



What's Inside?

Leading News	2
New Appointments, Promotions & Additional Responsibilities	3
Research Highlights	3
Academic Activities	5
Intellectual Property	6
Awards and Accolades	7
Outreach Activities	8
Fellowships & Extension Programmes	9
Past / Upcoming Events	9

Bi Annual
Newsletter

JAWAHARLAL NEHRU CENTRE FOR
ADVANCED SCIENTIFIC RESEARCH

JNC NEWS

Issue: 57
November 2021

Message from the President

I began my previous newsletter with the announcement of Prof. C. N. R. Rao receiving the prestigious International Eni Award. I am pleased to begin this newsletter with a mention of Prime Minister Narendra Modi's appreciation (letter dated October 4, 2021) of Prof. Rao for his achievements and contributions to the nation.

The excerpt of his letter is produced below:

"Your life and works are a living manifestation of those immortal words from Gurudev Rabindranath Tagore's magnum opus, 'Gitanjali' – "Where tireless striving stretches its arms towards perfection"

The conferment of the award has done the nation proud. I am sure that it will inspire generations of young scientists, as also cultivate a spirit of scientific enquiry in the hearts and minds of youngsters. May your invaluable contribution benefit mankind eternally"

Yours,
(Narendra Modi)

Also congratulating Prof. Rao was the Hon'ble Vice President of India, Shri Venkaiah Naidu, who visited the Centre to inaugurate a major new undertaking: The Innovation and Development Centre, which will provide researchers and start-ups from across India with state-of-the-art tools for cutting-edge translational research, contributing to the "Aatmanirbhar Bharat" and "Make in India" missions. Shri Naidu praised JNCASR for generating over 300 patents and encouraged scientists to explore emerging research fields to tackle great global challenges such as sustainable agriculture and climate change. The Hon'ble Governor of Karnataka and the Hon'ble Chief Minister of Karnataka who accompanied the Hon'ble Vice President of India also appreciated the Centre's academic & scientific achievements.

The Centre celebrated 75th year of India's Independence, Azadi Ka Amrit Mahotsav, on August 15, 2021 including speech in Hindi and English by research scholars, followed by some patriotic songs and the Hindi Pakhwada. International Yoga day was observed on June 21, 2021 with online lecture and live yoga session.

This year, 34 degrees have been awarded and 66 students have been admitted in the August semester.

"A Glorious Journey" Galleries I & II and its Virtual Tour, a glimpse of the personal and professional journey of Prof. C.N.R. Rao, was inaugurated on October 21, 2021. Vigilance awareness week was celebrated on October 26, 2021.

This Centre comes at the heels of a long tradition of major achievements at JNCASR. Notably, in the past few months, JNCASR has ranked 23rd globally in the Nature Index 2021 for materials science, being the only Indian institution to appear on this Top 50 list. Profs. T. Govindaraju and Kanishka Biswas have received the CSIR Shanti Swarup Bhatnagar Prize 2021 for research related to Alzheimer's disease and high performance thermoelectrics, respectively. Prof. Ranjani Viswanatha received the SERB- Power Fellowship.

As the COVID-19 situation has somewhat eased, we have restarted some of the fellowship and extension programmes in both online and hybrid modes. The science outreach activities by the Education Technology Unit have been continued in online mode. And once again, JNCASR has been host to endowment lectures by eminent scientists of India, such as the DAE-Raja Ramanna Lecture in Physics 2021 by Prof. Apoorva D. Patel from IISc and Prof. Abhishek Dhar from ICTS and the ISRO-Satish Dhawan Lecture 2021 by Prof. K. Kasturirangan, Honorary Distinguished Advisor, ISRO.

Lastly, the Centre welcomes Dr Achira Roy who joined as Ramalingaswamy Fellow.

I hope that through such achievements and activities, JNCASR continues to reach new heights in scientific research. I wish everybody the best for the future.

Stay safe and best regards,

G. U. Kulkarni
President, JNCASR

Leading News

Institutional rankings

- As per the National Institute Ranking Framework (NIRF) 2021, JNCASR ranks 19th among research institutions in the country.
- In the Nature Index 2021:
 - JNCASR ranks 23rd among the top 50 rising institutions in the materials sciences globally. The Centre is the only institution from India to appear on this list.
 - It also appears among the leading 200 institutions in the materials sciences globally, ranking 171. The Centre is one among two institutions from India on this list.
 - JNCASR is 127th among the top 200 institutions in the Asia Pacific region.
 - Further, it stands 93rd among the top 100 institutions in chemistry in the Asia Pacific region.

News reported by:

- Deccan Herald, July 15, 2021 (<https://bit.ly/3pHgVeh>).

Bharat Ratna Prof. C. N. R. Rao congratulated by the Prime Minister for receiving the International Eni Award 2020

Prime Minister Shri Narendra Modi congratulated Bharat Ratna Prof. C. N. R. Rao for receiving the International Eni Award 2020 for research in renewable energy sources and energy storage. The award ceremony was held at the Italian Presidential Palace “Palazzo del Quirinale Rome” in the presence of the President of the Italian Republic. However, due to the pandemic, the Indian Ambassador to Italy, Neena Malhotra, received the prize on behalf of Prof. Rao.

News reported by:

- The Times of India, October 12, 2021 (<https://t.co/x3w03bt8m6>).

Foundation stone of JNCASR Innovation and Development Centre unveiled by the Hon’ble Vice President of India

The foundation stone of the Innovation and Development Centre at JNCASR was unveiled by Shri M. Venkaiah Naidu, the Hon’ble Vice President of India. The event took place in the august presence of Shri Thaawarchand Gehlot, the Hon’ble Governor of Karnataka; Shri Basavaraj S. Bommai, the Hon’ble Chief Minister of Karnataka; Bharat Ratna Prof. C. N. R. Rao, FRS; and Prof. G. U. Kulkarni, President, JNCASR. The programme was attended by senior officials from the Governments of India and Karnataka along with the deans, faculty members, students, and staff of JNCASR.

