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Bi Annual
Newsletter

JAWAHARLAL NEHRU CENTRE FOR
ADVANCED SCIENTIFIC RESEARCH

JNC NEWS

Issue: 61
November 2023

Message from the President

As the country's leading research institute, JNCASR continues to make remarkable achievements since last reporting. It gives me immense pleasure to mention here that JNCASR is one among the top 4.6% of 19,788 universities globally, according to the latest World University Rankings. On the national front, JNCASR secured 30th rank in the "Research Institutions" category, as per recent NIRF rankings. Further, JNCASR ranked 1st among the research institutions category out of 30 pilot institutions under GATI project and also one among 12 successful institutions as GATI Achiever.

The success of any institution is intricately linked to the accomplishments of its faculty members and students. A proud moment to note that Prof. C. N. R. Rao has secured 336th rank in the World's top 2% scientists list as published by Stanford University. Ten more JNC faculty colleagues also join the list. Prof. Rao was honoured with the M. P. Varghese Award (2023) presented by the Mar Athanasius College Association. Prof. G. U. Kulkarni received the SMC Gold Medal and Prof. Tapas K. Maji received the SMC Silver Medal (BARC).

Prof. Kanishka Biswas is selected to receive Khosla National Award (Sciences) 2022 of IIT Roorkee. He is also selected amongst the 2022-23 Pioneering Investigator Lectureship by Royal Society of Chemistry. Prof Sarit Agasti received National Prize for Research in Bio-physical Chemistry Award (instituted by CNR Education Foundation), on 31st July 2023.

Prof. T. Govindaraju received the National Technology Award 2023 for his outstanding contribution in commercialising

innovative indigenous technologies. Prof. Kavita Jain has been selected as an Associate Editor for the Journal of Evolutionary Biology. Prof. Rajesh Ganapathy name featured under "**75 under 50 scientists shaping Today's India**" instituted by DST. Our students too received couple of awards. Mr. Prasenjit Mandal received the best poster award at the Perovskite Society of India Meet (PSIM-2023) held at IIT Roorkee, Mr. D. Sarkar, selected to receive Goldsmid Graduate Students Award by International Thermoelectric Society, 2023. Hearty congratulations to our faculty members and students for their achievements!

On the research front, we have made some remarkable breakthroughs. Prof. Kanishka and his team designed a new pathway to enhance hole mobility in nitride semiconductors, while Dr. Bivas Saha's team discovered that magnetic stress that stems from the peculiar arrangement of atomic spin drives simultaneous structural, magnetic, and metal-insulator transitions. Additionally, Prof. T. Govindaraju and Prof. Tapas K. Kundu were granted patents for their respective technologies, underscoring JNCASR's continued commitment to fostering innovation.

The Centre welcomes Prof. K. N. Ganesh (former Director of IISER Pune & Tirupati) who joined as SERB- National Chair Professor at the Centre in July 2023. A warm welcome to join JNCASR fraternity for Dr. Pratap Vishnoi, Dr. Achira Roy, Dr. Varun Bhaskar, Dr. Anand Krishnan, and Dr. Abhishek Kumar (who reported as Assistant Professors) and Dr. Shwetha Shivaprasad (as Ramanujan Fellow).

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Also, Prof. Ravi Manjithaya and Prof. Sheeba Vasu were promoted as Professors and Dr. Bivas Saha as Associate Professor, during the period of reporting. I extend my heartiest congratulations to all of them and look forward to their active academic & research contributions.

We have added 107 new students, thereby increasing our current student strength to 384 and proudly conferred 88 degrees across various graduate and diploma programmes.

Our Outreach and Fellowship and Extension (F&E) activities continue to attract students across the country to pursue their interest in science. The Industry Academia meeting held in September 2023 had an overwhelming response, and the Centre hopes to have more tie ups with Industry R&D. We have also been active in organising a diverse array of seminars and workshops, encouraging intellectual growth and academic enrichment within the JNCASR student body. National holidays and special occasions have been celebrated with great enthusiasm, fostering a spirit of patriotism among JNCASR community members.

While thanking the outgoing DST Secretary Dr. Rajesh Gokhale for his valuable contributions towards S&T initiatives, JNCASR takes pleasure in welcoming Dr. Abhay Karandikar who joined as Secretary, DST on 3rd October 2023. We look forward to DST's continued support for JNCASR activities.

On a sombre note, the Centre deeply mourns the sad demise of Prof. M. R. S. Rao, our former President, on 13th August 2023.

Warm regards,

G. U. Kulkarni

President, JNCASR

Obituary



The Centre deeply mourns the passing away of **Prof. M. R. S. Rao**, our former President, and SERB Year of Science Chair Professor, on 13th August 2023. Prof. Rao steered the Centre's academic and research activities to greater heights as **President** for 10 years, along with carrying out his research in chromatin biology. He guided several students towards doctoral studies. Prof. Rao also served in several scientific bodies as Chair of Governing Councils, Research Councils, as well as many international bodies; and was the recipient of several honours and awards, including the **Padma Shri** conferred by the Government of India. The Centre held a condolence meeting to mourn his passing.



Image courtesy:
The Economics Times

Prof. M. S. Swaminathan, the father of India's Green Revolution, who led India's push in the 1960s to become grain surplus, promoting the use of hybrid varieties and chemical fertilizers as the need of the hour, passed away at his Chennai residence on 28th September 2023.

JNCASR, recognizing Prof. Swaminathan's impeccable scientific contributions, bestowed on him the Honorary Fellowship in the year 2009. The Centre deeply mourns his death and conveyed heartfelt condolences to his family members.

Major Highlights

JNCASR Becomes First Autonomous Institute to Feature in NIRF Rankings

JNCASR secured the 30th position in the Indian Rankings 2023 by the National Institutional Ranking Framework (NIRF), Ministry of Education, Government of India, in the "Research Institutions" category. Notably, JNCASR is the only autonomous institution under the Department of Science and Technology (DST), Government of India, to accomplish this.

News reported by:

- Twitter post by JNCASR, 6th June 2023 (<https://rb.gy/yzkby>)
- NIRF India Rankings 2023: Research (<https://bit.ly/3MMc1GK>)

JNCASR Recognised as a GATI Achiever

JNCASR has scored 1st rank among 30 research institutions under the Gender Advancement for Transforming Institutions (GATI) Pilot Project, which was initiated by the WISE KIRAN Division, DST, in partnership with the British Council in 2020. A first of its kind, the GATI project aims to promote the participation of women in Science, Technology, Engineering, Medicine, and Mathematics (STEMM). JNCASR is among the 12 institutions that have been named GATI Achievers. This recognition is valid for the next five years from July 2023 onward.

