-2024). Dr. Saraswat delivered a keynote address emphasising the pivotal role of CCU technologies in achieving the nation's net-zero emissions targets.



### International Day of Women and Girls in Science

On 11<sup>th</sup> February 2025, in collaboration with WISE KIRAN Division of DST and British Council, JNCASR hosted WiSLP Leadership Development Workshop for Women Scientists in Space and Allied Sciences under the UKIERI initiative. The event provided a great platform for knowledge sharing and research collaboration among the participating women scientists.



### JNCASR-MAHE Bilateral Discussion

A bilateral discussion between JNCASR and MAHE was held on 14<sup>th</sup> March 2025, focusing on advancing research translation from TRL 3 to commercialisation of point-of-care and clinical care technologies.



# ■ Appointments & Promotions

## **New Appointment – Teaching Staff**

- Dr. Medha Dandu, Assistant Professor  
(w.e.f. 6<sup>th</sup> November 2024)
- Dr. Animesh Pandey, Assistant Professor  
(w.e.f. 26<sup>th</sup> December 2024)

## **New Appointments – Non-Teaching Staff**

- Bindushree G. K., Jr. Admin Assistant  
(w.e.f. 21<sup>st</sup> January 2025)
- Dr. Vinayak Pattar, Technical Assistant  
(w.e.f. 27<sup>th</sup> January 2025)
- Hemanth A., Jr. Admin Assistant  
(w.e.f. 28<sup>th</sup> January 2025)
- Harsha J. S., Jr. Admin Assistant  
(w.e.f. 20<sup>th</sup> February 2025)

## **New Appointments – Contractual**

- Dr. Nidhi Rani, Guest Instructor  
(w.e.f. 9<sup>th</sup> January 2025)
- Manoharan C. D., Office Superintendent  
(w.e.f. 3<sup>rd</sup> March 2025)

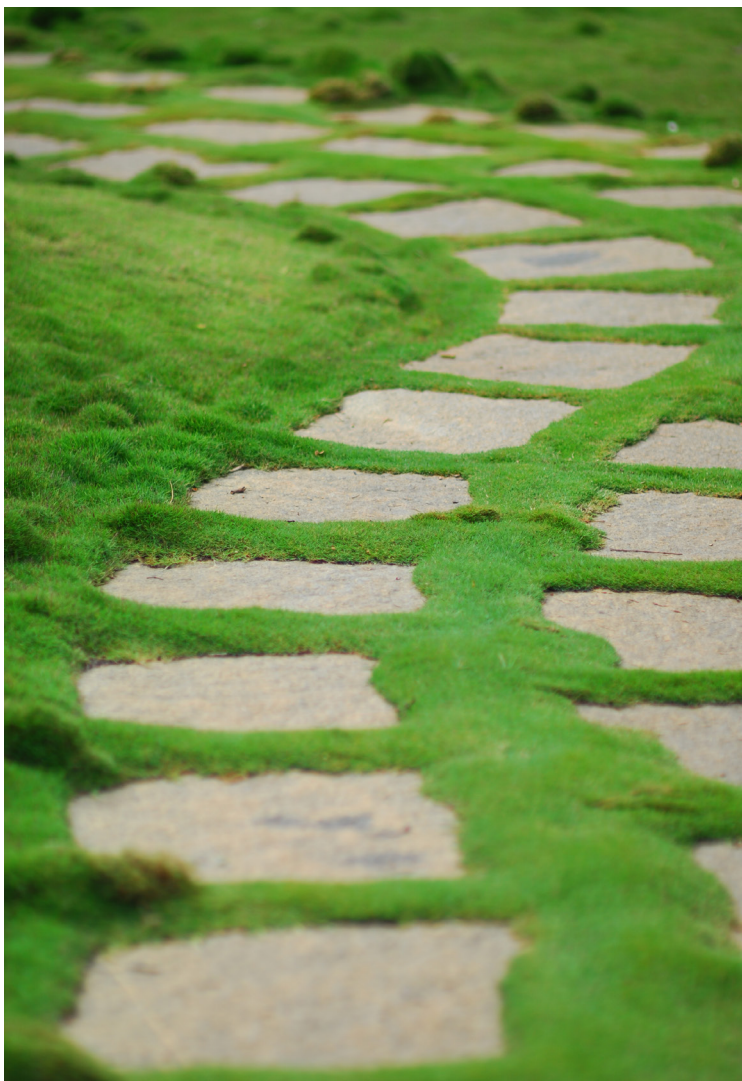
## **New Appointments – Research Associates (1<sup>st</sup> October 2024 – 31<sup>st</sup> March 2025)**

- Dr. Vismitha S. Patil, CPMU
- Dr. Pavan Kumar Singeetham, EMU
- Dr. Bidesh Biswas, ICMS
- Dr. Taranga Dehury, CPMU
- Dr. Piyush Garg, EMU
- Dr. Daloo Ram, CPMU
- Dr. Arsha Noushad, TSU
- Dr. Anurag Pant, EMU
- Dr. Matukumilli V. D. Prasad, NCU
- Dr. Suresh R., NCU

- Dr. Kewal Singh Rana, NCU
- Dr. S. V. Siva Krishna, EMU
- Dr. Avula Venkata Siva Nikhil, CPMU
- Dr. Aditi Goel, MBGU
- Dr. Sahil Dani, CPMU
- Dr. Abinash Pradhan, NCU
- Dr. Sumukh Anil Purohit, CPMU
- Dr. Gokul Upadhyay, TSU
- Dr. Deblina Guha, MBGU

## **New Appointments – Provisional Research Associates (1<sup>st</sup> October 2024–31<sup>st</sup> March 2025)**

- Suhas K. T., CPMU
- Rahul Sahu, EMU



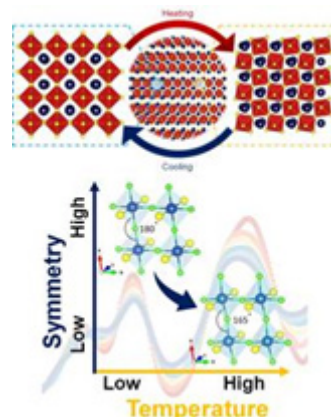
# Research Highlights

## Rare Atomic Shift in Crystals Unlocks New Potential for Advanced Energy Materials

In a counterintuitive discovery, Prof. Kanishka Biswas and his student Ivy Maria observed a rare reduction in the local crystal structure symmetry upon warming – termed as ‘*emphanisis*.’ This unusual behaviour in crystalline materials opens up avenues for novel material design for application in phononics, thermoelectrics, and solar thermal conversion.