The Innovation and Development Centre aims to become a major facilitator in the effort to take science to society and meet our country’s “Make in India” and “Aatmanirbhar Bharat” missions. The Centre will facilitate laboratory inventions for scale-up and technology transfer. Start-ups by inventors within the Centre and from other institutions in Bengaluru and India will also be hosted in this new facility. Scientists will be provided with state-of-the-art processing and prototyping tools to enable the translation of inventions into practice.

News reported by:

- All India Radio News Service Division, August 16, 2021 (<https://bit.ly/3Encs7r>).
- Press Information Bureau, press release by the Vice President’s Secretariat, August 16, 2021 (<https://bit.ly/2ZxnhC1>).



Photograph of all august attendees of the Inauguration of the Innovation and Development Centre at JNCASR

New Appointments, Deputations, Resignation & Additional Responsibilities

Visiting Student

- **Mr. Lingesh Guru Priyan**, International Centre for Materials Science (ICMS)

New Appointments

- **Dr. Pratap Vishnoi** joined as a Ramanujan Fellow with the New Chemistry Unit (NCU)/ICMS on April 12, 2021.
- **Dr. Achira Roy** joined as a DBT Ramalingaswami Fellow with the Neuroscience Unit (NSU) on September 18, 2021.
- **Prof. Hemalatha Balaram** joined as Honorary Resident Professor on November 1, 2021.

Deputation / Repatriation

- **Prof. Chandrabhas Narayana** is on lien to the Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram.
- **Prof. S. M. Shivaprasad's** lien has been extended by 10 months from August 2021.
- **Prof. Santosh Ansumali** rejoined the Centre on July 1, 2021, upon completion of his lien term at SankhyaSutra Labs.

Resignation

- **Dr. Meher K. Prakash** resigned from JNCASR on August 19, 2021.

Superannuation

- **Prof. Hemalatha Balaram**, MBGU superannuated on October 31, 2021.

Additional Responsibilities

- **Prof. Shobhana Narasimhan**, Faculty, has been designated as Faculty In-charge of the Office of Placements, Alumni, and International Relations (PAIRs).
- **Prof. James P. C. Chelliah** has taken charge as Head, CompLab.
- **Prof. Subir K. Das** is now Chairperson, Theoretical Science Unit (TSU).

Research Associates

- Dr. Abdul Ahad
- Dr. Shagufi Naz Ansari
- Dr. Riya Mukherjee
- Dr. Abhijit Dhamanekar
- Dr. Triparna Mondal
- Dr. Indrajit Mondal
- Dr. Suvankar Bera
- Dr. Ranjan Sasmal
- Dr. Shivanandkumar Vassam
- Dr. Jeevan Chakravarthy A. S.
- Dr. Shivakumar Athani
- Dr. Wagalgave Sopan Mahadev
- Dr. Usha Manjunath Bhat
- Dr. Aswin Nandagiri
- Dr. Tanay Paul

Research Associates (Provisional)

- Mr. Vijay Kumar M. J.
- Ms. Ekashmi Rathore
- Ms. Shveta Jaishankar
- Ms. Vijaya Verma

Research Highlights

JNCASR-Bengaluru scientists devise way to convert carbon dioxide to methane without toxicity

The method can effectively help in reducing levels of atmospheric carbon dioxide levels which is a major climate change concern.

News reported by:

- *New Indian Express*, October 27, 2021 (<https://bit.ly/31W1chF>).

JNCASR scientist wins Shanti Swarup Bhatnagar Prize for ground-breaking discoveries about Alzheimer's disease and lung cancer

Prof. T. Govindaraju from JNCASR has received the prestigious Shanti Swarup Bhatnagar Prize for Science and Technology 2021

for his ground-breaking concepts and discoveries, which have significant potential for the diagnosis and treatment for Alzheimer's and lung cancer, among other health problems. His innovative work on small molecules, peptides, and natural products offers both diagnostics as well as therapeutics, opening doors to personalized medicine.

News reported by:

- *Department of Science and Technology Vigyan Samachar*, October 4, 2021 (<https://bit.ly/3CCYn2B>).
- *Press Information Bureau*, October 4, 2021 (<https://bit.ly/3nBnyMD>).

JNCASR scientist developing innovative strategies to make high-performance thermoelectric materials wins Shanti Swarup Bhatnagar Prize

Dr. Kanishka Biswas, Associate Professor, JNCASR, has received the prestigious Shanti Swarup Bhatnagar Prize in Chemical Science, for Science and Technology 2021, for his discoveries in the field of solid-state inorganic chemistry and thermoelectric energy conversion. His research involves a fundamental understanding of the relationship between the structure and properties of inorganic solids to develop lead-free high-performance thermoelectric materials, which can efficiently convert waste heat into energy and are being translated into cost-effective technologies.

News reported by:

- *The Department of Science and Technology Vigyan Samachar*, October 4, 2021 (<https://bit.ly/3J1H14>).
- *Press Information Bureau*, October 4, 2021 (<https://bit.ly/3vUzcpi>).
- *The Hindu-BusinessLine*, October 10, 2021 (<https://bit.ly/3GtTKdi>).