News reported by:

- Twitter post by JNCASR, 18th July 2023 (<https://rb.gy/duavi>)

Leading News

World University Rankings

JNCASR is among the top 4.6% out of 19,788 universities globally, according to the 2022–23 edition of Global 2000 list of Centre for World University Rankings.

Review Meeting of Parliamentary Committee on Official Language

Under the Chairmanship of Prof. Rita Bahuguna Joshi, the Parliamentary Committee on Official Language conducted a review meeting with JNCASR in Bengaluru on 14th July 2023. During this meeting, the Committee reviewed the implementation of the official language in the Centre in the presence of senior officials from the ministry and departments.



Prof. T. Govindaraju, JNCASR, receiving the National Technology Award for Translational Research from Dr. Jitendra Singh, MoS for Science and Technology, on 26th May 2023.

Faculty Member Receives National Technology Award

Prof. T. Govindaraju, JNCASR, has won the National Technology Award from the Technology Development Board, Department of Science (DST), for his outstanding contribution to commercialising innovative indigenous technologies.

News reported by:

- Deccan Herald, 26th May 2023 (<https://rb.gy/52l6c>)
- Twitter post by Technology Development Board, Government of India, 14th May 2023 (<https://rb.gy/8y11s>)

National Prizes for Research in Bio-Physical Chemistry Award

Dr. Sarit Agasti, JNCASR, and Dr. Pinaki Talukdar, IISER Pune, won the National Prizes for Research in Bio-Physical Chemistry Award by the C. N. R. Rao Education Foundation. The award distribution ceremony was held at JNCASR on 31st July 2023.



■ Appointments & Promotions

New Appointments

- Dr. Varun Bhaskar, Assistant Professor, MBGU (w.e.f. 29th September 2023)
- Prof. K. N. Ganesh, SERB National Chair Professor (w.e.f. July 2023)
- Dr. Anand Krishnan, Assistant Professor, EOBU (w.e.f. 1st August 2023)
- Dr. Abhishek Kumar, Assistant Professor, ICMS & NCU (w.e.f. 28th August 2023)
- Dr. Achira Roy, Assistant Professor, NSU (w.e.f. 3rd July 2023)
- Dr. Shwetha Shivaprasad, SERB Ramanujan Fellow (w.e.f. 21st June 2023)
- Dr. Pratap Vishnoi, Assistant Professor, ICMS and NCU (w.e.f. 13th June 2023)

New Appointments–Research Associates

- Dr. Chethana A., NCU
- Dr. Kalpita Baruah, NCU
- Dr. Smhrutisikha Biswal, CPMU
- Dr. Saptarshi Chakraborty, NCU
- Dr. Rajib Dey, NCU
- Dr. Sangeeta Dutta, MBGU
- Dr. Anindita Goswami, NCU
- Dr. Sazid Zamal Hoque, EMU
- Dr. Vipin Raj K., TSU
- Dr. Varchaswal Kashyap, CPMU
- Dr. Siddhi Kediya, NCU
- Dr. Pratibha Kumari, CPMU
- Dr. Alakananda Maitra, EOBU
- Dr. Dipanjan Maity, CPMU
- Dr. Arnab Mandal, NCU
- Dr. Tanmay Rom, CPMU
- Dr. Banishree Sahoo, MBGU
- Dr. Subrata Sahoo, NCU
- Dr. M. Vijayarathy, NCBS

New Appointments–Provisional Research Associates

- Ms. Monika Bhakar, NCU
- Mr. Angshuman Das, NCU

- Mr. Arpan Das, TSU
- Mr. Polisetty V. S. Satya Dev, MBGU
- Mr. Supriya Ghosal, TSU
- Mr. Sandeep Howlader, NCU
- Mr. Ashish Kumar, NCU
- Mr. Prasenjit Mandal, NCU
- Mr. Debendra Prasad Panda, CPMU
- Mr. Soumen Pradhan, CPMU
- Mr. Bitan Ray, NCU
- Mr. Faruk Ahamed Rahimi, CPMU
- Mr. Debattam Sarkar, NCU

New Appointment–Contractual

- Mr. B. M. Srinivasa, In-charge (JVH) (w.e.f. 8th May 2023)

Promotions

- Prof. Ravi Manjithaya, MBGU promoted to Professor (w.e.f. 27th May 2023)
- Dr. Bivas Saha, CPMU and ICMS promoted to Associate Professor (w.e.f. 25th May 2023)
- Prof. Sheeba Vasu, NSU promoted to Professor (w.e.f. 16th May 2023)

Visiting Scientists

- Dr. Deval Prasad Bhattarai, Assistant Professor of Chemistry, Tribhuvan University–Amrit Campus, Kathmandu, Nepal
- Dr. Praveen B. M., Srinivas University, Mangalore
- Dr. Shivanand Kumar Veesam, National Institute of Technology (NIT), Calicut

Visiting Students

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

Research Highlights

Optimising the Thermoelectric Performance of Quantum Materials

Prof. Kanishka Biswas and his student demonstrated how metavalent bonding—a new type of chemical bonding in solids—can be used to optimise the thermoelectric performance in quantum materials, and how by rational chemical designing, intriguing properties can be achieved in such materials. This approach can aid efficient conversion of waste heat to electricity, which could have implications for the country's newly launched Quantum Mission. Their work has been published in the *Journal of American Chemical Society* (*J. Am. Chem. Soc.* 2023 145 (16): 9292–9303: doi: <https://doi.org/10.1021/jacs.3c02146>)

News reported by:

- Department of Science and Technology (DST), 3rd May 2023 (<https://rb.gy/ro4fd>)
- Twitter post by @IndiaDST, 3rd May 2023 (<https://rb.gy/daa84>)
- Press Information Bureau (PIB), 3rd May 2023 (<https://rb.gy/t3hi2>)

New Mechanism of Metal-Insulator Phase Transition

Dr. Bivas Saha and his research team discovered that magnetic stress stemming from the peculiar arrangement of atomic spin drives simultaneous structural, magnetic, and metal-insulator transition, leading to a better understanding of how spin, charge, and lattice degrees of freedom are coupled in materials. This can enable further discovery of new classes of materials that exhibit metal-insulator phase transition.



