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Bi Annual  
Newsletter

JAWAHARLAL NEHRU CENTRE FOR  
ADVANCED SCIENTIFIC RESEARCH

# JNC NEWS

Issue: 56

May 2021



## Message from the President

We have all recently received the joyous news of Bharat Ratna Prof. C.N.R. Rao receiving the Eni International Award for Research in Energy Frontiers, for his research into renewable energy sources and energy storage - an award considered to be the Noble Prize in Energy Research. My heartiest congratulations on this prestigious recognition, which brings pride to the scientific community in India and for the country as a whole.

On a more sober note, the Indian research community sadly lost one of its eminent members, when Prof. Roddam Narasimha passed away on December 14, 2020. Prof. Narasimha made several invaluable contributions to the growth of our Centre, including setting up of the Engineering Mechanics Unit, and we shall always be grateful for his contributions and support.

The Centre was ranked 8th in India by Nature Index Ranking for the year 2021. A notable scientific advancement by Prof. T. Govindaraju and Dr. Meher Prakash has led to the development of technically superior molecular probes for COVID 19 test kits to be produced in India, thereby paving the way for the country to be self-reliant in this aspect. In addition, several inventions were patented or filed for patent application. Many of our other faculty colleagues also received several honours and accolades.

On the academic front, 8 students joined our Centre during mid-year admissions and 15 Ph.D., 2 M.S.(Engg.), and 3 PGDMS students successfully completed their courses and received their degrees. Considering the on-going COVID pandemic, 29 courses were taught via the online mode. Similarly, several workshops and outreach programmes were successfully organised online, with over 1600 students participating in these events.

I must also mention that we inaugurated a Fire Hydrant System at the Centre, with the goal of enhancing the safety of the JNCASR community.

I conclude by noting that it is indeed encouraging and inspiring to see that we have achieved various successes despite the trying times and I hope that we will all continue to move forward with the same fervour and enthusiasm.

Stay safe !

With best wishes,

**G. U. Kulkarni**  
President, JNCASR

# Leading News

## Institutional Ranking

According to the Institution Table 2021 released by Nature Index:

- JNCASR ranks 8<sup>th</sup> in India by Nature Index 2021
- In Scimago Institutions Rankings 2021, JNCASR stands on 15<sup>th</sup> position across all sectors and 7<sup>th</sup> among universities in India.

## Setting up of Office of Placement, Alumni and International Relations (PAIRs)

The Centre has established an Office of Placement, Alumni and International Relations (PAIRs) to coordinate international collaborations, liaising with relevant Government Departments and Industry, and to connect with Centre's alumni. The office will also facilitate student placement in the respective fields against emerging opportunities. It will also promote the Centre as a global study destination and enhance research collaboration with foreign Institutions/Universities. Prof. Shobhana Narasimhan, TSU, has been appointed as Faculty In-charge of the PAIRs office.

## Book release function for the book authored by Prof. C.N.R. Rao and Dr. Indumati Rao

A book release function was held online for the book authored by Prof. C.N.R. Rao and Dr. Indumati Rao titled 'Founders of Modern Science in India' organised by Indian Academy of Science (IASc), Bengaluru on March 31, 2021. The book was released by Prof. Ashutosh Sharma, Secretary DST. Prof. C.N.R. Rao, Dr. Indumati Rao, Prof. Partha Majumdar, President IASc, and Prof. Amitabh Joshi, Editor of the publications of the Academy, shared their views about the book during the event.

## National Supercomputing Mission Initiatives

The initiatives of JNCASR under National Super Computing Mission was appreciated by Prof. Ashutosh Sharma, Secretary, Department of Science & Technology (DST) vide letter dated April 07, 2021.

## Review of Parliamentary Committee on Official Language

The Parliamentary Committee on Official Language held a meeting with the officials of JNCASR on April 16, 2021. During the meeting, the Committee reviewed the work undertaken at JNCASR on official language.

## JNCASR participates in Indian SARS-CoV-2 Genomic Consortia (INSACOG)

JNCASR has been invited to be a part of Indian SARS-CoV-2 Genomic Consortia (INSACOG), an initiative of Department of Biotechnology & Ministry of Health & Family Welfare.

## Leading India to be self-reliant in developing technically superior molecular probes

Prof. T. Govindaraju and Dr. Meher Prakash, co-founders of VNIR Biotechnologies Pvt. Ltd. (a JNCASR startup), recently highlighted the importance of developing 'molecular probes' locally and utilizing them to make COVID-19 test kits & their components for interested distributors.