Mobile oxygen concentrator developed by JNCASR scientists aims to cater to acute and chronic oxygen needs at the grassroots level

A team of researchers from JNCASR designed a robust mobile group oxygen concentrator named OxyJani, which can be used in rural settings and also be rapidly deployed in emergencies at any location. In this multi-group initiative, Dr. S. V. Diwakar, Dr. Meher Prakash, and Prof. Santosh Ansumali from JNCASR, and collaborators Prof. Arvind Rajendran from the University of Alberta and Mr. Arun Kumar from Eiwave Digitech executed the OxyJani developmental efforts with the help of Mr. Ritwik Das (M.S. student). Financial assistance for the prototype was provided through JNCASR and Indian Institute of Technology, Kanpur's Nidhi Prayaas scheme. The zeolite material was obtained through a generous donation from Honeywell UOP, Italy.

News reported by:

- *Department of Science and Technology Vigyan Samachar*, July 1, 2021 (<https://bit.ly/2Zv7L9s>).
- *Press Information Bureau*, July 1, 2021 (<https://bit.ly/3w0dWyd>).
- *Indian Science News, Vigyan Prasar*, July 2, 2021 (<https://bit.ly/3pM8myU>).
- *BioSpectrum India*, July 2, 2021 (<https://bit.ly/3149AuR>).

Latest findings from animal behaviour studies

Researchers from JNCASR studied associations among male Asian elephants by collecting and analysing data on the behaviour of identified nonmusth wild Asian elephants at Nagarhole and Bandipur National Parks in Karnataka (*Front. Ecol. Evol.* 9: 616666. doi: 10.3389/fevo.2021.616666).

News reported by:

- *Department of Science and Technology Vigyan Samachar*, July 2, 2021 (<https://bit.ly/3Cpa5O2>).
- *Department of Science and Technology Twitter post*, July 2, 2021 (<https://bit.ly/3mmNdJI>).
- *DD News online*, July 2, 2021 (<https://bit.ly/3BlID2b>).
- *The Hindu*, July 3, 2021 (<https://bit.ly/3nFNoyQ>).
- *Indian Science News, Vigyan Prasar*, July 6, 2021 (<https://bit.ly/3mksHZZ>).

In a first of its kind, JNCASR scientists develop novel self-forming artificial synaptic network that can emulate some complex human behaviours

Prof. G. U. Kulkarni and Mr. Bharath Bannur (Ph.D. student) from JNCASR have created a novel unprecedented neuromorphic device that has a hierarchical network structure resembling complex biological neuronal networks. This structure enables it to emulate several human behaviour patterns involving complex synaptic functions, such as short- and long-term memories, potentiation, depression, associative learning, interest-based learning, supervision, and impression of supervision. Further, the device self-forms with heat, which makes its fabrication much simpler, scalable and cost-effective than that of conventional devices. (*Mat. Horiz.* 7(11): 2970–2977. doi: 10.1039/D0MH01037E)

News reported by:

- *Department of Science and Technology* (<https://bit.ly/3c3Lltz>).
- *BioSpectrum*, June 1, 2021 (<https://bit.ly/3FbQ8LL>).
- *OpenGov Asia*, June 1, 2021 (<https://bit.ly/3oVXiG>).
- *News18*, June 2, 2021 (<https://bit.ly/3F3SGLI>).
- *The Statesman*, June 2, 2021 (<https://bit.ly/3krscfr>).
- *Analytics Insight*, June 3, 2021 (<https://bit.ly/3n5icu0>).
- *NDTV Gadgets 360*, June 7, 2021 (<https://bit.ly/3D1tSmZ>).
- *Prasar Bharati News Service on Telegram*, June 18, 2021 (https://t.me/pbns_india/12739).