Enhancing Hole Mobility in Nitride Semiconductors

Dr. Bivas Saha and his team have designed a strategy to improve the hole mobility in semiconducting p-type scandium nitride (ScN) using state-of-the-art Boltzmann transport formalism from first principles theoretical calculations. Their work, published in *Nano Letters* (*Nano Lett.* 2023 23 (17): 8211–8217: doi: <https://doi.org/10.1021/acs.nanolett.3c02350>), significantly advances the quest to develop high-efficiency devices with semiconducting ScN and nitride heterostructures in general.

News reported by:

- Department of Science and Technology (DST), (<https://rb.gy/ch9lp>)
- Twitter post by @IndiaDST, 6th September 2023 (<https://rb.gy/q3ybc>)

Novel Therapeutics Against Alzheimer's Disease

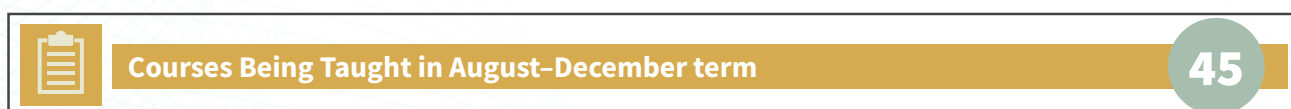
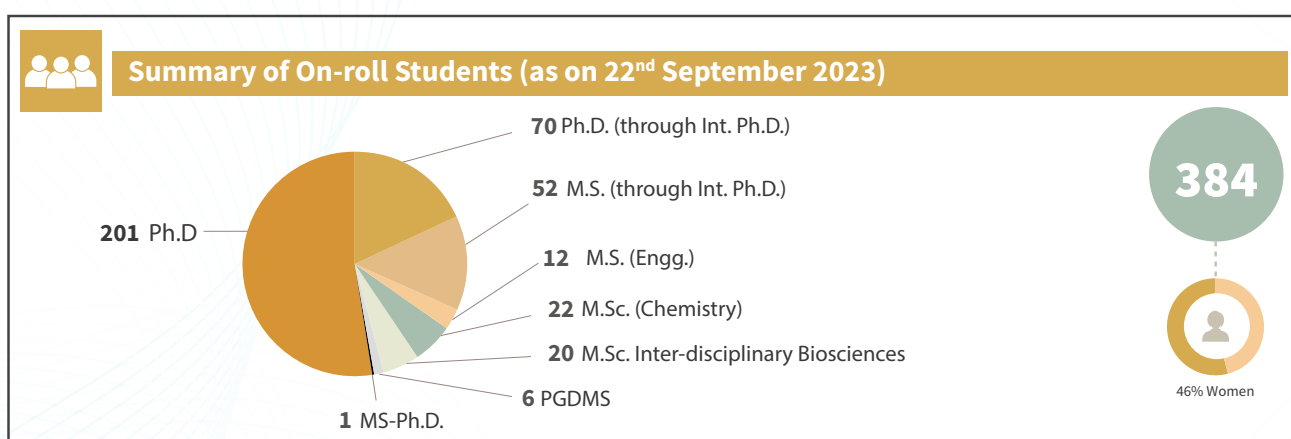
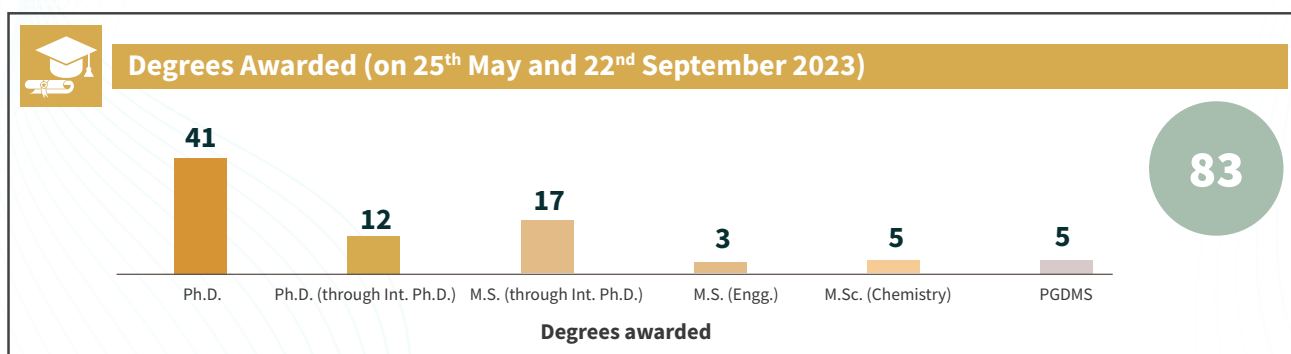
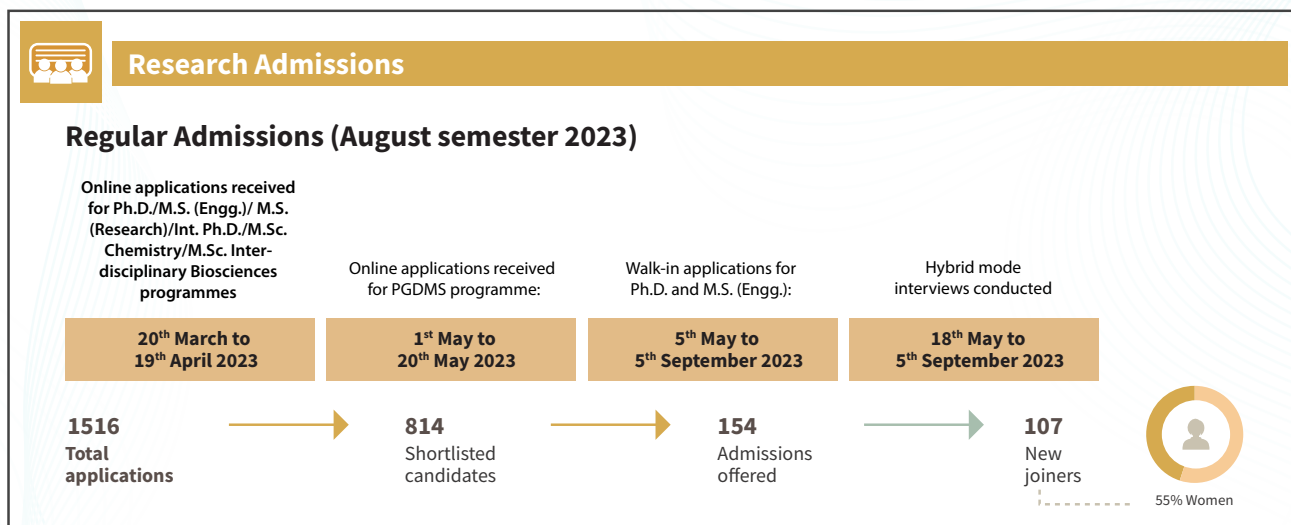
Prof. Govindaraju and his team have demonstrated that a naturally occurring polyphenol, specifically tannic acid, behaves as a dual-acting therapeutic agent to synergistically alleviate ferroptosis and Alzheimer's disease (AD). Ferroptosis is an iron-dependent cell death mechanism that plays a key role in AD pathology. This research provides a basis for developing novel therapeutics targeting the crosstalk between ferroptosis and AD. This work has been published in *Chemical Sciences* (*Chem. Sci.* 2023 14: 9427–9438: doi: <https://doi.org/10.1039/D3SC02350H>).