### News reported by:

- *DST* (<https://dst.gov.in/rare-observation-hidden-structure-crystals-brings-new-paradigms-material-design-advanced-energy>)
- *X post by PIB*, 15<sup>th</sup> October 2024 ([https://x.com/PIB\\_India/status/1846137104235151424](https://x.com/PIB_India/status/1846137104235151424))
- *Press Information Bureau*, 15<sup>th</sup> October 2024 (<https://pib.gov.in/PressReleaseDetail.aspx?PRID=2064973&reg=3&lang=1>)



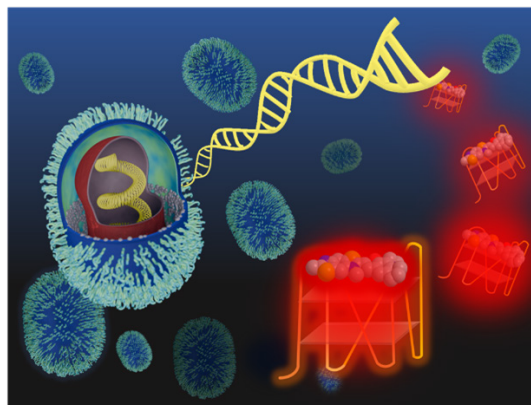
*Schematic showing the evolution of local structure of a system exhibiting emphanisis*

## Scientist Develop New Smart Monkeypox Diagnostics

Prof. T. Govindaraju and his team identified a unique G-quadruplex (GQ) sequence specific to the Monkeypox (Mpox) genome. Based on this, they developed a novel GQ-targeted reliable conformational polymorphism (GQ-RCP) diagnostic platform that enables rapid and accurate diagnosis of Mpox infection, opening up promising therapeutic advancements.

### News reported by:

- *The Hindu*, 25<sup>th</sup> November 2024 (<https://www.thehindu.com/news/national/karnataka/scientists-from-bengaluru-jncasr-find-new-way-to-detect-monkeypox-virus/article68909998.ece>)
- *Times of India*, 25<sup>th</sup> November 2024 (<https://timesofindia.indiatimes.com/city/bengaluru/breakthrough-in-monkeypox-detection-bengaluru-scientists-unveil-novel-method/articleshow/115658503.cms>)
- *Deccan Herald*, 24<sup>th</sup> November 2024 ([https://www.deccanherald.com/india/karnataka/bengaluru/researchers-from-jncasr-find-better-detection-route-for-monkeypox-hiv-1-3289556?utm\\_source=twitter&utm\\_medium=referral&utm\\_campaign=socialshare](https://www.deccanherald.com/india/karnataka/bengaluru/researchers-from-jncasr-find-better-detection-route-for-monkeypox-hiv-1-3289556?utm_source=twitter&utm_medium=referral&utm_campaign=socialshare))
- *NDTV*, 23<sup>rd</sup> November 2024 (<https://www.ndtv.com/india-news/indian-researchers-find-method-to-decode-monkeypox-virus-aid-diagnostics-7082774>)
- *DST*, 25<sup>th</sup> November 2024 (<https://t.co/Vi1mg60Do1>)
- *Desh Sewak*, 22<sup>nd</sup> November 2024 (<https://www.deshsewak.org/english/news/181573>)
- *ETV Bharat*, 23<sup>rd</sup> November 2024 (<https://www.etvbharat.com/en/!health/monkeypox-treatment-and-causes-enn24112304482>)



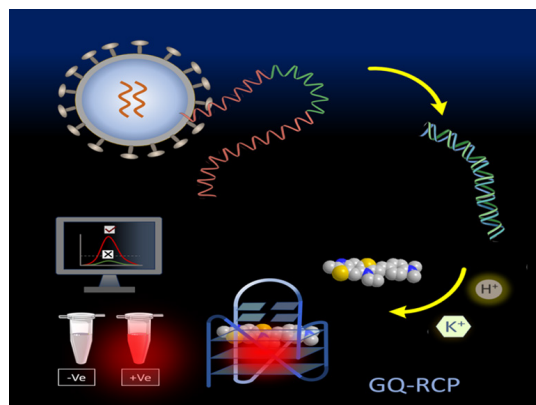
*Schematic illustrating principle of the Monkeypox diagnostics*

## Scientists Design Precise HIV Diagnostic Technology

Prof. T. Govindaraju and his team developed an innovative diagnostic platform for the unambiguous detection of HIV-genome derived G-Quadruplex (GQ) sequences. This technology uses a custom-designed fluorogenic probe based on GQ-targeted reliable conformational polymorphism (GQ-RCP) and drastically reduces false positives in HIV detection, marking a major advancement in precise HIV diagnostics.

### News reported by:

- Press Information Bureau, 20<sup>th</sup> November 2024 (<https://pib.gov.in/PressReleasePage.aspx?PRID=2075042>)
- AWAZ the Voice, 20<sup>th</sup> November 2024 (<https://www.awazthevoice.in/health-news/jncasr-team-develops-new-tech-for-early-accurate-detection-of-hiv-32671.html>)



Schematic illustrating principle of the HIV diagnostic technology

## Clearing the Skies: Fog Prediction Model Hits 75% Accuracy

In a successful collaboration, JNCASR and Bangalore International Airport Limited (BIAL) have developed a Numerical Simulation Tool capable of predicting the onset, intensity, and dissipation of fog. The tool can predict occurrence of fog in the vicinity of the airport with an accuracy of 75%. This is expected to reduce flight delays, passenger inconvenience, and financial losses during the winter season.