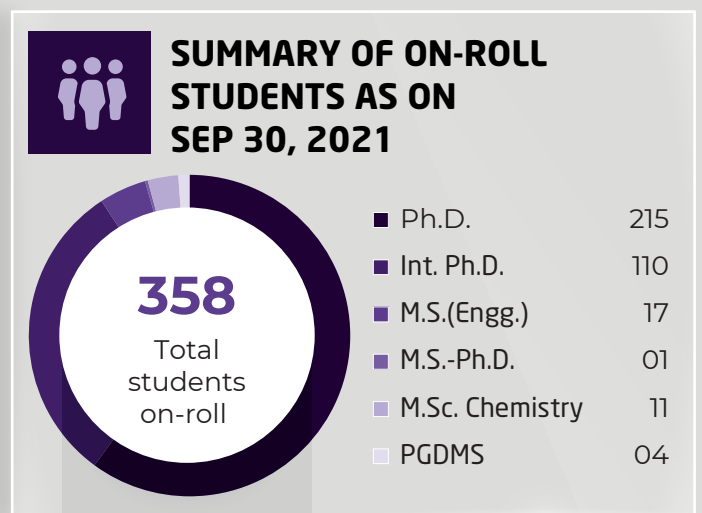
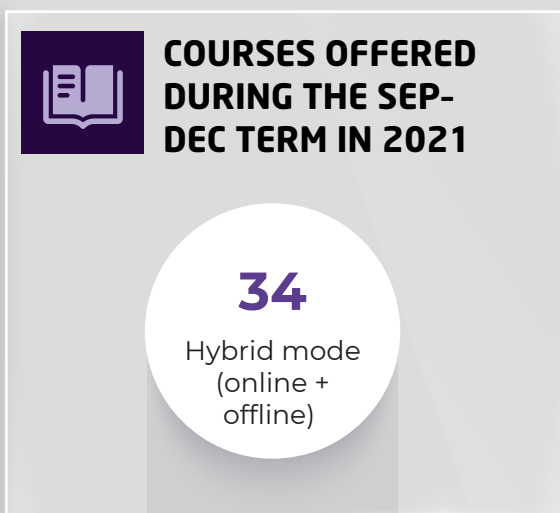
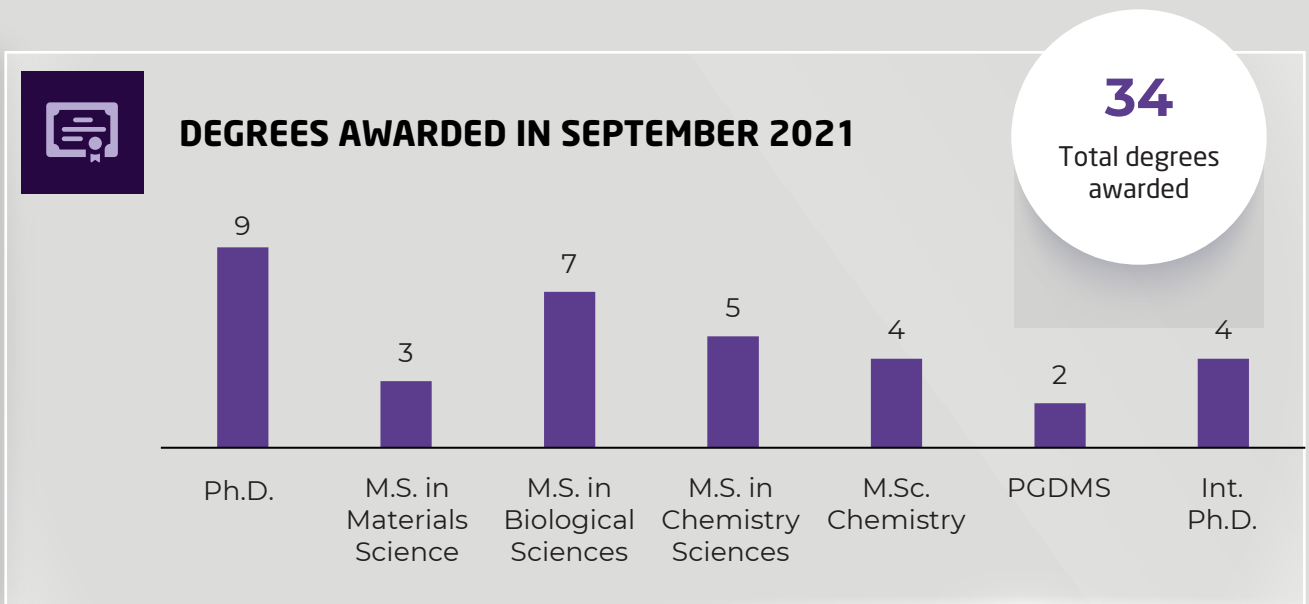
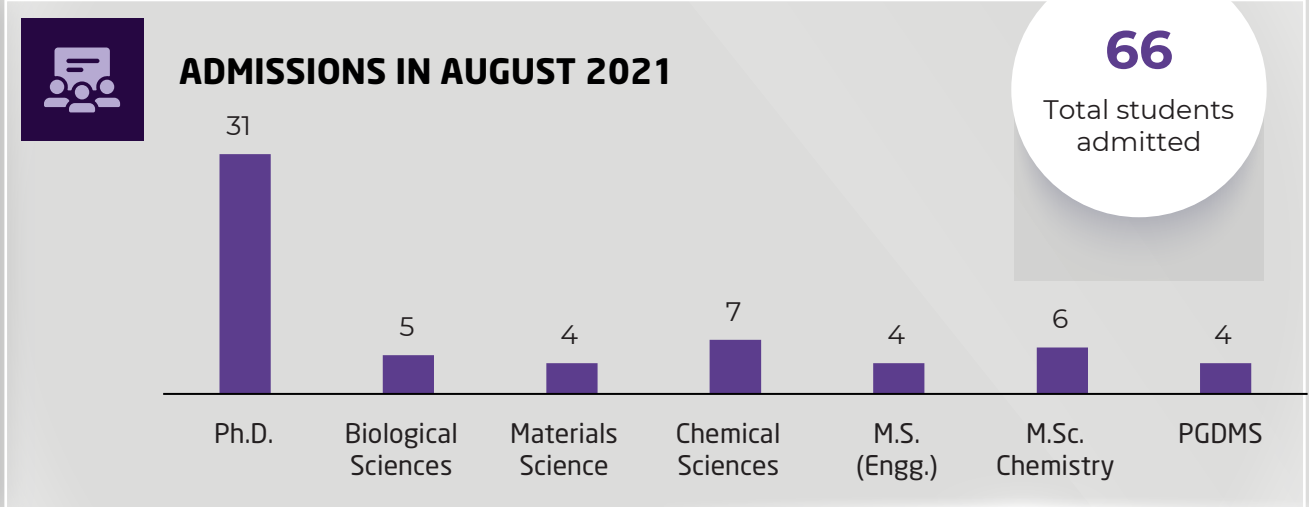
In collaborative research, JNCASR scientists construct a micrometer-sized Stirling engine

A research team led by Prof. Rajesh Ganapathy, Associate Professor, JNCASR, along with researchers from the Indian Institute of Science (IISc), constructed a micrometer-sized Stirling engine by confining a single colloidal particle with a laser trap. This insight will be essential for the future construction of micro-machines that operate in complex biological environments and are becoming increasingly important in biomedical engineering (*Nat. Commun.* 12: 4927. doi: 10.1038/s41467-021-25230-1).

News reported by:

- *Department of Science and Technology Vigyan Samachar* (<https://bit.ly/2XVcjFR>).

Academic Activities



Intellectual Property Rights



PATENTS GRANTED

International: European 1

- Patent (No. 2831934) for 'A Method of Forming a Photo Voltaic Cell' developed by Prof. Kavassery Sureswaran Narayan et al.

India: 3

- Patent (No. 371310) for 'A Compound and Pharmaceutical Composition Thereof' developed by Prof. Govindaraju Thimmaiah et al.
- Patent (No. 370059) for 'High Surface Area Ordered Porous Carbon, Method and Applications Thereof' developed by Prof. M. Eswaramoorthy Muthusamy et al.
- Patent (No. 373323) for 'Palladium Based Selenides as Highly Stable and Durable Cathode Materials in Fuel Cell for Green Energy Production' developed by Prof. Sebastian Chirambatte Peter et al.