News reported by:

- Department of Science and Technology (DST), (<https://rb.gy/vw60l>)
- Twitter post by @IndiaDST, 13th September 2023 (<https://rb.gy/s5kd0>)
- The Times of India, 14th September 2023 (<https://rb.gy/1iqbk>)

Academic Activities

In this academic year, a new Master's Programme - M.Sc. Inter-disciplinary Biosciences - was launched.



Awards & Achievements

Awards and accolades by faculty members

Prof. Sarit Agasti

- Awarded the National Prize for Research in Bio-Physical Chemistry (CNR Education Foundation) on 31st July 2023 (along with Prof. Pinaki Talukdar, IISER, Pune).

Prof. Anuranjan Anand

- Invited to serve on the American Society of Human Genetics (ASHG) Committee.

Prof. Kanishka Biswas

- Received the Khosla National Award (Sciences) 2022 by IIT Roorkee.
- Selected amongst the 2022–23 Pioneering Investigator Lectureship—Highly Commended Researchers of Chemical Society Reviews by the Royal Society of Chemistry

Prof. T. Govindaraju

- Awarded the National Technology Award 2023 for “Outstanding Contribution of Scientists in Commercialising Innovative Indigenous Technologies” by Dr. Jitendra Singh, the Union Minister for Science and Technology, on 14th May 2023

Prof. G. U. Kulkarni

- Chosen for the Society for Materials Chemistry (SMC) Gold Medal 2023 from Bhabha Atomic Research Centre (BARC) in October 2023
- Received a DST-Advanced Manufacturing Technologies project, “Scalable coating of metal oxides on hybrid transparent electrodes and fabrication of smart window devices” in collaboration with HHV Pvt. Ltd. Bengaluru, IIT Jodhpur, and CeNS, Bengaluru for a period of three years with a total budget of ₹4.45 crore.

Prof. Tapas Kumar Kundu

- Entrusted as the RC Chair of CSIR-IICB, by DG CSIR, for a period of three years w.e.f. September 2023.

Prof. Tapas Maji

- Selected to receive the SMC Silver Medal 2023 from BARC in October 2023.

Prof. Chandrabhas Narayana

- Awarded Dr. Raja Ramanna Award by the Indian Society of Analytical Scientists
- Received the Taranath Shetty Memorial Oration Popular Lecture Series Award 2023 from the Association of Clinical Biochemists of India

Prof. Sebastian C. Peter

- Selected as the winner of Materials NeXT 4.0 hosted by Tata Steel

Prof. C. N. R. Rao

- Received M. P. Varghese Award (2023) instituted by Mar Athanasius College Association
- Conferred with an Honorary Doctorate from K.L. University, Vijayawada

Dr. Achira Roy

- Selected as the runner-up of Ben Barres Spotlight Award 2023

Prof. Ajay K. Sood

- Awarded the SERB-National Research Chair
- Appointed as Principal Scientific Adviser to the Government of India

Fellowships and Memberships

Prof. Santosh Ansumali

- Received the INAE-SERB Abdul Kalam Technology Innovation National Fellowship

Prof. Kushagra Bansal

- Selected for Regular Membership of the American Association of Immunologists (AAI)

Prof. Jayanta Haldar

- Appointed as the Editor-in-Chief of *ACS Infectious Diseases*

Prof. Kavita Jain

- Selected as an Associate Editor of *Journal of Evolutionary Biology*

Prof. G. U. Kulkarni

- Selected for SERB J. C. Bose Fellowship for the year 2022–23
- Appointed as Life Member, Society for Materials Chemistry
- Appointed as Member, Governing Board of INFLIBNET (UGC) for a period of three years
- Appointed as Member, DST Scientific Advisory Committee (SAC) for devising the technical details and scientific contents of the Indian Science Congress 2024
- Appointed as Additional Member, INSA Council for the year 2024 (as nominee of Secretary, DST)
- Appointed as Member, General Council of NAAC for a 3-year term
- Appointed as Member, UGC Consortium for Academic Research and Ethics Committee-Empowered Committee (CARE-EC)

- Appointed as Member, NAC-TRC of the Indian Association for Cultivation of Science (IACS), Kolkata

Prof. Tapas Kumar Kundu

- Invited to join as a Reviewing Editor of *eLife*

Prof. Chandrabhas Narayana

- Received Honorary Fellowship of the Indian Society of Analytical Scientists

Prof. Sebastian C. Peter

- Appointed as Editorial Advisory Member, RSC's *Chemical Science* journal

Dr. Achira Roy

- Appointed as an Assistant Content Editor for *Bio-protocol* since July 2023.

Prof. Premkumar Senguttuvan

- Appointed as Member, JACS Au Early Career Advisory Board (ECAB), 2023
- Recognised as "Emerging Investigator" by the *Journal of Materials Chemistry A*

Prof. T. N. C. Vidya

- Serving on the St. Joseph's University Board of Studies for Zoology

Behaviour Lab at the Understanding Behaviour 2023 Conference.