### News reported by:

- The Hindu, 13<sup>th</sup> November 2024 (<https://www.thehindu.com/news/cities/bangalore/study-to-predict-fog-conditions-around-bangaluru-airport-achieves-75-success/article68860689.ece/amp/>)



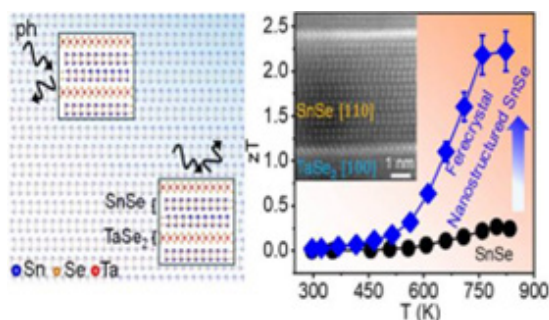
The thick layer of fog over Kempegowda International Airport in Bengaluru on 10<sup>th</sup> November 2024

## From Waste to Watts: Synthesis of Novel Thermoelectric Material

Prof. Kanishka Biswas and his team have synthesised ferecrystals – a new class of materials that exhibit remarkable thermoelectric properties. These materials can efficiently convert waste heat into electrical energy, which could pave the way for sustainable power generation.

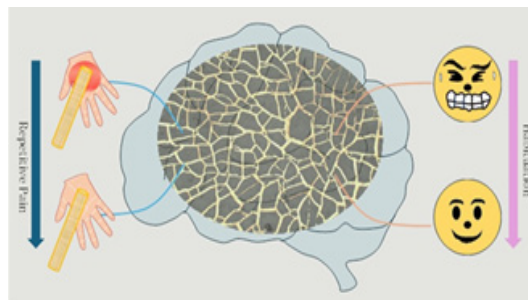
### News reported by:

- Deccan Herald, 14<sup>th</sup> December 2024 (<https://www.deccanherald.com/india/karnataka/bangaluru/breakthrough-material-promises-to-convert-waste-into-watts-3317248>)
- DST, 16<sup>th</sup> December 2024 (<https://x.com/IndiaDST/status/1868532561536078182>)
- Press Information Bureau, 9<sup>th</sup> December 2024 (<https://pib.gov.in/PressReleasePage.aspx?PRID=2082370>)



## Scientist Develop Wearable Stress-Sensing Tech

Prof. G. U. Kulkarni and his research team have developed a wearable stress-sensing device using a network of stretchable silver wires. The innovative device mimics human's adaptive responses to pain, offering a means to monitor stress in real-time. This breakthrough paves the way for smarter health monitors and intuitive robotics.



### News reported by:

- DST (<https://dst.gov.in/new-system-developed-wearable-devices-can-detect-stress>)
- Press Information Bureau, 15<sup>th</sup> January 2025 (<https://pib.gov.in/PressReleasePage.aspx?PRID=2093138#:~:text=New%20system%20developed%20for%20wearable%20devices%20that%20can%20detect%20stress&text=Using%20silver%20wire%20network%20on,adapts%20its%20electrical%20response%20accordingly>)
- X post by DST, 19<sup>th</sup> January 2025 (<https://x.com/IndiaDST/status/1880948114317771148>)

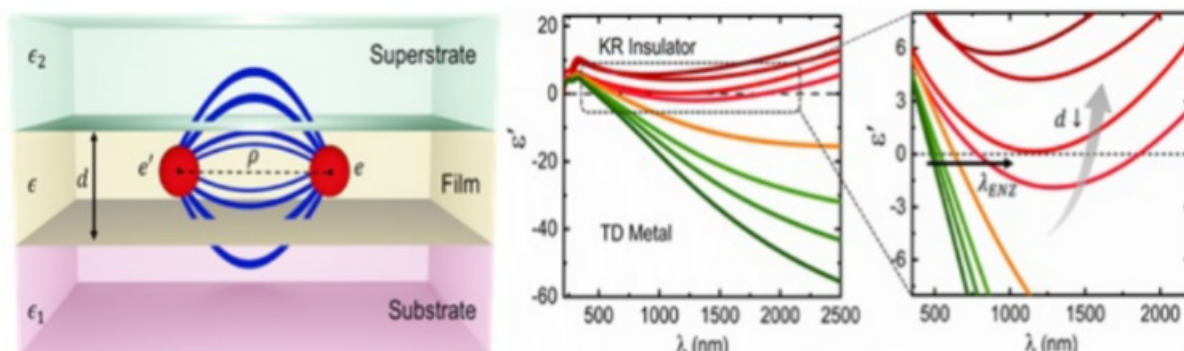
## Scientists Uncover a Game-Changer in Nano-Metal Technology

Prof. Bivas Saha and his team, along with collaborators, have uncovered an electron confinement-induced plasmonic breakdown in metals, fundamentally altering plasmonic properties at the nanoscale and impacting nanoelectronics, optoelectronics, sensors, and catalysts. Published in *Science Advances* (doi: 10.1126/sciadv.adr259), the findings have potential to reshape nanoscale material design and advanced optical and electronic applications.



### News reported by:

- ETV Bharat, 28<sup>th</sup> January 2025 (<https://bit.ly/3xyz123>)
- Press Information Bureau, 29<sup>th</sup> January 2025 (<https://bit.ly/4gZ6fyq>)
- X post by JNCASR, 29<sup>th</sup> January 2025 (<https://bit.ly/416L2gg>)



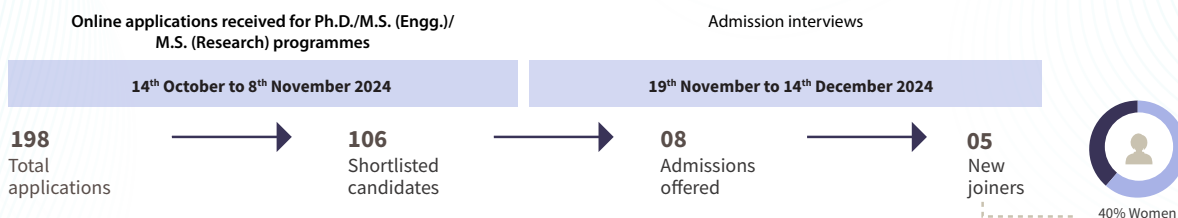
*Confined electrons paves the way for improved optoelectronic materials, sensors & nano-catalysts (PIB)*