PATENT APPLICATIONS FILED

International: PCT 3

- 'Antimicrobial Compounds and Uses Thereof' developed by Prof. Jayanta Halder et al. (No. PCT/IN2021/050329, filed on Apr 01, 2021)
- 'Composition, Injectable Hydrogel and Methods Thereof' developed by Prof. Govindaraju Thimmaiah et al. (Patent Appl. No. PCT/IN2021/050337, filed on Apr 05, 2021)
- 'Naphthalene Monoimide Compounds and Methods Thereof' developed by Prof. Govindaraju Thimmaiah et al. (Patent Appl. No. PCT/IB2021/056633, filed on Jul 22, 2021)

India: Provisional 4

- Prof. James Premdoss Clement Chelliah et al. (Patent Appl. No. 202141019767, filed on Apr 29, 2021)
- Prof. James Premdoss Clement Chelliah et al. (Patent Appl. No. 202141019766, filed on Apr 29, 2021)
- Prof. Sridhar Rajaram et al. (Patent Appl. No. 202141033811, filed on Jul 27, 2021)
- Prof. Sebastian Chirambatte Peter et al. (Patent Appl. No. 202141037359, filed on Aug 17, 2021)

India: Complete 1

- 'Neuropsychotic Drug-Based Glucose Nanospheric Bioconjugate for Effective Orthotopic Glioma Treatment' developed by Profs. Tapas Kumar Kundu, Eswaramoorthy Muthusamy et al. (Patent Appl. No. 202111015505, filed on Mar 31, 2021)

Awards and Accolades

By Faculty Members

Prof. A. Sunderasan

- Received Prof. C. N. R. Rao Oration Award Lecture 2021

Prof. T. Govindaraju

- Received the Council of Scientific and Industrial Research (CSIR) Shanti Swarup Bhatnagar Prize 2021 for Chemical Sciences

Prof. Subi J. George

- Received the C. N. R. Rao National Prize for Chemical Sciences awarded by the Chemical Research Society of India (CRSI)

Dr. Kanishka Biswas

- Received the CSIR Shanti Swarup Bhatnagar Prize 2021 for Chemical Sciences
- Received the National Prize for Research in Inorganic and Physical Chemistry, donated by the C. N. R. Rao Education Foundation

Prof. Sebastian C. Peter

- Received the National Technology Award 2021 from the Technology Development Board (TDB), Department of Science and Technology (DST), for pilot scale CO₂ to methanol conversion
- Selected for the Indian National Academy of Engineering (INAE) Young Innovator and Entrepreneur Award 2021

Dr. Sarit S. Agasti

- Named the 2021 Emerging Investigator for Chemical Communications

Faculty Memberships

Prof. Giridhar U. Kulkarni

- Elected as Chairman, Sub-Committee on Academic Matters, for detailed project report preparation for the restructuring of DST research and development institutes

Prof. Maneesha Inamdar

- Participated as an Indian National Science Academy (INSA) nominee in the Inter Academy Partnership (IAP) Statement

on regenerative medicine published on July 29, 2021 (related article is published in the journal Stem Cell Reports)

- Elected as a member of the World Health Organization (WHO) committee (was panellist at the international press conference on July 12, 2021, and speaker at the WHO webinar on July 14, 2021)

Prof. Amitabh Joshi

- Elected to a second term as Executive Council Member of the Indian Society of Evolutionary Biologists in June 2021

Prof. Kaustuv Sanyal

- Elected as Secretary, Local Chapter, Bangalore, of the National Academy of Sciences, India
- Became Associate Editor, Chromosoma (Springer)

Fellowships

Prof. G. U. Kulkarni

- Elected as Fellow of Indian National Science Academy (INSA) 2021
- Elected as Fellow of Indian National Academy of Engineering (INAE) 2021

Prof. Hemalatha Balaram

- Received extension on her J. C. Bose Fellowship

Dr. Ranjani Viswanatha

- Received the SERB-POWER Fellowship

Award received by student

Ms. Geetika Dhanda (Ph.D. student)

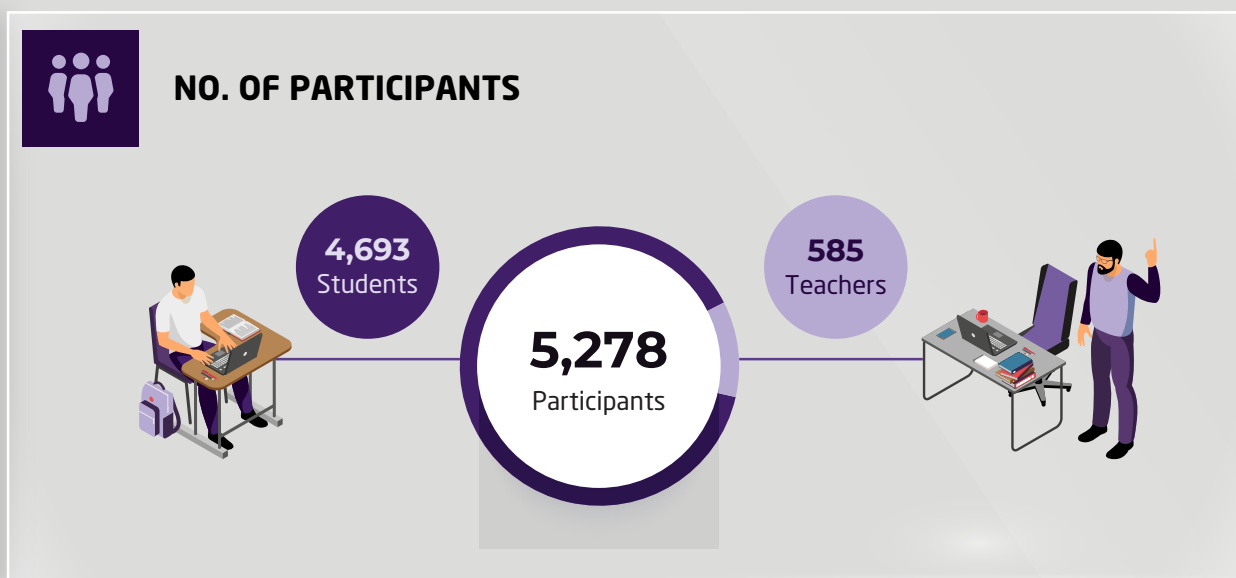
- Winner in the Centre for Cellular and Molecular Platforms (C-CAMP) Antimicrobial Resistance (AMR) Quest, 2021, for her proposal "Membraneperturbing antibiotic adjuvants"