## Conserving energy: Synthesis of a novel material that can convert waste heat into electricity

Several industrial processes and power plants produce high amounts of waste heat that can theoretically be utilised to do significant amounts of work. However, until now, there has been no efficient method reported for the energy conversion of heat into the more convenient electrical energy, which can then be implemented to drive other machines or processes. Recently, Dr. Kanishka Biswas and his team from JNCASR developed a new material, silver antimony telluride, that can facilitate this energy conversion. This latest finding, which improves upon their earlier work, allows to tap into the waste heat generated by appliances and reuse it to power small home equipment and vehicles (example charging of phones or small watches). This work was reported in the *Science* journal.

## Publication details:

- Roychowdhury, S., et al. (2021). Enhanced atomic ordering leads to high thermoelectric performance in  $AgSbTe_2$ . *Science*, 371(6530), 722-727. <https://doi.org/10.1126/science.abb3517>.

## News reported by:

- *Times of India*, February 19, 2021 (<https://rb.gy/brifvl>).
- *The Indian Express*, February 20, 2021 (<https://rb.gy/wfhfii>).
- *Department of Science & Technology, Govt. of India* (<https://rb.gy/29jiyh>).
- *Financial Express*, February 22, 2021 (<https://rb.gy/kinrpy>).
- *The Hindu Businessline*, February 23, 2021 (<https://rb.gy/2uwozy>).

## Opening up avenues for bio-inspired materials for the energy & biotechnology sector

Prof. Subi George and his group at JNCASR recently demonstrated the formation of bio-inspired structures via the assembly of transiently dormant monomeric molecules (basic units of polymers) by coupling them to a reduction-oxidation reaction network. They synthesized a chemical entity called supramolecular polymers that displayed striking dynamic properties arising from the non-covalent bonds holding their chains together. Owing to the dynamic properties, these materials can have a variety of application possibilities in the energy and biotechnology fields. Indeed, these findings are a major step towards learning and implementing nature's designs to develop innovative and attractive materials for smart and efficient systems.

## Publication details:

- Jalani, K., et al. (2020). Transient dormant monomer states for supramolecular polymers with low dispersity. *Nature Communications*, 11, 3967. <https://doi.org/10.1038/s41467-020-17799-w>.

## News reported by:

- *Ministry of Science & Technology*, October 17, 2020 (<https://rb.gy/jraybl>).
- *Education Diary.com*, October 17, 2020 (<https://rb.gy/9apjkw>).
- *MrSocial News*, October 19, 2020 (<https://rb.gy/uvhse4>).
- *Swarajyamag.com*, October 17, 2020 (<https://rb.gy/krdqta>).



## Mimicking photosynthesis to obtain solar fuel

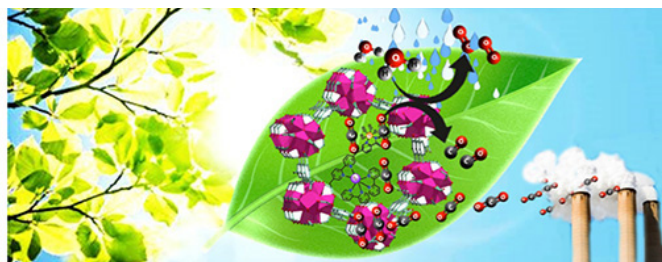


Fig.1 - CO<sub>2</sub> capture and conversion in aqueous medium under direct sunlight (Artificial Photosynthesis)

The natural process of photosynthesis can efficiently reduce carbon dioxide in the atmosphere. Scientists have proposed the method of artificial photosynthesis (AP), which mimics the natural photosynthesis process, to harnesses solar energy and convert the captured carbon dioxide to carbon monoxide (CO), which can be used as a fuel for internal combustion engines. However, a good catalyst for successful and efficient AP has been lacking. To address this requirement, Prof. Tapas Maji & team from JNCASR designed and fabricated an integrated catalytic system based on a metal-organic framework. This framework (MOF-808) comprises of a photosensitizer that can harness solar power and a catalytic centre that can eventually reduce carbon dioxide. This recently published work advances the field in setting up efficient AP systems for solar fuel production.

### Publication details:

- Karmakar, S., et al. (2021). Covalent grafting of molecular photosensitizer and catalyst on MOF-808: effect of pore confinement toward visible light-driven CO<sub>2</sub> reduction in water. *Energy & Environmental Science*, 14, 2429-2440. <https://doi.org/10.1039/D0EE03643A>.