# ■ Academic Activities



## Research Admissions

### Mid-Year Admissions (January-2025)



## Courses taught

January–April term **38**

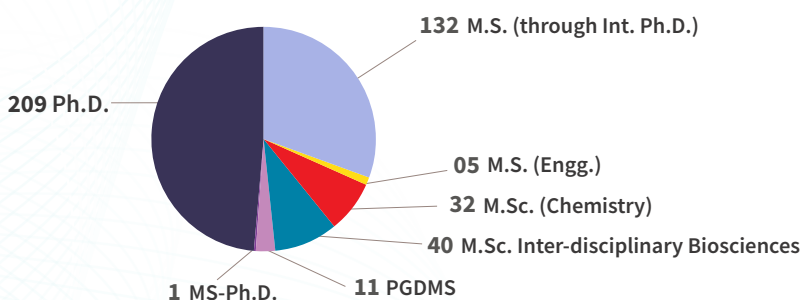


## Current Status and Schedule of Academic Activities (2025)

- All the newly admitted students have reported at the Centre in January 2025.
- Call for online applications for admissions to Ph.D./M.S.(Engg.)/MS (Research) / Master of Science (M.Sc) in Chemistry/Master of Science (M.Sc) in Inter-Disciplinary Biosciences / PGDMS was announced on 10<sup>th</sup> March 2025. Last date for application is 10<sup>th</sup> April 2025.



## Summary of On-roll Students (as on 28<sup>th</sup> March 2025)



**430**

# Awards & Achievements

## Awards and accolades by faculty members

### Prof. C. N. R. Rao

- Honored as an inaugural ScholarGPS Highly Ranked Scholar for his exceptional performance and being among the top 0.05% of all scholars worldwide
- Ranked 4<sup>th</sup> in Solid-state Chemistry and 17<sup>th</sup> in Chemistry globally, under Highly Ranked Scholar-Lifetime

### Prof. H. Ila

- Two Special Issues of *Synthesis* Journal were dedicated to Prof. H. Ila

### Prof. Jayanta Haldar

- Contributing expert for the Project REVIVE of the Global Antibiotic Research & Development Partnership (GARDP) Foundation. (2025)
- Member of British Society for Antimicrobial Chemotherapy (BSAC)
- Member of American Society of Microbiology (ASM)
- Editorial Advisory Board Member for “*ACS Biochemistry*” (2025)
- Editorial Advisory Board Member for “*Bioconjugate Chemistry*” ACS (2025)
- Advisory Board Member of the journal “*RSC Medicinal Chemistry*” (2024)
- Advisory Board Member of the journal “*Microbial Pathogenesis*”, Elsevier (2024)

### Prof. Kanishka Biswas

- Team “*PGEc Thermoelectrics*” led by Prof. Kanishka Biswas honored as the First Runner-up in the Tata Steel, MaterialNext 5.0, an advanced materials competition

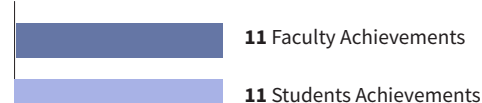
### Prof. Subi Jacob George

- Won the G. D. Birla Award for Scientific Research by the K. K. Birla Foundation, New Delhi, in recognition of scientific excellence in the field of supramolecular chemistry

### Prof. Umesh V. Waghmare

- Awarded the Distinguished Materials Scientist of the Year Award at IUMRS-ICA 2024 Conference, Indore, for exceptional contributions to the field of theoretical physics and materials science

### Awards / Fellowships / Memberships



## Fellowships and Memberships

### Prof. G. U. Kulkarni

- Elected as a Fellow of The World Academy of Sciences(TWAS) for the Advancement of Science in Developing Countries-2025

### Prof. Jayanta Haldar

- Elected as Fellow of the Indian National Science Academy, New Delhi

### Prof. Kushagra Bansal

- VAIBHAV Fellowship with Prof. Uttiya Basu (Columbia University, USA)

### Prof. T. N. C. Vidya

- Elected as the Fellow of the Indian National Science Academy

## Student Achievements

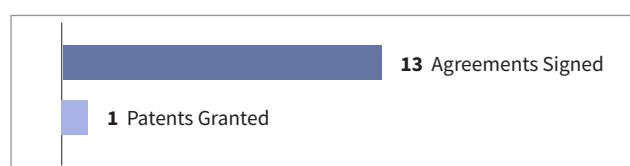
- Ankana Sanyal** (Ph.D. student, EOB; Research Supervisor: Prof. T. N. C. Vidya) won the best oral presentation award at the 5<sup>th</sup> Conference of the Indian Society of Evolutionary Biologists held at Lucknow from 17<sup>th</sup>–19<sup>th</sup> October 2024
- Mansi Rathi** (Ph.D. student, NSU; Research Supervisor: Prof. Sheeba Vasu) won the best poster presentation award at the 5<sup>th</sup> Conference of the Indian Society of Evolutionary Biologists held at Lucknow from 17<sup>th</sup>–19<sup>th</sup> October 2024
- Sabyasachi Mandal** (Ph.D. student, NCU; Research Supervisor: Prof. T. Govindaraju) won the best poster award at the CRSI-ACS Early Career Researchers' Symposium 2024 held at KIIT, Bhubaneswar, Odisha
- Sudip Mukherjee** (Ph.D. student, NCU; Research Supervisor: Prof. Jayanta Haldar) won the GYTI-Gandhian Young Technological Innovation Award 2023
- Dikshaa Padhi** (Ph.D. student, NCU; Research Supervisor: Prof. T. Govindaraju) won the “*Best Thesis Award*” by the Society for Free Radical Research India during the International Conference on “*Developments in the Science of Oxidative Stress and Redox Medicine*” held at BARC, Mumbai on 9<sup>th</sup> November 2024