Agreements Signed

Over the past few months, Prof. M. Eswaramoorthy of JNCASR signed three agreements, all valid for the duration of two years from the effective date. Two of the agreements were non-disclosure agreements, signed with Cookson India Pvt. Ltd., Ambattur, Chennai, and Simode Solutions Pvt. Ltd., Bangalore, on July 30, 2021, and September 21, 2021, respectively. The third agreement was a technology license agreement signed with ATGC Biotech Pvt. Ltd.

Outreach Activities

The Education Technology Unit (ETU) and C. N. R. Rao Hall of Science conducted several science outreach programmes—lectures and workshops—for school children and teachers, mainly through online platforms.



- September 8, 15, 22, and 29, 2021, Teacher's training workshop on chemistry:** Organized at Sagar (Shimoga district, Karnataka) by ETU, in association with the Royal Society of Chemistry and Sagar Science Forum. Over 22 high-school teachers participated from the Sagar taluk.
- September 24, 2021, Learning science through experiments:** A half-day science outreach programme by ETU, in association with Sagar Science Forum and Lions Club, Ulavi, for class X teachers and students. A lecture in physics was given by Dr. Jeevan H. S., followed by an experimental physics demonstration. Around 75 students and 20 teachers (class X) participated from V. S. Highschool, Nisrani Village, Sagar, Shimoga district, Karnataka.
- September 23, 2021, Award ceremony:** Felicitation of the 2019 winners of the Outstanding Science Teacher's award, Shri Ramachandra Bhat B. G. and Shri Annepu Punnayya. The award function was followed by a lecture in chemistry by Prof. Sridhar Rajaram, JNCASR. Around 400 students (classes XI and XII) and 50 teachers from various schools and colleges from different parts of Karnataka participated in this online programme.
- September 3, 2021, Learning physics through experiments:** An experimental physics demonstration by Mr. Vinayak Pattar, ETU, JNCASR. Around 150 students and 10 teachers (classes XI and XII) participated from the Nisarga P. U. College, Bengaluru.
- August 26, 2021, Learning chemistry through experiments:** An experimental chemistry demonstration by Dr. Pramoda K. from Jain University. Around 100 students and 4 teachers (classes IX and X) participated from the Parikrama Learning Centers (Parikrama Humanity Foundation-NGO), Bengaluru.
- August 12, 2021, Learning physics through experiments:** An experimental physics demonstration by Prof. N. S. Vidhyadhiraja, Dean, Fellowships and Extension Programmes (F&E), JNCASR. Around 60 students and 4 teachers (classes IX and X) participated from the school Chandan Laxmeshwar, Gadag district, Karnataka.



Prof. G. U. Kulkarni, President, JNCASR, felicitating Shri. Ramachandra Bhat B. G., a winner of the Outstanding Science Teacher's Award, during the award function.



Prof. N. S. Vidhyadhiraja performing an experimental physics demonstration during the event at the Hall of Science, JNCASR.

Fellowships & Extension Programmes

Reopening F&E activities

F&E activities - such as the Summer Research Fellowship Programme (SRFP), Project Oriented Chemistry Education (POCE), Project Oriented Biology Education (POBE), Visiting Fellowship Programme (VFP), Student Buddy Programme (SBP), and Institutional Visits Programme (IVP) - had been suspended in 2020 due to COVID-19. Some of these have been reopened as the pandemic situation has improved.

The students and faculty who have been selected for these programmes have been asked to undertake them in consultation with identified guides either online or through the hybrid mode. In response, the number of students and faculty who have joined the programmes are as follows:

- 13 students have joined the online SRFP and 2 have joined offline.
- 5 students out of 19 have joined the offline POBE programme.
- 9 students out of 19 have joined the online POCE programme.
- 1 visiting fellow out of 14 has joined the VFP programme offline and 3 had completed it in 2019–20.

Launching the Graduate Research Internship Programme (GRIP)

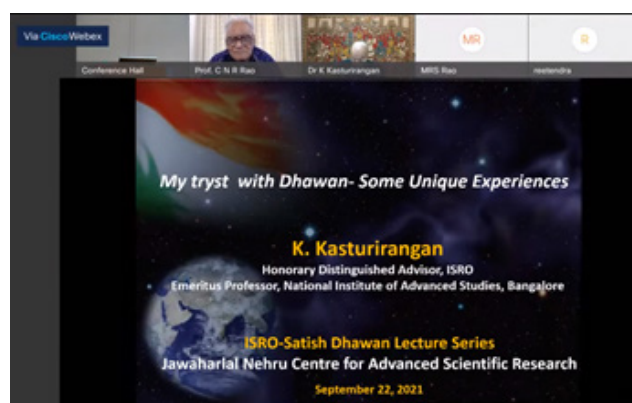
The GRIP has been launched with effect from September 1, 2021, for students in the final year of their B.E./B.Tech./M.S./M.Sc./Int. M.S./MBBS looking to add credits from a research internship to their degree. This six-month to one-year programme allows students to choose from 30 project titles for nominal administrative fees (that include boarding and medical facilities), and upon successful completion, they receive a certificate.