- Ms. Kajal Kamat** (Ph.D. student, MBGU; Research Supervisor: Prof. Maneesha Inamdar) has been selected for the ISSCR Travel Award by the International Society for Stem Cell Research (ISSCR) to attend its 2023 Annual Meeting.
- Mr. Vishal R. Lolam** (Int. Ph.D. student, NSU; Research Supervisor: Dr. Achira Roy), received the Lalita Nath Travel Fellowship from the Indian Academy of Neurosciences, to attend and present his poster at the XLI Annual Conference of Indian Academy of Neurosciences and International Conference on "Brain: Chemistry to Cognition", held from 4th–6th October 2023, at Gwalior, India. He also received the Best Paper Award at this event.
- Mr. Prasenjit Mandal** (Quantum Dot Lab, NCU and ICMS; Research Supervisor: Prof. Ranjani Viswanatha) received the best poster award at the Perovskite Society of India Meet (PSIM 2023) held at IIT Roorkee, India.
- Mr. Priyesh Singh Parihar** (Int. Ph.D. student, MBGU; Research Supervisor: Prof. Kaustuv Sanyal) received the Best Participant Award at School in Chronobiology 2023 held at NEHU and organised by the Indian Society for Chronobiology.
- Ms. Ankana Sanyal** (Ph.D. student, EOBU; Research Supervisor: Prof. T. N. C. Vidya) received a poster prize for work carried out in the Animal Behaviour Lab, EOBU, at the Understanding Behaviour 2023 Conference.
- Mr. Debattam Sarkar** (Ph.D., NCU; Research Supervisor: Prof. Kanishka Biswas) has been selected to receive the prestigious Goldsmid Graduate Student Award 2023 (runners-up) by the International Thermoelectric Society (ITS).

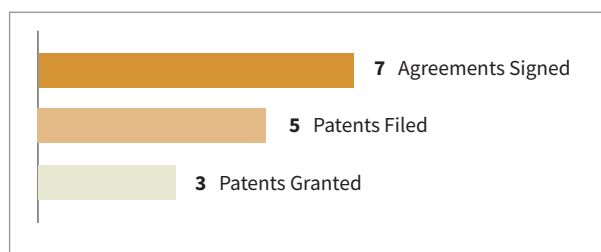
Student and Alumnus Achievements

- Dr. Hansraj Gautam** (JNCASR alumnus, Ph.D., EOBU; Research Supervisor: Prof. T. N. C. Vidya) received the Speed Talk first prize for work carried out in the Animal

Research & Development

Agreements Signed

- A Non-Disclosure Agreement (NDA) was signed with M/s. ITC Ltd., Kolkata, by Dr. Bivas Saha, JNCASR, on 5th June 2023.
- A Memorandum of Understanding (MoU) was signed with ICAR-Indian Institute of Horticultural Research, Bengaluru by Prof. Ravi Manjithaya, JNCASR, on 4th July 2023 for a collaborative project to carry out interdisciplinary collaborative research on agriculture/horticulture domain expertise and on cell biology.
- An NDA was signed with M/s. GenoPhe, Bengaluru by Prof. Ravi Manjithaya, JNCASR, on 11th August 2023.
- An NDA was signed with M/s. GenoPhe, Bengaluru by Prof. Sridhar Rajaram, JNCASR, on 11th August 2023.
- An MoU was signed with The Singareni Collieries Company Limited (SCCL), Telangana by Prof. Sebastian C. Peter, JNCASR, on 4th September 2023.



- A mutual NDA was signed with M/s. Lamark Biotech Private Limited, Gujarat by Prof. Jayanta Haldar, JNCASR, on 7th September 2023.
- A Collaborative Research Agreement was signed with CSIR-Central Drug Research Institute (CDRI), Lucknow and Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh by Prof. Kaustuv Sanyal, JNCASR, on 8th September 2023.

Visit of R&D Teams

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

- R&D team from Collins Aerospace, Bengaluru, visited the Centre on 28th April 2023.
- Research team from the University of Manchester visited the Centre on 17th May 2023.
- Research team from L&T Green Energy, Baroda, visited the Centre on 9th June 2023.
- Team from Lamark Biotech Pvt. Ltd., Vellore, TN, visited the Centre on 1st August 2023

Intellectual Property



Patents Granted

India

- Patent (No. 429713) for “*Small Molecular Probes, Processes and Use Thereof*” developed by Prof. Govindaraju Thimmaiah *et al.*
- Patent (No. 440416) for “*Carbon Nanosphere-Folate Receptor Targeting Ligand Conjugate, Complex and Composition and Method of Preparation Thereof*” developed by Prof. Tapas Kumar Kundu *et al.*
- Patent (No. 444970) for “*Composition, Injectable Hydrogel and Methods Thereof*” developed by Prof. Govindaraju Thimmaiah *et al.*



Patent Applications Filed

International, PCT

- “*Hemostatic Composite, Its Method and Applications Thereof*” developed by Prof. Jayanta Haldar *et al.* (No. PCT/IN2023/050784, filed on 18th August 2023)
- “*Acoustophoresis assisted fluid jet machining/polishing*” developed by Prof. Diwakar Seyyanur Venkatesan *et al.* (No. PCT/IN2023/050793, filed on 23rd August 2023)
- “*A Catalyst Composition and Processes Thereof*” developed by Prof. Sebastian Chirambatte Peter *et al.* (No. PCT/IN2023/050858, filed on 13th September 2023)

India

- Prof. Sebastian Chirambatte Peter *et al.* (Patent Appl. No. 202341026934, filed on 11th April 2023)
- Dr. Bivas Saha *et al.* (Patent Appl. No. 202341040136, filed on 12th June 2023)

Industrial Interaction

Meeting with Collins Aerospace

An R&D team from Collins Aerospace, Bengaluru, had an interactive meeting with JNCASR faculty members on 28th April 2023 to identify potential research projects of mutual interest for funding in the areas of:

- Battery Technology (Electric Aircraft Requirements)

- Advanced/Smart Materials
- Digital Product Development Technologies
- Digital Thread, Model-Based Design, and Simulation (Specifically Related to CFD)
- Fluid Mechanics and Thermal Science (Aerospace Requirement)
- AI/ML and AR/VR; Prognostic Health Management

Industry-Academia Meet

JNCASR organised an Industry-Academia Meet on 22nd September 2023, which saw the participation of ~25 industries and R&D organisations from Bengaluru and adjoining states. Prof. G. U. Kulkarni, President, JNCASR, welcomed the participants. Prof. Ramgopal Rao, Chair, CoM, JNCASR and Group Vice Chancellor, BITS-Pilani addressed the gathering, while Prof. K. R. Sreenivas, Dean, R&D, JNCASR moderated the deliberation. A poster session was also organised to showcase the latest research work done at JNCASR.