- **Subham Das** (Ph.D. student, NCU; Research Supervisor: Prof. Ranjani Viswanatha) won the best poster award at International Winter School 2024 “*Frontiers in Materials Science*” held at JNCASR
- **Ivy Maria** (Ph.D. student, NCU; Research Supervisor: Prof. Kanishka Biswas) won Smt. and Sri. Bapu Narayanaswamy Prize 2023 for the best MS thesis in Integrated Ph.D. Chemical Science and Materials Science Programs
- **Rahul Kumar** (Ph.D. student, CPMU; Research Supervisor: Prof. Sundaresan A.) received a certificate of appreciation from Quantum Design India for work using PPMS ECI, ECII, and MPMS 3
- **Mallika Dattatray Bhat** (Ph.D. student, MBGU; Research Supervisor: Prof. Ravi Manjithaya) was selected as a discussion leader for the Gordon Research conference held at Pomona, California, United States on 1<sup>st</sup> and 2<sup>nd</sup> March 2025
- **Abhijith A. V.** (Ph.D. student, EOBUS; Research Supervisor: Dr. Anand Krishnan) received a Research Grant from the Rufford Foundation, UK, to support his field research in Wayanad, Kerala
- **Abhishek Kumar** (Int. Ph.D. student, CPMU; Research Supervisor: Prof. Eswaramoorthy M.) received the Raman Charpak Fellowship by the Indo-French Centre for the Promotion of Advanced Research, supported by DST
- **Subhankar Maity** (Ph.D. student, NCU; Research Supervisor: Prof. Jayanta Halder) received the Best poster award at AFM-IHS @JNCASR
- **Dipanjana Patra** (Int-Ph.D. student, NCU; Research Supervisor: Prof. Jayanta Halder) received the Best oral presentation award at AFM-IHS @JNCASR
- **Nandini Saha** (Ph.D. Student, NCU; Research Supervisor: Prof. Jayanta Halder) received the Best poster award at International Winter School @JNCASR and Best poster award at Chemical Biology Symposium @JNCASR
- **Pallawi Choubey** (Ph.D. Student, MBGU; Research Supervisor: Prof. Kushagra Bansal) received the European Federation of Immunologists (EFIS) student travel fellowship to present the research work at the meeting “*European Macrophage and Dendritic Cell Society (EMDS) 2024*” held at Austrian Academy of Sciences, Vienna, Austria during 27<sup>th</sup>-29<sup>th</sup> November 2024. Also received the Best Poster Award in Chromosome Stability 2024 meeting held in JNCASR, Bangalore during 13<sup>th</sup>-17<sup>th</sup> December 2024
- **Vanshika Sood** (Ph.D. Student, MBGU; Research Supervisor: Prof. Kushagra Bansal) received the Best Talk Award in Global Immunology Summit-2025 (GIS-2025) held at THSTI, Faridabad during 13<sup>th</sup>-15<sup>th</sup> February 2025.
- **Amit Kumar** (Ph.D. Student, MBGU; Research Supervisor: Prof. Kushagra Bansal) received the Ekalavya-Ignite travel grant to present the research work at the meeting “*Immunology 2025*” to be held in Honolulu, Hawaii, USA during 3-7<sup>th</sup> May, 2025

## ■ Research & Development

### Memorandums of Understanding (MoUs) and Memorandums of Agreement (MoAs)

- An MoA was signed with DBT to carry out project titled: “*Evaluation of Topoisomerase 1 as a potential host-directed therapeutic target to treat Sepsis*” on 11<sup>th</sup> November 2024 by Dr. Kushagra Bansal.
- An MoU was signed with Sri Devaraj Urs Academy of Higher Education (SDUAHER), Kolar to carry out the project title: “*Genetic and Epigenetic drivers of chewing tobacco Kaddipudi habited woman oral cancer patients*” on 3<sup>rd</sup> December 2024 Prof. Tapas K. Kundu.
- An MoU was signed with CSIR-CDRI, Lucknow to provide collaborative research programs in specific fields of interest, exchange programs for students/faculty members, sharing of instrumentation facility, and submission of Joint projects to funding agencies on 19<sup>th</sup> December 2024 by Prof. Tapas K. Kundu.
- An MoU was signed with Birla Institute of Technology and Science (BITS), Pilani to promote interaction between JNCASR and BITS in mutually beneficial areas on 28<sup>th</sup> January 2025 by Prof. G. U. Kulkarni.
- An MoU was signed with Homi Bhabha National Institute (HBNI), Mumbai to enhance collaborative research in the areas of mutual interest, both in extent and scope, by using the medium of research students enrolled in the partner Institutes on 21<sup>st</sup> February 2025 by Prof. M. Eswaramoorthy.
- An MoU was signed with Manipal Academy of Higher Education (MAHE), Manipal to enhance collaborative research in the areas of mutual interest, both in extent and scope, by using the medium of research students



enrolled in the partner Institutes on 21<sup>st</sup> February 2025 by Prof. T. Govindaraju.

- An MoU was signed with KLE Technological University, Hubballi for academic and research collaboration on 26<sup>th</sup> February 2025 by Prof. G. U. Kulkarni.
- An MoU was signed with Immuneel Therapeutics Pvt. Ltd., Bangalore to work together on immunological aspects of various diseases, including cancer, autoimmunity, immunodeficiencies and pathogenic infections, on 12<sup>th</sup> March 2025 by Dr. Kushagra Bansal.

## Non-Disclosure Agreements (NDAs)

- An NDA was signed with Hindustan Zinc Limited (HZL), Udaipur, Rajasthan to discuss about collaboration in the areas of oxygen concentrator technology and furnace digital twin for roasters on 17<sup>th</sup> September 2024 by Prof. Santosh Ansumali.
- An NDA was signed with Hindustan Petroleum Corporation Limited, Mumbai, Maharashtra to discuss about future collaboration and undertaking a possible project for “Development of Catalyst for Electrocatalytic Conversion of CO<sub>2</sub> to C<sub>2</sub> Products: Ethanol and Ethylene” on 7<sup>th</sup> October 2024 by Prof. Sebastian C. Peter.
- An NDA was signed with M/s. Aurigene Oncology Ltd., Bengaluru to exchange information relating to the business, products, technology that is confidential proprietary for the purpose of evaluating potential business relationship on 16<sup>th</sup> October 2024 by Prof. Udaykumar Ranga.
- An NDA was signed with Naval Science & Technological Laboratory (NSTL), Visakhapatnam to exchange confidential information between the parties on the project titled: “Development of High Energy Density NDA Magnesium Batteries” on 6<sup>th</sup> March 2025 by Prof. Premkumar Senguttuvan.