### News reported by:

- DST Vigyan Samachar, March 17, 2021 (<https://rb.gy/yazx7q>).
- Press Information Bureau, March 18, 2021 (<https://rb.gy/bexwxl>).
- The Times of India, March 18, 2021 (<https://rb.gy/o0l9g9>).

## JNCASR Startup Company won National Award

On the occasion of National Technology Day on May 11, 2021, JNCASR Startup Company Breathe Applied Sciences Pvt. Ltd, Bengaluru won National Award for Technology Start-Ups from Technology Development Board (TDB), Department of Science & Technology (DST), Govt. of India. The novel CO<sub>2</sub> reduction technology developed by the company has the capacity of converting 300 kg of CO<sub>2</sub> per day into methanol & other useful chemicals.



Fig. 2 - CO<sub>2</sub> Recycling Facility of Breathe Applied Sciences Pvt. Ltd.

# New Appointments, Promotions & Additional Responsibilities

### Visiting Scientists

- Prof. Sutapa Roy, Indian Institute of Technology, Gandhinagar
- Dr. Avanish Kumar, ICTS, Bengaluru

### Promotions

- Prof. Subi J. George was promoted as Professor
- Prof. T. Govindaraju was promoted as Professor
- Prof. Kavita Jain was promoted as Professor
- Prof. Ranjan Datta was promoted as Professor
- Prof. James P. C. Chelliah was promoted as Associate Professor

### Additional Responsibilities

- Prof. K. R. Sreenivas, Dean, R & D
- Prof. Ganesh Subramanian, Chairperson, EMU
- Prof. Subi J. George, Chairperson, NCU
- Prof. T. Govindaraju, Chairperson, ETU
- Prof. Kaustuv Sanyal appointed as Vigilance Officer
- Prof. M. Eswaramoorthy, Chairperson of the Investment Committee
- Prof. James C. Chelliah, Faculty In-charge, Sports Facility
- Prof. Hemalatha Balaram, Chairperson of Internal Grievance Committee
- Prof. M. Eswaramoorthy, Chairperson of Website Management Centre
- Prof. N.S.Vidhyadhiraja, Nodal Officer for celebration of the Constitution Day & Event Coordinator for celebration of Golden Jubilee Year of DST at the Centre

- Prof. M.R.S. Rao, Chair, IP Management Committee
- Prof. Kavita Jain, TSU, as Nodal Officer, Gender Advancement for Transforming Institutions (GATI)
- Mr. K. Bhaskara Rao, Sr. Stores & Purchase officer, as Record Officer of the Centre

### New Appointment

Mr. M.R. Chandrasekhar was appointed as Coordinator (Security, Legal & Campus Maintenance)

### Re-designation of Medical Officers

Dr. G. R. Nagabhushan, Consulting Medical Officer has been re-designated as Chief Medical Officer and Consulting Lady Medical Officers as Medical Officers.

### Research Associates

- Dr. Saraswathi C.
- Dr. Swanand Vishnu Solanke
- Dr. Jayita Pradhan
- Dr. Arpita Paul
- Dr. Sohini Basu Roy
- Dr. Radha Krishna Gopal
- Dr. Anzar Ali
- Dr. Anita Devi
- Dr. Pratibha Kumari

### Research Associates (Provisional)

- Ms. Shagufi Naz Ansari
- Ms. Arpita Sen
- Mr. Bharath B.
- Ms. Mahima Makkar
- Mr. Abhiroop Lahiri
- Mr. Tanay Paul
- Ms. Neha Bothra
- Mr. Sourav Samanta
- Ms. Chaitali Sow
- Mr. Kousik Das

# Research Highlights

## A novel drug candidate for the treatment of Alzheimer's

A team led by Prof. T. Govindaraju from JNCASR developed a set of novel small molecules, of which the small molecule TGR63 was shown to suppress amyloid beta toxicity, which is involved in pathogenesis of Alzheimer's disease (AD). Moreover, the efficacy of this molecule in disrupting the mechanism of neuronal dysfunction in AD was shown by in vivo studies using a mouse model. Thus, the TGR63 molecule could be a promising drug candidate to treat AD, which remains the leading cause of dementia worldwide.