107 applications have been received for the GRIP this year and the selection results were announced on October 15, 2021.

Past Events

Endowment Lectures

- **ISRO Satish Dhawan Lecture 2021:** Prof. K. Kasturirangan, Honorary Distinguished Advisor, ISRO, and Emeritus Professor, National Institute of Advanced Studies, Bengaluru, delivered the ISRO Satish Dhawan Lecture at JNCASR on September 22, 2021. The title of his talk was “My tryst with Dhawan—Some unique experiences”. The lecture was attended by several eminent guests online, including Mr. Jairam Ramesh, member of the Rajya Sabha. The event was held in hybrid mode along with YouTube livestreaming (<https://youtu.be/xiHXhyzhGOQ>).
- **C. N. R. Rao Oration Award Lecture 2021:** This lecture was delivered by Prof. A. Sundaresan, Chair, Chemistry and Physics of Materials Unit (CPMU), JNCASR, on September 7, 2021. The title of his lecture was “Frustration in spin systems: Emergent phenomena”.
- **DAE Raja Ramanna Lecture in Physics 2021:** This lecture was delivered by Prof. Apoorva D. Patel from the Centre for High Energy Physics, IISc, Bengaluru, on “Quantum technology: Directions and prospects”. The Prize Lecture was delivered by



A snapshot of the programme live stream

Prof. Abhishek Dhar from the International Centre for Theoretical Sciences, Bengaluru, on “Blast in the one-dimensional cold gas: From Newton to Euler and Navier-Stokes-Fourier”. The lecture was held on June 24, 2021 in hybrid mode with YouTube livestreaming (<https://youtu.be/dUP5Vak6VXY>).

Celebrations & Inauguration

Inaugurating “A Glorious Journey” Galleries I and II and its Virtual Tour, giving a glimpse into the life of Prof. C. N. R. Rao.: The inauguration of “A Glorious Journey” Galleries I and II and its Virtual Tour, which gives a glimpse into the personal and professional journeys of Prof. C. N. R. Rao, was held on October 21, 2021, at the Madan Mohan Malviya Amphitheatre, C. N. R. Rao Hall of Science, JNCASR. Prof. G. U. Kulkarni, President, JNCASR, inaugurated the galleries. The event was livestreamed on YouTube (<https://youtu.be/d3fJdXsvH5Y>).

In the image, Prof. G.U. Kulkarni, President, JNCASR inaugurating “A Glorious Journey” galleries in the presence of Bharat Ratna Prof. C.N.R. Rao on October 21, 2021.



Hindi Pakhwada celebrations : At JNCASR, Hindi Pakhwada celebrations were organised from September 16 to 27, 2021, with a series of programmes attended by the staff and students. The programme included various competitions, such as Hindi newspaper reading, Hindi essay writing, a translation test, and a lecture in Hindi on achievements in the field of science and technology. The celebration concluded with the distribution of prizes to the winners.



Photographs from the Fit India Freedom Run 2.0 marathon organized by JNCASR on August 22, 2021

Fit India Freedom Run 2.0 marathon: To commemorate the Fit India Freedom Run 2.0 initiated by the Ministry of Youth Affairs and Sports, Government of India, as part of “Azadi ka Amrit Mahotsav”, the Sports Committee of JNCASR organised a 6.3 km marathon. The run started at 5.35 am and finished at 6.40 am on August 22, 2021. The event recorded over 120 participants including students, faculty members, and staff. All participants were given T-shirts with the branding of the “Fit India Movement” during the event.

Independence Day celebration at JNCASR: On the occasion of 75 years of India’s Independence and as part of the “Azadi ka Amrit Mahotsav” celebrations, JNCASR hoisted the national flag and sang the national anthem. Students delivered speeches and performed a patriotic medley during the event at the Jakkur campus.



(Left) Prof. G. U. Kulkarni, President, JNCASR, hoisted the national flag in the presence of the deans, faculty, students, and staff members on August 15, 2021.

(Right) Students of the Cultural Committee of JNCASR during the Independence Day programme.

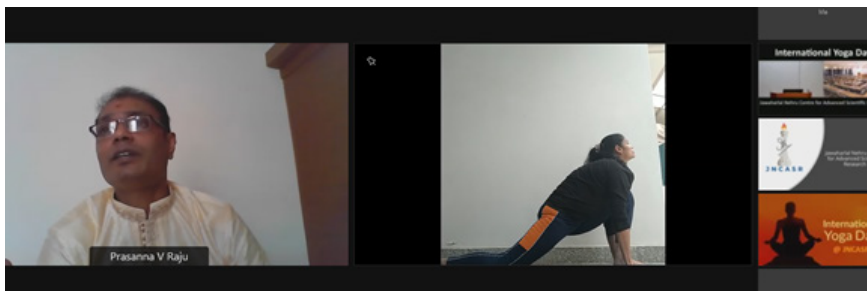
Rendering of national anthem at JNCASR: Prof. G. U. Kulkarni, President, JNCASR, and the deans, faculty members, officers, staff, and students of JNCASR joined the scientific fraternity of the country online for the rendering of the national anthem as part of the celebration of the 75th year of Indian independence. The event took place at 1:30 pm on August 13, 2021. It was also attended by Dr. Jitendra Singh, Union Minister of State (MoS) (Independent Charge) for Science and Technology and the Earth Sciences; MoS, PMO, PP/DoPT, Atomic Energy and Space, along with Prof. K. Vijay Raghavan, Principal Scientific Advisor, Prof. Ashutosh Sharma, Secretary, DST, and of Ministry of Earth Sciences (MoES) along with secretaries, scientists, and senior officials of DBT, DSIR/CSIR, MoES, DoS, and DAE.