(Left to Right): Prof. Hemalatha Balaram, Chair-IPMC, Prof. G. U. Kulkarni, President, JNCASR, and Prof. Ramgopal Rao, Chair, Council of Management, JNCASR and Group VC, BITS-Pilani addressing the participants



A view of participants from various industries in the industry-academia meet

Hosting a Delegation from the European Union

A delegation from the European Union (EU), with Research and Innovation Counsellors from member states, visited JNCASR on 25th September 2023. The purpose of the visit was to enhance research and innovation collaboration between the EU and its associated countries and prominent Indian research institutions. Discussions centred around JNCASR's research projects and their alignment with the EU's objectives in advancing cutting-edge research and sustainable solutions for global challenges. K.R. Sreenivas, Dean, R&D, JNCASR moderated the deliberation. A poster session was also organised to showcase the latest research work done at JNCASR.



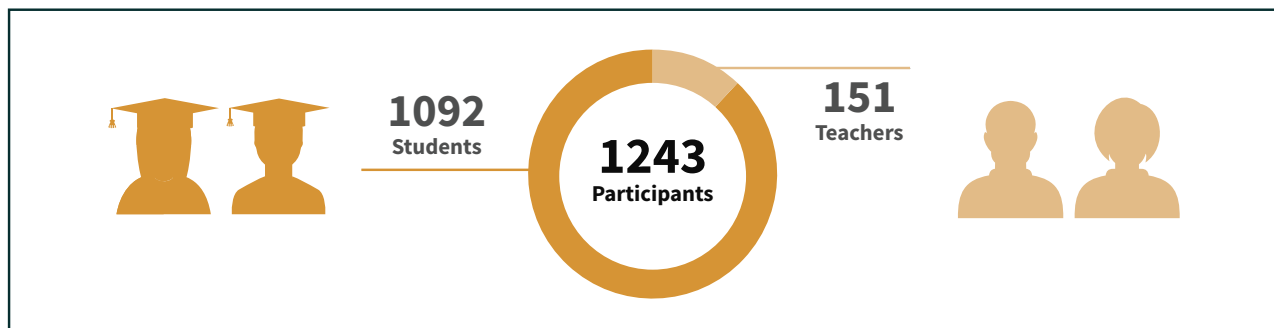
The European Union delegation at JNCASR

Review Meeting on Preparatory Phase of Swachhata Pakhwada

A meeting was organised on 25th September 2023 at JNCASR, chaired by Prof. G. U. Kulkarni, President, JNCASR to review the preparations for Swachhata Pakhwada (*Swachhata Hi Seva*) and Special Campaign 3.0. Heads of various offices shared their action plan in this meeting for the Preparatory Phase of this campaign.



■ Outreach Activities - Education Technology Unit (ETU)



Science Outreach Programmes

14th–18th May 2023: Science Outreach Programmes were held at Champavat and Gangolihaat, Uttarakhand. The C. N. R. Rao Education Foundation sponsored these programmes, which were organised by the Geoscience Unit, ETU, JNCASR, in association with the Himalayan Gram Vikas Samiti, Gangolihaat. The resource persons from JNCASR were Prof. Umesh Waghmare, Prof. Udaykumar Ranga, Prof. M. Eswaramoorthy, Prof. N. S. Vidhyadhiraja, Prof. Sheeba Vasu, and Mr. A. N. Jayachandra. Dr. Jaishri Sanwal Bhatt, Dr. Pratap Vishnoi, Dr. Arun P., and others delivered lectures on various subjects to 210 students and 40 teachers from over 15 colleges.

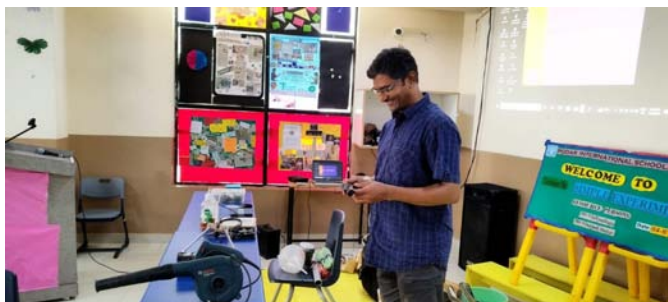
23rd–27th May 2023: A 5-day workshop on Scientific Writing and Scientific Computation was organised by ETU and Sagar Science Forum and sponsored by the C. N. R. Rao Education Foundation. The event featured Sri G. D. Veerappa Gowda, TIFR; Dr. Sudarshan Kumar K., IISER Thiruvananthapuram; and Prof. N. S. Vidhyadhiraja, JNCASR. About 22 final-year B.Sc. students (PCM and CS) participated from in and around Sagara, Shivamogga District.

8th–10th June 2023: A 3-day Orientation Programme to enhance teaching skills and pedagogical approaches was held for 41 Science and Mathematics teachers from high schools in the Sagara, Shivamogga District. The event was sponsored by the C. N. R. Rao Education Foundation, and organised by ETU and Sagar Science Forum. Lectures on diverse topics were delivered by Dr. S. Hiriyanna, ISRO; Sri Shashikanth Joshi, TGT; Dr. H. S. Jeevan, Dr. Shivanand S. Bhat, and Sri Sumanth Raj C. N.

17th June 2023: A 1-day Science Outreach Programme was conducted for 14 Principals from Ekalavya Residential Schools, which are part of KREIS (Karnataka Residential Educational Institutions Society) under the Government of Karnataka. These Principals hold the position of Class I officers within the KREIS educational system. Organised by ETU and hosted at the Hall of Science in association with Fellowship and Outreach, JNCASR, the event served as a platform to exchange ideas and foster a greater understanding of science education within the state's educational leadership. Prof. N. S. Vidhyadhiraja, Dean, Fellowships and Extension Programmes, and Mr. Vinayak Pattar, JNCASR, provided valuable insights and knowledge to the participants.

28th June 2023: The “Outstanding Science Teachers Award” was organised with the C. N. R. Rao Education Foundation to honour exceptional science educators and deepen the appreciation for science education in the Laxmeshwar and Bengaluru regions. It featured a special lecture by renowned ecologist Prof. R. Sukumar from IISc, Bengaluru, followed by an engaging science experiment demonstration by Dr. Pratap Vishnoi and Mr. Vinayak Pattar. This event was attended by 170 students from grades X, XI, and XII, and 22 teachers.

4th July 2023: A half-day Science Outreach Programme was organised to inspire curiosity and a greater passion for science among 220 high school students and 22 teachers from Poddar International School in Bengaluru. The event featured Prof. N. S. Vidhyadhiraja, JNCASR; and Mr. Vinayak Pattar, JNCASR.



23rd July 2023: “Vijnana Manthana,” a 1-day event held at Sagara, was sponsored by the C. N. R. Rao Education Foundation, and organised by ETU and Sagar Science Forum. Dr. Prasad N. Bapat from PESITM, Shivamogga, delivered enlightening insights to 36 participants.