- Samanta, S., et al. (2021), Naphthalene monoimide derivative ameliorates amyloid burden and cognitive decline in a transgenic mouse model of Alzheimer's disease. *Advanced Therapeutics*, 4, 2000225. <https://doi.org/10.1002/adtp.202000225>.

### News reported by:

- The Federal, February 25, 2021 (<https://rb.gy/pbssrc>).
- The Indian Express, February 25, 2021 (<https://rb.gy/eseayq>).
- The Times of India, February 26, 2021 (<https://rb.gy/hgkkg5>).
- The Pioneer, February 26, 2021 (<https://rb.gy/yajqgb>).

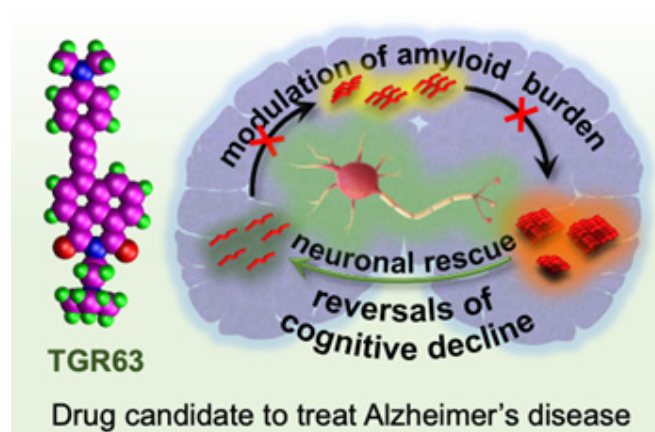


Image Source: Samanta et al 2021

## New insights into self-assembly of particles shed light on the dynamics in living cells

A team of scientists from JNCASR and IISc, Bengaluru, recently demonstrated that the nature of the chiral activity of millimetre-sized rice-shaped grains can be tuned with the help of 3D printing. The team showed that chirality alone can bring about selectivity and recognition between interacting particles, thereby opening up the possibility of inducing self-assembly of matter and investigating their consequent dynamic behaviour by imparting constituents with chiral activity. These findings could have great implications in asymmetric catalysis, supramolecular polymerization, medicinal drug designing, and separation where self-recognition, sorting, and discrimination of molecules are required.

- Arora, P., et al. (2021). Emergent stereoselective interactions and self-recognition in polar chiral active ellipsoids. *Science Advances*, 7, eabd0331, <https://doi.org/10.1126/sciadv.abd0331>.

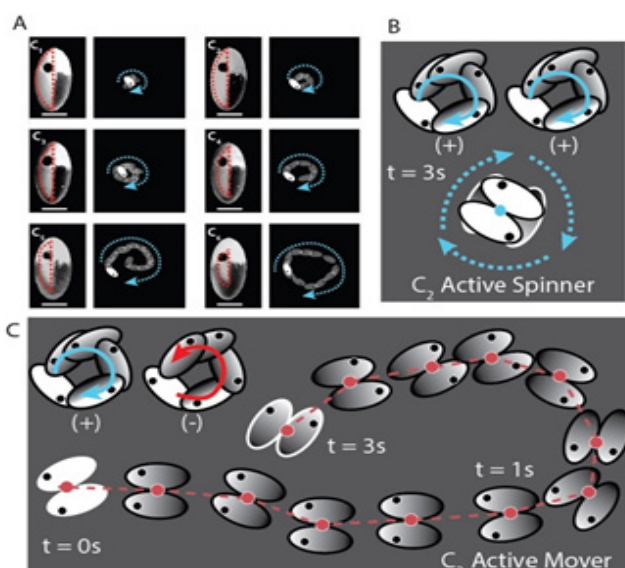


Fig. A. Left: Snapshots of 3D-printed chiral active ellipsoids for six different left-right mass asymmetries. The red dashed lines show the hollowed-out portion of the particle. Right: Superimposed snapshots showing a nearly circular path traced by the ellipsoids under vertical agitation. The snapshot of the ellipsoid at  $t = 0$  s is shown in white. The blue arrows indicate the handedness of the orbit. Scale bars, 3 mm. (B and C) Superimposed snapshots of a representative active spinner and movers, respectively. The spinner is made of two clockwise (+) monomers, while the mover is composed of a clockwise (+) and anticlockwise (-) monomer [top left in C and, while the spinner is made of two (+) monomers (B). Note that the spinner has a net clockwise (+) motion (blue dashed arrow), same as that of its components, and is localized in space.