Prof. G. U. Kulkarni along with the deans, officers, and staff during the event on August 13, 2021

National Prize for Research in Inorganic and Physical Chemistry: This prize for the year 2021 was given to Prof. R. V. Vaidhyanathan of Indian Institute of Science Education and Research (IISER), Pune, on July 2, 2021. To encourage talented chemists, the C. N. R. Rao Education Foundation, in association with JNCASR, has instituted National Prizes for Research in Chemistry, which carries a citation and cash prize donated by the C. N. R. Rao Education Foundation.

Celebration of International Yoga Day at JNCASR on June 21, 2021: An online lecture and demonstration of asanas was organised at JNCASR on “International Yoga Day” - June 21, 2021. At this event, Prof. James Chelliah, Associate Professor, JNCASR, gave an introductory talk followed by a lecture delivered by Yoga Guru Shri Prasanna V. Raju. In this talk, he shared some useful insights on the importance of yoga in everyday life. He also guided the demonstration of asanas online and discussed some helpful tips during the practice of asanas. He also answered audience queries in the concluding session. The event was livestreamed on YouTube (https://www.youtube.com/watch?v=q_tyl7tjBg) and was attended online through WebEx.



Snapshots from the livestream

Workshop and programme

Career Guidance Programme organised by the PAIRs Office, JNCASR: The PAIRs Office organised a lecture programme titled “How to launch your career” on October 5, 2021, for students and postdoctoral scholars at JNCASR. The speakers in this programme were Prof. Pushpalatha Murthy, Emeritus Dean and Professor, Graduate School, Michigan Technological University, USA; Prof. Manish Jain, faculty member at the Department of Physics, IISc, Bengaluru; and Prof. Shobhana Narasimhan, Faculty In-charge, PAIRs Office, JNCASR.

Bioimage Analysis: Images2Numbers : This virtual workshop was organised by Dr. Ravi Manjithaya, MBGU, JNCASR, from August 16 to August 26, 2021. This workshop was part of the workshop programme called Karyashala and was supported by the Science and Engineering Research Board (SERB), DST, Government of India.

Unit Events

Chemistry and Physics of Materials Unit (CPMU)

- Workshop on Advances in Parasite Biochemistry and Structural Biology held on October 29, 2021.
- CPMU Unit Day and Alumni’s Materials Lecture on “Crystal engineering of adaptive smart materials: From mechanical bending to self-healing” was delivered by Prof. Chilla Malla Reddy, Department of Chemical Sciences, IISER, Kolkata, on September 4, 2021.

Engineering Mechanics Unit (EMU)

- A talk on “Multiscale problems in fluid mixing” was delivered by Dr. Narita Pal, Staff Scientist, Los Alamos National Laboratory, USA, on July 7, 2021.
- A talk on “Mechanics and high-performance computing for coastal hazards” was delivered by Dr. Ajay B. Harish from the

Department of Civil and Environmental Engineering, University of California, Berkeley, USA, on May 19, 2021.

Evolutionary and Integrative Biology Unit (EIBU)

- An online talk on “Host-microbiome interactions: Insights from natural systems” was delivered by Dr. Wasimuddin from the Indian Council of Medical Research (ICMR)–National Institute of Malaria Research on September 3, 2021.

Neuroscience Unit (NSU)

- The Indo–US Science and Technology Forum (IUSSTF) funded the International Conference on Chronobiology 2021 titled “Time in the living world”. This virtual event was organised from July 15 to 17, 2021.

Theoretical Sciences Unit (TSU)

- TSU Day was organised on September 2, 2021, and included a series of talks, poster presentations, quizzes, and other programmes.

New Chemistry Unit (NCU)

- NCU Day was held on October 1, 2021.
- An international conference on “Interdisciplinary topics in advanced materials” was organized in collaboration with IISc and CeNS by Prof. Ranjani Viswanatha, JNCASR, from July 27 to 29, 2021.
- A virtual conference on thermoelectrics was organised in association with the International Thermoelectric Society from July 20 to 22, 2021.

The recipients of the CSIR Shanti Swarup Bhatnagar prize 2021 from NSU, Prof. T. Govindaraju and Dr. Kanishka Biswas delivered special lectures on the NCU Day. The speakers were felicitated during the event held on October 1, 2021.



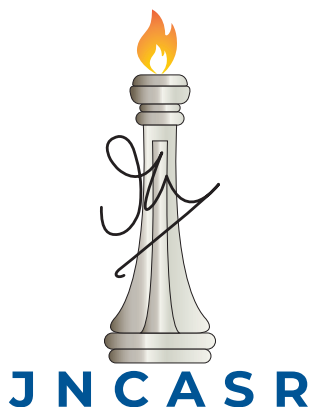
A photograph from TSU Day held on September 2, 2021



■ Upcoming Events

- Annual Faculty Meeting and In-house Symposium 2021 has been scheduled on November 17 and 18, 2021 in hybrid mode.
- International Winter School 2021 on December 06 to 10, 2021. Co-conveners: Prof. M. Eswaramoorthy and Prof. Umesh V. Waghmare.

www.jncasr.ac.in



Editor
Prof. Sheeba Vasu

Editorial Assistance
Nabonita Guha and Dr. Nandakumari E.

Copyediting
Impact Science

Designing and Typesetting
dataworx

Jawaharlal Nehru Centre for Advanced Scientific Research
Jakkur, Bengaluru - 560 064, Karnataka, India
Phone: 91-80-22082750; Fax: 91-80-22082766; E-mail: admin@jncasr.ac.in