## Collaborative Research Agreement

- A Collaborative Research Agreement was signed with M/s. Hindustan Petroleum Corporation Limited (HPCL), Mumbai, Maharashtra to discuss about future collaboration and undertaking a possible project for “Development of Catalyst for Electrocatalytic Conversion of CO<sub>2</sub> to C<sub>2</sub> Products: Ethanol and Ethylene” on 10<sup>th</sup> October 2024 by Prof. Sebastian C. Peter.

## Visit of R&D Teams

The following R&D Teams visited the Centre for a discussion meeting for possible collaborative research projects/ research funding:

- A representative team from Tokyo Electron Limited (TEL), Japan visited JNCASR on 18<sup>th</sup> September 2024.
- Delegates from Durham University visited JNCASR on 20<sup>th</sup> September 2024.
- Delegates from the Royal Society visited JNCASR on 5<sup>th</sup> November 2024.
- The CNRS team and members of the French consulate visited JNCASR on 16<sup>th</sup> December 2024 for Establishment of the Indo-French Centre for Applied Mathematics (IFCAM) at JNCASR and the signing of CEFIPRA Agreement with France.
- Prof. Jayathi R. Murthy, President of Oregon State University, Corvallis visited the Centre on 13<sup>th</sup> January 2025 to explore potential collaborations.
- Team from the Manipal Academy of Higher Education (MAHE), Manipal, visited JNCASR on 14<sup>th</sup> March 2025.

## Start-up

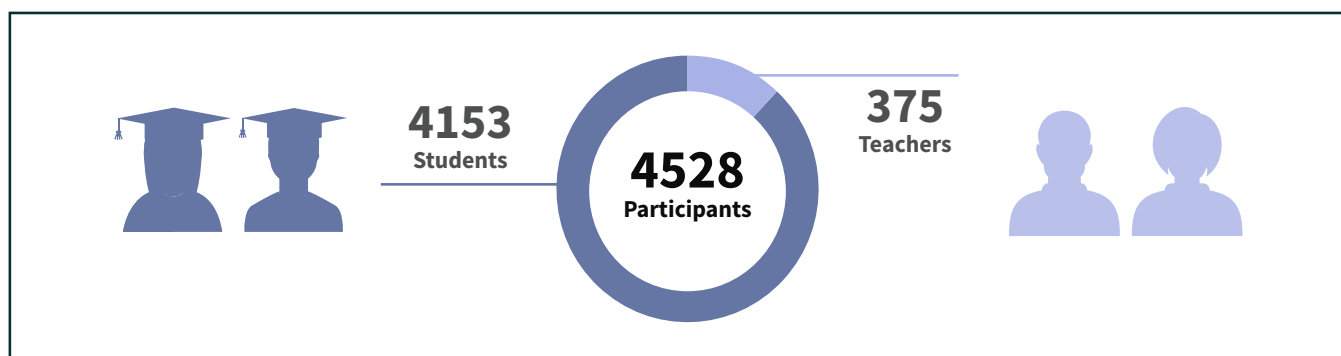
- JNCASR nurtured the start-up “Pranos Fusion Private Ltd.” founded by Mr. Shaurya Kaushal, a Ph.D. scholar under the guidance of Prof. Santosh Ansumali, EMU, by providing suitable space at the Innovation and Development Centre (IDC), Arkavathi Campus.

# Intellectual Property

## Patents Granted-India

- Patent (No. 556638) for ‘A Regio-Regular Polymer, Its Preparation and Implementations Thereof’ developed by Prof. Sridhar Rajaram, et al.

## ■ 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.*

**29<sup>th</sup> September 2024:** The Sagar Science Forum hosted a **Vignana Manthana session on DNA Structure** in Sagara, attended by 46 students from classes XI-XII and 3 teachers. Mr. Shivanand Bhat, Assistant Professor at Indira Gandhi Degree College, served as the resource person, discussing DNA structure and its importance in genetics.

**3<sup>rd</sup> October 2024:** An **Interactive Lecture Program in Science** was organised in memory of Prof. K. S. Valdiya, featuring talks by V. S. Hegde, ISRO Scientist, on *“Indian Space Program: Space for National Development”* and Prof. Nishikant K. Subhedar on *“Understanding Brain – An Exciting Journey”*. Dr. Vinayak Pattar, JNCASR, conducted experimental demonstrations, and participants (126 students and 14 teachers) visited the laboratories, the Bharat Ratna Galleries, and the Chemical Heritage Exposition.

**3<sup>rd</sup>–6<sup>th</sup> October 2024:** A four-day residential **Science Camp for Class XI students** was organised in association with the Sagar Science Forum and the C. N. R. Rao Education Foundation. The camp featured expert sessions by eminent scientists as well as hands-on experiments, interactive lectures, and discussions on various scientific topics. Around 57 students and 6 teachers from various taluks like Sagar, Hosanagar, Shikaripur, and Sorab participated in the program.

**23<sup>rd</sup> October 2024:** A group of 40 B.Sc. students and 3 faculty members from NMKRV College for Women, Bengaluru, **visited the Galleries and ChemExpo**. Coordinated by Dr. Vinayak Pattar, the visit included guided tours through the scientific exhibits, interactive demonstrations, and hands-on experiments.

**30<sup>th</sup> October 2024:** A *‘Fun with Science Experiments’* session was conducted for 23 students of Class XI and XII and 2 teachers of Jawahar Navodaya Vidyalaya, Goa, at

ETU, JNCASR. Under guidance of Dr. Vinayak Pattar, the participants engaged in hands-on activities and witnessed engaging science experimental demonstrations designed to spark curiosity and enhance conceptual understanding.

**9<sup>th</sup> November 2024:** A **Science Conference** titled *“Advancing Technology from Theory to Reality”* was organised in association with St. Francis School, Koramangala, Bengaluru for ISC Class XI and XII students. Featuring talks by Prof. N. S. Vidhyadhiraja, Dr. Vinayak Pattar, and Dr. Arun Panchapakesan, the sessions were highly interactive. The event saw participation of 450 students and 25 faculty members.