### News reported by:

- Press Information Bureau, March 31, 2021.
- DST S&T articles.
- DD News website, April 01, 2021.
- DD News Twitter post, April 01, 2021.
- Devdiscourse.com, April 01, 2021.

## Discovery of a novel molecule that connects the outer kinetochore to centromeric chromatin

The human pathogen *Cryptococcus neoformans* causes fungal meningitis and fungal pneumonia and is responsible for more than 200,000 deaths each year, with the infected patients majorly comprising individuals with AIDS. Kaustuv Sanyal and his team from JNCASR recently reported the discovery of a new set of proteins in this microorganism. One of them, named as Bridgin, was demonstrated to be essential for precise chromosome segregation in the fungus. Interestingly, Bridgin was also found to be related to a human tumour cell proliferation marker protein Ki67. Furthermore, based on the presence of Bridgin homologs in non-fungal lineages, the study suggested the existence of an ancient divergent strategy to bridge the outer kinetochore with centromeric chromatin. These findings provide a basis for further understanding the pathogen as well as to further investigate the kinetochore system.

- Sridhar, S., et al (2021). Bridgin connects the outer kinetochore to centromeric chromatin. *Nature Communications*, 12, 146. <https://doi.org/10.1038/s41467-020-20161-9>.

# ACADEMIC ACTIVITIES



## Mid-Year Admissions (January 2021)

Online applications for M.S. & Ph.D. programmes were received during November 11–30, 2020, and interviews were conducted online during December 07–15, 2020. Of the 343 applications received, 78 candidates were called for interviews. Of the 75 candidates who attended the interviews, 10 were offered admissions and 8 joined the program (7 men and 1 woman). Thus, the selection rate is 3% and acceptance rate is 80%.

## Regular Admissions (August 2021)

Online applications for admissions to Ph.D./Int. Ph.D./M.S. (Engg.)/MS (Research) and M.Sc. Chemistry were received from February 28 to April 19, 2021. Overall, 2809 applications have been received [Ph.D./M.S. (Engg.)/MS (Research) 1776, Int. Ph.D. 819, and M.Sc. Chemistry 214]. The online written tests and interviews are scheduled to be held between May 20, 2021 and June 21, 2021.

## Degrees Awarded in 2021 (since last CoM meeting dated 18.9.2020)

- During the CoM meeting held on March 19, 2021 the following number of degrees were awarded: 15 Ph.D., 02 M.S.(Engg.), and 03 PGDMS degrees.

## Current Status and Schedule of Academic Activities (2021)

- Twenty-nine courses of the January–April term are being taught via online mode presently.
- All Ph.D. /Int. Ph.D./M.S.(Engg.) students who completed their stipulated term have been given an extension of six months to complete course requirements due to the Covid-19 pandemic.

## Summary of On-roll Students as on April 2021

- There are 197 Ph.D., 13 M.S.(Engg.), 95 Int. Ph.D., 01 MS-PhD., 09 M.Sc. Chemistry, and 02 PGDMS students, making the total number of students on-roll 317.

## Intellectual Property

### Patents Granted

#### Indian Patent Office Issued:

- Patent (No. 359950) for 'Hybrid Cyclic Peptoids, Synthesis and Applications Thereof' developed by Profs. Govindaraju Thimmaiah, Ravi Manjithaya *et al.*
- Patent (No. 354729) for 'A Composition and Methods Thereof' developed by Prof. Eswaramoorthy Muthusamy *et al.*
- Patent (No. 329812) for 'Antimicrobial Compounds, Their Synthesis and Applications Thereof' developed by Prof. Jayanta Haldar *et al.*

#### US Patent Office Issued:

- Patent (No. 10,683,273) for 'Compounds as DNA Probes, Methods and Applications Thereof' developed by Prof. Govindaraju Thimmaiah *et al.*
- Patent (No. 10,544,167) for 'Compounds as Stimuli-Responsive Probes, Methods and Applications Thereof' developed by Prof. Govindaraju Thimmaiah *et al.*

#### Brazilian Patent Office Issued:

- Patent (No. BR112015014391-1) for 'Antimicrobial Compounds, Their Synthesis and Applications Thereof' developed by Prof. Jayanta Haldar *et al.*

#### European Patent Office Issued:

- Patent (No. 3341384) for 'Compounds as Stimuli-Responsive Probes, Methods and Applications Thereof' developed by Prof. Govindaraju Thimmaiah *et al.*

### Patent Applications Filed

#### Two Indian Provisional Patent Applications Filed For The Inventions Developed By:

- Prof. Taps Kumar Maji *et al.* (Patent Appl. No. 202041055639, filed on 21/12/2020).
- Prof. Sridhar Rajaram *et al.* (Patent Appl. No. 202141007142, filed on 19/02/2021).