24th August 2023: A half-day event, “Learn Science with Fun—Experiment Demonstration”, was conducted with Mr. Vinayak Pattar as an expert demonstrator. About 116 students (grades XI and XII) and 8 teachers from Chrysalis High-Horamavu and Trillium School and College-Hegade Nagar, Bengaluru participated in the event.

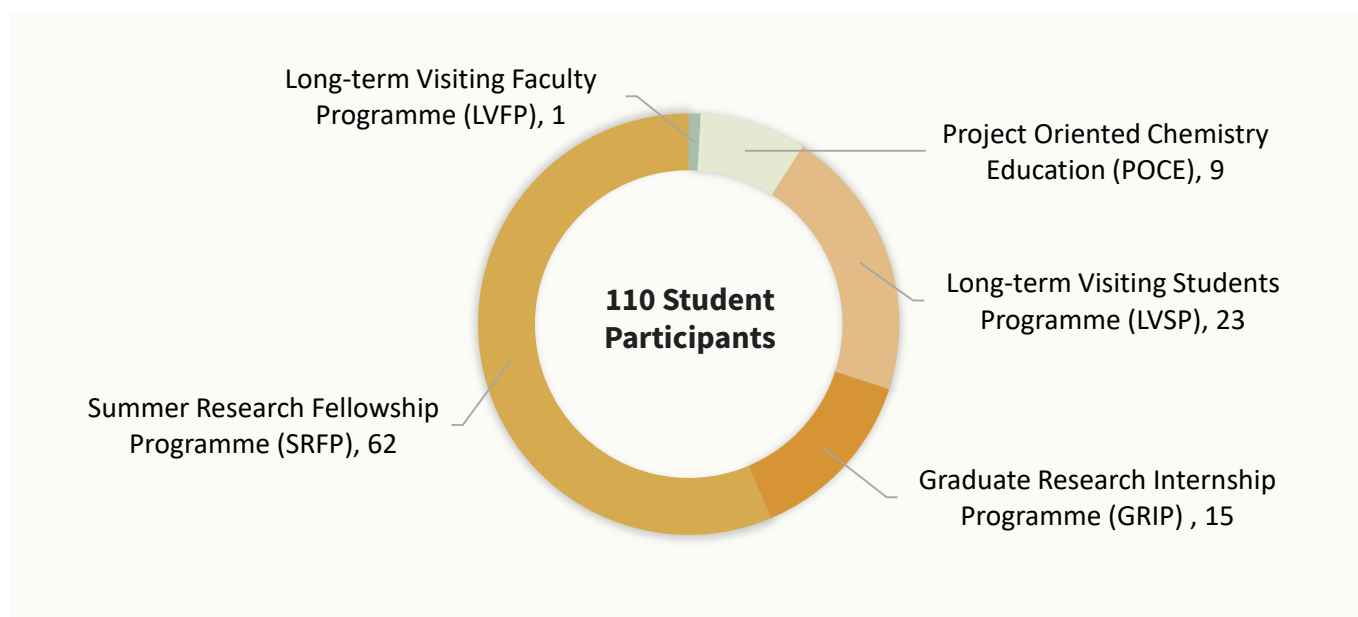
3rd September 2023: The “Artificial Intelligence and Machine Learning” event was organised by ETU in collaboration

with the Sagar Science Forum, and sponsored by the C. N. R. Rao Education Foundation. The event featured Sri Ravi Hegde from Bengaluru, a specialist in the field. About 40 students and 2 teachers from grades XI and XII participated in the programme from government colleges of Sagara, Shivamogga District. This gathering served as an excellent opportunity for students and educators to delve into the fascinating realms of AI and Machine Learning.

15th September 2023: An “Interactive Lecture Programme in Physics” drew 180 in-person and 100 online participants from grades X, XI, and XII. The programme featured a lecture by Prof. C. V. Yelamaggad, CeNS, Bengaluru, followed by “*Fun with Science*” experiment demonstrations conducted by Mr. Vinayak Pattar.

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

Fellowship Programmes



GRIP August 2023

Under the Graduate Research Internship Programme (GRIP) admissions, out of 44 applications received, 15 offers have been made and 1 has joined.

Sponsored Programmes

Exposure Visit Programme for CBSE School Principals

A two-day “*Exposure Visit*” was organised by JNCASR on 3rd-4th May 2023 for approximately 50 distinguished principals from CBSE schools across India. Speakers for this event included Prof. G. U. Kulkarni, President, JNCASR; Prof. K. R. Srinivas, Prof. N. S. Vidhyadhiraja, and Prof. T. Govindaraju. The participants explored JNCASR’s state-of-the-art laboratories, ChemExpo, and Galleries and engaged in a series of experimental demonstrations led by Mr. Vinayak Pattar.

Visit from Karnataka Residential Educational Institutions Society

The Social Welfare Department, Government of Karnataka, organised an institutional visit to JNCASR for a group of 20 Principals from the KREIS on 17th June 2023, to know more

about the outreach activities and research activities at the Centre.

Educational Visit from Alliance University

As a part of the Educational Visit Programme, 42 students pursuing M.Sc. Chemistry at Alliance University, Bengaluru visited JNCASR on 6th July 2023. They visited the research laboratory of Dr. Bivas Saha, NCU.

Faculty Visit from NMIT

A team of 5 faculty members from the Nitte Meenakshi Institute of Technology (NMIT), Bengaluru visited the Centre to interact with the faculty members with a view to carrying out collaborative research activity in the field of quantum physics.

■ Events Related to Implementation of Official Language

Special Workshop on Parliamentary Questionnaire on Official Language

A Special Workshop on Parliamentary Questionnaire by DST was organised on 18th-19th May 2023 in Delhi. Mr. A. Srinivasan, Sr. Personal Secretary, JNCASR, and Mr. Ananda, Coordinator (Official Language), JNCASR participated in the Workshop from the Centre. They received useful training related to filling out the Questionnaire and its submission for inspection. Faculty members from the Parliamentary Committee on Official Language and DST were given explanations with clarity.

Visit by Hon’ble Parliamentary Committee on Official Language

Hon’ble Convener of the Parliamentary Committee, Prof. Rita Bahuguna Joshi, and Committee members Ms. Ranjanben Dhananjay Bhatt and Ms. Sangeeta Yadav, visited JNCASR on 14th July 2023 for inspection of the implementation of Official Language Policies.