**14<sup>th</sup> November 2024:** An **interactive Lecture Program in Biology and Physics** was conducted for grade VII to XII students from five schools in Bengaluru. Led by Prof. Kushagra Bansal and Dr. Vinayak Pattar, the program featured interactive demonstrations and discussions on fundamental concepts in Biology and Physics. About 120 students and 6 teachers participated.

**23<sup>rd</sup> November 2024:** A **“Science in Action”** program was conducted in association with Science Gallery, Bengaluru for participants ranging from grade VI to Ph.D. level. Led by Dr. Panneer Selvam and Dr. Vinayak Pattar, the program aimed to bridge the gap between theoretical knowledge and practical applications.

**24<sup>th</sup> November 2024:** A **Vignana Manthana session** was conducted in association with Sagar Science Forum and C. N. R. Rao Education Foundation on *“The Greatest Show on Earth: Evolution”* for 50 students (Class XI-XII) and 5 teachers in Sagara. Led by Dr. Divya Uma from Azim Premji University, Bangalore, the session involved engaging discussions on evolutionary biology.

**25<sup>th</sup>–26<sup>th</sup> November 2024:** An Interactive Lecture Program in Science and a Stargazing Session was conducted at the Army Public School, Jaisalmer, Rajasthan, featuring several distinguished speakers who covered diverse scientific topics. This 1.5-day program saw participation of 375 students (grades VI to XII) and 25 faculty members.

**26<sup>th</sup>–27<sup>th</sup> November 2024:** An interactive Lecture Program in Science and Stargazing Session was organised at JNV Bikaner, Rajasthan, for 450 students (grades VII to XII) and 30 faculty members. The event featured a team of experts who delivered insightful lectures and hands-on demonstrations on science and astronomy.

**6<sup>th</sup> December 2024:** An Interactive Lecture Program in Biology and Physics was conducted by ETU, featuring a special lecture by Dr. Varun Bhaskar and a ‘Fun with Experiment’ demonstration by Dr. Vinayak Pattar. About 160 students (grades XI and XII) and 10 faculty members participated from Premier Science College, Karwar.

**8<sup>th</sup> December 2024:** A Vignana Manthana session was conducted on “Interaction with Students on Bio Sciences” for Class XI-XII students in Sagara. Led by Dr. Uma Shankar, Former Professor, IIT Jammu, the session engaged 47 students and 4 teachers in interactive discussions on biological science advancements, career opportunities, and interdisciplinary applications.

**10<sup>th</sup> December 2024:** A ‘Science in Action: Interactive Workshop for Teachers’ was conducted by ETU, JNCASR for VIII to XII-grade educators across Karnataka. It featured distinguished speakers, including Dr. Gururaj Karajagi, Chairman of Academy for Creative Teaching, Bengaluru,

Dr. Pratap Vishnoi, and Dr. Vinayak Pattar, and hands-on science demonstrations. Ninety teachers participated in the event.

**24<sup>th</sup>–25<sup>th</sup> January 2025:** A two-day Science Outreach Programme was organised at School Chandan, Laxmeshwar, and featured sessions with eminent scientists on cutting-edge scientific advancements, interactive lectures, and career guidance. The event saw participation of 280 students and 30 faculty members.

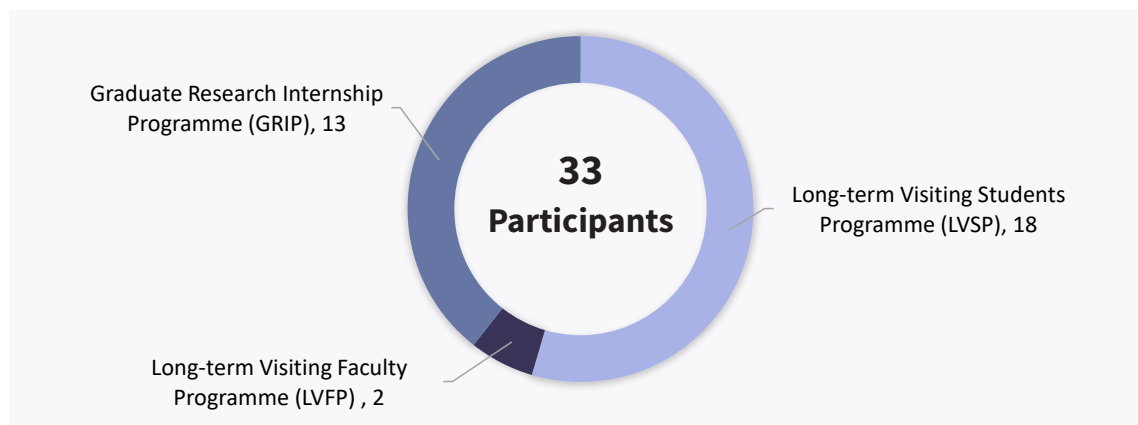
**28<sup>th</sup> February 2025:** National Science Day-2025 (Open Day) was organised in association with F&E, attracting participation of 1600 students and 100 faculty members along with the general public. The event featured lab visits, science demonstrations, research presentations, and interactive sessions with JNCASR students and faculty members.

**7<sup>th</sup> March 2025:** A Science Outreach Program was conducted at Central School, SDM, Honnavar, for students from grades VI to IX. The half-day program featured a special interactive lecture delivered by Dr. Arun Panchapakesan and engaged 75 students and 5 teachers.

**7<sup>th</sup>–8<sup>th</sup> March 2025:** JNCASR CONNECT: Igniting Scientific Curiosity was held at SDM Degree College, Honnavar. The two-day event was inaugurated (online) by Bharat Ratna Prof. C. N. R. Rao and Prof. G. U. Kulkarni, and saw participation of 300 students and 20 faculty members. The program featured interactive lectures, hands-on demonstrations, and discussions led by distinguished scientists.

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

### Fellowship Programmes



### Long-term Visiting Students Programme (LVSP)

A total of 18 students pursuing UG/PG programs across India carried out research projects under LVSP.