#### Two International Patent Applications Filed Under PCT:

- 'Process for Purification of Hydrocarbons' developed by Prof. Tapas Kumar Maji *et al.* (No. PCT/IN2021/050040, filed on 15/01/2021).
- 'Phenanthroline, Carbazole and Flavylium based Cyanines and Compositions and Methods of Making and Using the same' developed by Prof. Govindaraju Thimmaiah *et al.* (No. PCT/IB2021/051887, filed on 06/03/2021).



# Awards and Accolades

## By Faculty Members

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

- Eni International Award for Research in Energy Frontiers
- Received the National Youth Day Award 2021 from Bharat Seva Samvad, Surat, Gujarat for dedicating a lifetime to the service of India through Science, Research, and Technology and making India proud globally
- Received Honoris Causa Doctorate from the Assam Royal Global University, Guwahati

### Prof. Amitabh Joshi

- A newly discovered/described ant species from Kerala was named *Ooceraea joshii* in his honour, in 2021

### Prof. Shobhana Narasimhan

- Received Marshak Lectureship for 2021 by the American Physical Society

### Prof. T. Govindaraju

- Health & Wellbeing Winner, Commonwealth Chemistry Posters – Building the Partnership, Commonwealth Chemistry, The Federation of Chemical Sciences Societies

### Prof. Ravi Manjithaya

- Received the S. Ramachandran National Bioscience Award for Career Development 2020–21

## Memberships

### Prof. Giridhar U. Kulkarni

- Member, Academic Council, IACS, Kolkata
- Member, Vision Group on Nanotechnology, Department of IT, BT, S&T, Govt. of Karnataka

### Prof. Maneesha Inamdar

- Convenor of INSA-Bangalore Chapter (2021-2024)

### Prof. Kavita Jain

- Associate Editor of *International Journal of Genetics* (since Dec 2020)

### Prof. Kanishka Biswas

- Editorial Advisory Board Member of *Material Horizons*, RSC
- Editorial Advisory Board Member of *JACS Au*, ACS

### Prof. Ranjani Viswanatha

- Member of the Editorial Advisory Board of *ChemPhotoChem*

## Fellowships

### Prof. Giridhar U. Kulkarni

- Honorary Fellowship of Karnataka Science & Technology Academy

### Prof. S.M. Shivaprasad

- Honorary Fellowship of Karnataka Science & Technology Academy

### Prof. Subi J. George

- Fellow of Royal Society of Chemistry (FRSC); invited under leaders in the field category

### Prof. T. Govindaraju

- Fellow of Royal Society of Chemistry (FRSC), Royal Society of Chemistry (London)

## Awards and Medals received by students

- **Ms. Vijaya Verma** (Ph.D. student, Neuroscience Unit, research supervisor: Dr. James Chelliah) received the Travel Award to attend the 44<sup>th</sup> Annual Meeting of the Japan Neuroscience Society to be held in July 2021.
- **Dr. Sangeeta Dutta** (DBT-Research Associate I, Molecular Biology & Genetics Unit, research Supervisor: Prof. M.R.S Rao) received the AWSAR award of DST on February 28, 2021 on the occasion of National Science Day.
- **Dr. Ritu Gupta** (alumnus; research supervisor: Prof. G.U. Kulkarni) received the SERB Women Excellence Award 2021.
- **Ms. Revathe T.** (Ph.D. student, Evolutionary and Integrative Biology Unit, (research supervisor: Prof. T.N.C. Vidya) was awarded an abstract prize by the International Society of Behavioural Ecology.

# Memorandum of Understanding

Since November 2020, MoUs were signed with Clevergene Bicrop Pvt. Ltd., ICAR - National Bureau of Agricultural Insect Resources (ICAR - NBAIR) and YourDost Health Solutions Pvt. Ltd. A renewal of MoU was also signed with Manipal Northside Hospital. A Non-Disclosure Agreement was signed with M/S. Boyce Biosynthesis.