Official Language Implementation Committee (OLIC) Meeting

Period OLIC meetings have been organised under the Chairmanship of Prof. G. U. Kulkarni, President, JNCASR.

Past Events

Celebrations

- JNCASR, in collaboration with Sankalp India Foundation, organised a Blood Donation Camp under the “*Raktdaan Amrit Mahotsav*” campaign on 14th June 2023 to celebrate **World Blood Donor Day**. A pledge in English and Hindi for blood donation was administered at the camp.



- To celebrate **International Day of Yoga**, a lecture-cum-demonstration programme was organised at JNCASR on 21st June 2023 under the theme of “Yoga for Vasudhaiva Kutumbakam” and “Har Aangan Yog”. Yoga Guru Shri Prasanna V. Raju delivered a lecture on “*Introduction to Yoga and benefits and importance of Yoga for leading a healthy life*”, followed by demonstrations of yoga asanas by the Centre’s students and staff members under supervision of the Guru and his student Mrs. Bramarambha Patil.
- On the occasion of the **77th Indian Independence Day** on 15th August 2023, Prof. G. U. Kulkarni, President, JNCASR, hoisted the national flag at Jakkur campus.
- As part of *Azadi ka Amrit Mahotsav*, **Meri Maati Mera Desh campaign** was organised on 16th August 2023 at JNCASR. Saplings were planted by Prof. G. U. Kulkarni, President, JNCASR, and various other officials of the Centre to encourage the initiative of “*Keep the Earth clean and green*”. Prof. N. S. Vidhyadhiraja, Dean, F&E, administered the “*Panch Pran Pledge*” in Hindi and English. The students of the cultural group presented *Mitti Anthem*.



Planting of saplings at JNCASR on 16th August 2023 by the President, faculty members, the Administrative Officer, students, and staff members including kids from Day Care facility



Pledge-taking ceremony with mitti diyas by the President, faculty members, the Administrative Officer, students, and staff members including kids from Day Care facility

- Teacher’s Day** was celebrated at JNCASR on 5th September 2023 by organising a screening of the National Teachers’ Award 2023.



- The Hon'ble Home Minister's "Hindi Message" as part of the **Hindi Day** celebrations was released on 14th September 2023. During the **Hindi Pakhwada (Fortnight)** celebrations, Hindi Essay Writing, Hindi Noting and Drafting, Hindi Antakshari, Quiz, and a Special Hindi Workshop were organised, along with a singing competition in Indian languages as a part of **Indian Languages Harmony Day**. The celebrations concluded with a valedictory function and prize distribution to winners.
- JNCASR celebrated **Swachhata Pakhwada** under Special Campaign 3.0 from 15th September to 2nd October 2023. As part of the campaign, a massive cleanliness drive was organised to clean the public roads around the campus, the pond and storm-water drainage in the campus, and several locations in JNCASR, including labs.



Lectures and Seminars

- **Prof. C. N. R. Rao Oration Award Lecture 2023 and Welcome to New Students:** Prof. C. N. R. Rao Oration Award Lecture 2023 was presented by Prof. S. Balasubramanian, CPMU, JNCASR on "Chemical complexity and molecular simulations" on 11th August 2023. On this occasion, newly joined students were welcomed, and an orientation programme was organised for them.



Prof. C. N. R. Rao Oration Award Lecture 2023



Welcoming of new students and student orientation programme

- **SAMat Talk** was organised on 12th June 2023 at JNCASR. The speaker, Prof. Anthony K. Cheetam, Materials Research Laboratory, University of California, Santa Barbara, USA, presented a lecture on "Recent development in perovskite halides".
- **EOBU Special Seminar** was organised on 23rd June 2023 at JNCASR. The speaker, Prof. Mewa Singh, Life-long Distinguished Professor, University of Mysore, presented a lecture on "Half a century with monkeys in jungles and towns: Notes on their behaviours and conservation". This seminar was organised in association with NCBS, Centre for Ecological Sciences, IISc, and Indian Society of Evolutionary Biologists.
- **CPMU day:** Annual Alumni Materials Lecture on "Mechanistic Approach to Investigate the Structure of Interfacial Water Molecules at Air/Aqueous Interface Using Nonlinear Vibrational Spectroscopy" was delivered by Dr. Kailash Chandra Jena, IIT Ropar, Punjab, on 9th September 2023.
- **Prof. K. S. Valdiya Memorial Lecture** on "Unearthing Earth's Past: How Geology Reveals the Story of Our Planet" was delivered by Dr. R. Sajeev, Director, Geological Survey of India, Karnataka and Goa, Ministry of Mines, Government of India, on 6th October 2023.

Workshops

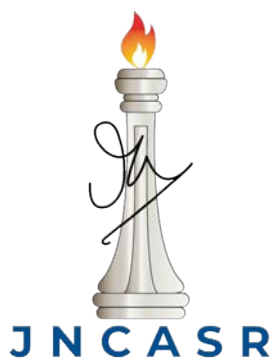
- A 4-day Workshop on RNA-seq and Data Analysis was conducted on 8th–11th May 2023 in collaboration with Clevergene Biocorp Pvt. Ltd.
- A 3-day Mass Spectrometer Data Analysis Workshop on the basics of proteomics and metabolomics data analysis using MS and MS/MS spectra was conducted in collaboration with Thermo Fisher Scientific on 16th–18th May 2023.
- The NAMMA Psi-k workshop was held on 24th–26th July 2023 at JNCASR and IISc campuses. The workshop included pedagogical lectures by renowned scientists from India and abroad and provided hands-on training to students on *ab initio* calculations and AI/ML techniques.

Apart from the above, 50+ other events were cumulatively organised by each unit of the Centre, including seminars, lectures, workshops, and conferences.

■ Upcoming Events

- Climatic Change and Earth Systems meeting, scheduled from 1st–3rd November 2023
- 8th Meeting of the Asian Forum for Chromosome and Chromatin Biology, to be held during 4th–6th November 2023
- JNCASR-RICE Workshop, to be held from 8th–9th November 2023
- Annual Faculty Meeting and In-House Symposium 2023, scheduled from 16th–17th November 2023
- RPGR Meeting, scheduled from 20th–23rd November 2023
- International Winter School on Frontiers in Materials Science, scheduled from 4th–6th December 2023
- Recent Advances in Materials (RAM 90), scheduled from 7th–9th December 2023
- MD@60 Conference, scheduled from 26th–29th February 2024
- “Nerve-storming: from molecules to behaviour” meeting; tentative date: beginning of 2024

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