### Long-term Visiting Faculty Programme (LVFP)

Dr. Imtiyaz Ahmad Bhat, Assistant Professor, Department of Chemistry, Islamic University of Science and Technology, Kashmir, completed LVFP from 7<sup>th</sup> January to 15<sup>th</sup> February 2025 under the guidance of Prof. Tapas Kumar Maji, CPMU and submitted the project report titled: *"Synthesis and Exploration of pd(0) impregnated DTE-Cage photocatalysis"*.  
Dr. Vismitha S. Patil, Assistant Professor, Department

of Engineering, GM Institute of Technology, Davangere, completed LVFP from 8<sup>th</sup> January to 31<sup>st</sup> March 2025 under the guidance of Prof. M. Eswaramoorthy, CPMU, and submitted the project report titled: *"Dye adsorption on activated carbon and two dimensional materials"*.

### Institutional Visit Programme (IVP)

In total, 393 students pursuing various UG/PG Science and Engineering programs from different colleges and universities visited the Centre's research labs, NSM facility, Chemical Exposition, and the C. N. R. Rao Hall of Science Gallery between October 2024 and March 2025.

## ■ Implementation of Official Language (Hindi Cell)

### OLIC Meetings

In the past six months, two OLIC meetings were organised, during which OL implementation activities were reviewed and targets were set.

### Hindi Language Training

In the past six months, 3 Officers and 17 Workmen were trained in Hindi Courses, while 20 individuals are yet to be trained. As commuting to the Training Centre, which is situated far away from the Centre, is an issue, it has been decided to internally train the remaining individuals.

### JNCASR Participation In All India Level OL Seminars/Conferences

JNCASR participated in various programs organised by DST and DRDO:

- Dr. Jaishree Sanwal Bhatt from JNCASR gave a talk on *"Signs of echoing earthquakes in the Central Himalayas: Are we ready to face the devastating shock of the next big earthquake?"* as part of the Two-Day Second All India Scientific and Technical Seminar, organised by ARIES, Nainital under the guidance of DST, on 20<sup>th</sup> and 21<sup>st</sup> November 2024.
- Dr. Jaishri Sanwal Bhatt presented a paper on *"Laser-induced Breakdown Spectroscopy Studying Climate Change in Caves"*, at the Second All India OL Technical Seminar held at Hyderabad and organised by DRDO on

10<sup>th</sup> and 11<sup>th</sup> February 2025. The paper was published in the DRDO Souvenir edition.

- JNCASR participated in the two-day South India Official Language Regional Scientific and Administrative Conference held on 6<sup>th</sup> and 7<sup>th</sup> March 2025 at CeNS, Bengaluru. Seven JNCASR staff members participated and Dr. Kushagra Bansal, MBGU, conducted a session on *"Immune System"*.

### Translation

Hindi versions of Section 3(3) documents such as General Circulars, Minute of the High-Level Committee Meetings Such as Council, Academy, Accounts etc., Garden Agreement, and other MoUs were prepared. Additionally, 123 Service Registers and 65 other Registers were updated in Hindi regularly by the respective Departmental Staff.

### Correspondence In Hindi

Our Centre crossed the set target of 30% in all Regions (Regions A, B and C; > 55% achieved).

### TOLIC Participation

TOLIC regularly meets once in six months to review the progress achieved by the Member Organisations. JNCASR participated in the last TOLIC meeting, where it submitted its report and actively participated in all events such as Hindi Competitions, Kavi Sammelan, and Technical Seminars; three papers were presented from our Centre at the Technical Seminars.

# Lectures, Seminars, and Conferences

**The JNCASR Annual Faculty Meeting (AFM) and In-House Symposium (IHS) 2024** was held on 21<sup>st</sup> and 22<sup>nd</sup> November 2024. The event featured 28 lectures by invited speakers, our faculty, and research students. During the event, Prof. G. U. Kulkarni, President, JNCASR, shared achievements and progress of the Centre, while other deans presented updates on faculty appointments, academic growth, fellowships and R&D. The IHS also comprised a Poster Presentation session by JNCASR students, with exceptional posters winning the Best Poster Award.



**The Annual Degree Award Ceremony** was held on 22<sup>nd</sup> November 2024. Graduating students were presented with their degree certificates by Prof. G. U. Kulkarni, President, JNCASR in the gracious presence of Bharat Ratna Prof. C. N. R. Rao.



**The International Winter School 2024** on “*Frontiers in Materials Science*”, organised and supported by School of Advanced Materials (SAMat), Sheikh Saqr Laboratory, International Centre for Materials Science, JNCASR, was held from 2<sup>nd</sup> to 6<sup>th</sup> December 2024.



**The 14<sup>th</sup> Sheikh Saqr Materials Lecture** was delivered by Prof. Mas Subramanian from Department of Chemistry, Oregon State University, Corvallis, USA on the topic “*Reimagining Inorganic Color Pigments via Trigonal Bipyramidal Coordination: Challenges and opportunities*” on 3<sup>rd</sup> December 2024.



**The Prof. C. N. R. Rao Annual Materials Lecture** was delivered by Prof. Prashant V. Kamat from Department of Chemistry and Biochemistry and Radiation Laboratory, University of Notre Dame, USA on 12<sup>th</sup> December 2024 on the topic “*Ion Migration in Metal Halide Perovskites and its impact on Solar Cell Stability*”.

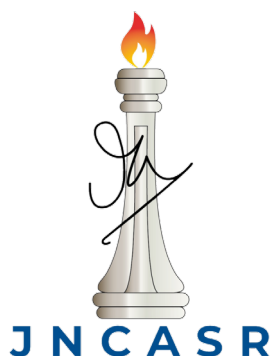


**Endowment Lecture:** Prof. Annapurni Subramaniam, Director, Indian Institute of Astrophysics (IIAP) delivered the **ISRO Satish Dhawan lecture 2024** on the topic “*Astronomy from ground and space based observatories*” on 22<sup>nd</sup> October 2024.



Apart from the above, 67+ other events were cumulatively organised by each unit of the Centre, including seminars, lectures, workshops, and conferences.

[www.jncasr.ac.in](http://www.jncasr.ac.in)



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