# Obituary



**Prof. Roddam Narasimha, FRS**, Member of Council of Management & General Body and an eminent researcher in aeronautics and fluid dynamics, passed away on December 14, 2020. Prof. Narasimha was associated with our Centre right from its inception in various capacities, contributing immensely towards the Centre's academic and research programmes. He was instrumental in setting up the Fluid Dynamics Unit (now known as Engineering Mechanics Unit). Over the years, with his vast knowledge and experiences in various fields, Prof. Narasimha made invaluable contributions towards the academic growth of the Centre. The Centre while conveying heartfelt condolences to the family expressed grief and prayed for the departed soul.

# ■ Outreach Activities

## Education Technology Unit

- The programmes organized and conducted by the ETU and C.N.R. Rao Hall of Science are listed below. All programs were held via Google Meet and YouTube live.
- November 20, 2020: *Interactive Lecture Program in Mathematics* was organized wherein the lecture was delivered by Smt. Seethalakshmi M. R., followed by a Q&A session. Approximately 300 students and 24 teachers participated in the program.
- December 10, 2020: *Science Outreach Program for Teachers* was organized for teachers of Classes X, XI, and XII. A lecture was delivered by Prof. S. M. Shivaprasad (Director, KHEA/Professor, JNCASR), followed by a Q&A session. Approximately 149 teachers participated in the program.
- December 29, 2020: *Learning Chemistry Through Experiments* was organized, wherein Chemistry Experiments were demonstrated by Dr. K. Pramoda, JNCASR, followed by a Q&A session. Approximately 298 students and 22 teachers participated in the program.
- 08 Jan 2021: *Interactive Lecture Program in Biology* was organized wherein lecture was delivered by Prof. Ravi Manjithaya, JNCASR, followed by a Q&A session. Approximately 170 students and 16 teachers participated in the program.
- 22 Jan 2021: *Learning Physics Through Experiments* was organized wherein physics experiments were demonstrated by Prof. N. S. Vidhyadhiraja, JNCASR, followed by a Q&A session. Approximately 385 students and 15 teachers participated in the program.
- 5 Feb 2021: *Interactive Lecture Program in Biology* was organized wherein lecture was delivered by Dr. Shashank Tripathi, IISc, followed by a Q&A session. Approximately 320 students and 49 teachers participated in the program.
- 28 Feb 2021: *NATIONAL SCIENCE DAY @ JNCASR* was organized in association with Fellowships and Extensions Programme, wherein two special lectures were delivered by Dr. Bivas Saha and Dr. Sebastian C. Peter and one experimental demonstration session was conducted by Prof. N. S. Vidhyadhiraja, JNCASR. This was followed by a Q&A session. Approximately 180 students and 31 teachers participated in the program.

**Number of events organized: 07**

**Number of students who participated: 1653**

**Number of teachers who participated: 306**

# ■ Fellowships & Extension Programmes

All the F&E outreach activities for 2021 such as SRFP, POCE, POBE, Visiting Fellowship Programme (VFP), Students Buddy Programme, Institutional Visit Programme, and Graduate Research Internship Programme have been suspended in view of the resurging Covid-19 pandemic.

Meanwhile, the students selected for SRFP-2020, POCE and POBE for 2018 and 2019 and faculty members/scientists selected for VFP-2019 have been advised to complete the programme online in consultation with their respective guides.

# ■ Past Events

## Endowment Lectures

- **A.V. Rama Rao Foundation Lecture in Chemistry 2020** was organised in JNCASR on January 12, 2021. The speaker of this lecture was Prof. Ruchi Anand from IIT Bombay, Mumbai and the title of her talk was "*Probing Mechanisms of Targeting and Allostery to Attain Specificity in Enzymatic Reactions*". In addition, the Prize Lecture, titled "*Swarm Intelligence Guided Global Minima Search on Complex Potential Energy Surfaces*", was delivered by Dr. R. S. Swathi from School of Chemistry, IISER Thiruvananthapuram.
- **Prof. V. Ramalingaswami Memorial Lecture in Biological Sciences** was organized at JNCASR on February 26, 2021. The speaker of this lecture was **Prof. Gagandeep Kang**, FRS, from the Wellcome Trust Research Laboratory, Division of Gastrointestinal Sciences, Christian Medical College, Vellore, Tamil Nadu, and the title of her talk was "*Virus, Vaccines and Variants*". This online event was live-streamed on the YouTube channel of JNCASR and was also open for participation via WebEx.

## Celebrations & Inauguration

### Celebration of Constitution Day at JNCASR:

To mark the occasion of Constitution Day (Samvidhan Diwas), a series of programmes was organised in JNCASR from November 22-25, 2020, including a running event, quiz contest, essay contest, and a webinar. In the webinar, Dr. H. K. Nagaraja from National Law School of India delivered a talk on "*Constitution of India - A Common Man's Perspective*".



On November 26, 2020, faculty members, staff, and students at JNCASR read the pledge along with the Hon'ble President of India, Shri Ram Nath Kovind.



The live streaming of the address by the Hon'ble Prime Minister Shri Narendra Modi on the occasion of Samvidhan Diwas at the 80<sup>th</sup> All India Presiding Officers' Conference in Kevadia, Gujarat on November 26, 2020 was viewed at JNCASR. The event was watched by the President, JNCASR along with other officers.

**Inauguration of the Fire Hydrant System at JNCASR:** A campus-wide installation of the Fire Hydrant System was recently completed. On January 20, 2021, Prof. G. U. Kulkarni, President, JNCASR inaugurated the System at a ceremony, followed by a demonstration of the System.



In images Prof. G.U. Kulkarni inaugurating the Fire Hydrant System at JNCASR.

**National Science Day on February 28, 2021:** F&E office in association with C.N.R. Rao Hall of Science and Education Technology Unit celebrated *National Science Day* on February 28, 2021. Prof. N. S. Vidhyadhiraja, Dean F&E, Dr. Bivas Saha, NCU and Prof. Sebastian C. Peter, NCU, gave lectures on various scientific topics as a part of the celebration.

**International Women's Day on March 08, 2021:** F&E office in association with C.N.R. Rao Hall of Science and Education Technology Unit celebrated International Women's Day on March 08, 2021. Dr. Jahnvi Phalkey, Director Science Gallery, Bangalore gave a lecture entitled "Why History of Science?" as a part of the celebration.

## Lectures, Meetings, Conferences, and Events

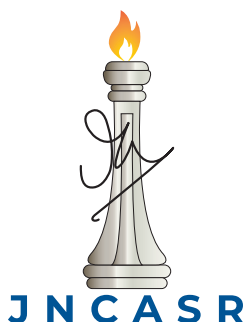
- The Annual Faculty Meeting and In-House Symposium (IHS-2020) was held during November 26-27, 2020. For the first time, the event was held in hybrid-mode comprising talks, posters, and additional associated activities that could be participated either online or in-person. Online poster sessions were hosted during the afternoons of November 23 to 25, 2020. Annual Faculty Meeting took place on forenoon of November 26, followed by the In-House Symposium. Speakers were Profs. Hemalatha Balam, H. Ila, Srikanth Sastry from JNCASR and Milan K. Sanyal from DAE - Saha Institute of Nuclear Physics, and Jyotirmayee Dash from Indian Association for the Cultivation of Science, Kolkata. There were a total of 9 sessions comprising 33 scientific talks by faculty members and students of the Centre. The event was streamed live on YouTube and was participated online over Microsoft Teams. Awards for best talk and poster were also announced in appreciation of the high quality of scientific presentations. Degree award ceremony was also held on November 26, 2020. Prof. G.U. Kulkarni, President, JNCASR distributed the degree certificates to the graduating students.
- International Winter School 2020 on Frontiers in Materials Science was held from December 07-11, 2020. The conveners were Prof. M. Eswaramoorthy and Prof. Umesh V. Waghmare.
- The 10<sup>th</sup> Sheikh Saqr Materials Online Lecture on "Developing and applying new tools to understand how materials for Li and "Beyond-Li" battery technologies function" was given by Prof. Clare P. Grey, University of Cambridge, UK, on December 8, 2020.
- The Curtain Raiser Programme of 6<sup>th</sup> India International Science Festival 2020 and Public Outreach Lectures were jointly organised by JNCASR and Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru on December 11, 2020.
- The JNCASR-FCBS Workshop for college chemistry students and teachers was conducted online from December 15-17, 2020. Talks were delivered by a few faculty members of NCU along with scientists from IISER Trivandrum.
- The CPMU Silver Jubilee Conference and the First CNR Rao Materials Lecture were held on December 18, 2020.

In addition to the above events, 11 other online events were organised including seminars, lectures, webinars, workshops and meetings.

## Upcoming Events

- JNCASR Annual Faculty Meeting and In-house Symposium is scheduled to be held on November 15-16, 2021.
- International Winter School 2021 on Frontiers in Materials Science has been scheduled from December 6-10, 2021.

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