



# The National Academy of Sciences, India (NASI)

5, Lajpatrai Road, Prayagraj-211002, India

## Monthly Summary for the month of October 2021

- Commemorating the **RASHTRIYA POSHAN MAAH** in September 2021, several programmes were organised by the NASI & its Chapters. The programme culminated on Sept. 30; therefore, a brief report is enclosed for kind information/further dissemination (**Annex. 1**).

The Kerala Chapter of the NASI also celebrated the '**World Food Day**' on October 16; and a very informative & illustrative talk was delivered by Prof. B. Mohan Kumar, Vice-Chancellor, Arunachal Pradesh University. The webinar was attended by several fellows and members of the Academy.

- A **National Webinar** was organised under the auspices of the NASI-Kerala Chapter in association with the Deptt. of Biosciences, Union Christian College, Aluva on '**Gene Editing: Definition and Perspectives**', on Saturday, October 09, 2021; the talk was delivered by Prof. Anjan K. Banerjee, Dean (R&D), IISER, Pune, and several eminent scientists, biotechnologists, entrepreneurs and students attended the webinar.
- The Academy also celebrated '**Azadi ka Amrut Mahotsav**' by organising several other scientific programmes through its Chapters. The NASI-Delhi Chapter took a lead in organising such programmes by involving thousands of students in several subject specific webinars (please see the details, as **Annex. 2**), held from August to October 2021. The lectures were very much liked by the students; and were also disseminated in different other groups of students for the sake of scientific awareness and enrichment of the knowledge bank.
- A series of national webinars was started in the last week of October by the NASI-Bhopal Chapter on different **wild life issues and the conservation of natural resources/habitat** (please see **Annex. 3**); which are being attended by hundreds of students and the teachers.
- About **21 Web meetings** were organised by the NASI-HQ, to select/elect the suitable scientists for the **NASI Fellowships and different prestigious Awards** in this month.

Several other NASI Chapters also organized online scientific activities.



## The National Academy of Sciences, India (NASI)

### Commemorating the RASHTRIYA POSHAN MAAH-September 2021

#### A Brief Report

The National Academy of Sciences, India (NASI), the oldest Science Academy of this country has a mandate ‘Science & Society’ as coined by the founder President Prof. Meghnad Saha. NASI has been executing several nationwide programmes since its inception in 1930 for the general as well as the rural masses to address the problems of society; and providing scientific solutions to those problems in pursuit of its mandate. Malnutrition is one such problem, on which NASI has been working since long, especially for the rural and underprivileged ones. NASI implemented a nationwide programme on POSHAN in September, 2020 under NASI’s New Initiatives (Chairman: Dr. (Mrs.) Manju Sharma, NASI-DST Distinguished Woman Scientist Chair, Former Secretary to the Govt. of India, DBT), soon after the announcement made by Hon’ble PM to celebrate the POSHAN MAAH to ensure community mobilisation and reinforce people’s participation to address and overcome the challenges of malnutrition.

The following events were organised by NASI, on WEB to commemorate the month of September 2021 as *Rashtriya POSHAN Maah*. These events were also a part of *Azadika Amrit Mahotsav*, an initiative by the Govt. of India to celebrate 75 years of country’s independence:

#### 1. Webinar on ‘Food-based Remedies to Nutritional Maladies’ jointly organised by NASI & ICMR-NIN, Hyderabad on Sep 23, 2021

NASI organized a Webinar on ‘**Food-based Remedies to Nutritional Maladies**’ in joint collaboration with ICMR-NIN, Hyderabad on **Sep 23, 2021** to commemorate the month of September 2021 as Rastriya POSHAN Maah under its POSHAN Programme.

The event was joined by several eminent dignitaries including Prof. V P Kamboj, Past president, NASI, Dr. V.M. Katoch, Former DG, ICMR, Prof. Chandrima Shaha, President, INSA, Delhi, Dr. Suchitra Banerjee, NASI Senior Scientist, CSIR-CIMAP, Lucknow, Dr. Ritu Trivedi, CSIR-CDRI, Lucknow.

At the outset, **Dr. Niraj Kumar**, Executive Secretary, NASI, welcomed all the dignitaries present on the occasion. Referring to the prevalence of malnutrition in our country, he highlighted the role and importance of nutrition; and also talked about NASI’s efforts to tackle this problem, especially for the women and children in rural areas.

**Dr. (Mrs.) Manju Sharma**, Former Secretary to the Govt. of India, DBT; Past President, NASI; NASI-DST Distinguished Woman Scientist Chair gave *Introductory Remarks*. While stating the relevance of NASI’s Science & Society programmes, she gave the genesis of the POSHAN programme, the events organized; and the projects being executed by NASI under this initiative.

**Dr. R Hemalatha**, Director, ICMR- National Institute of Nutrition, Hyderabad shared her views on ‘*Policy implications of Nutrient Requirements- the RDA and EAR*’. She highlighted the importance of micronutrient requirement with reference to the Recommended Dietary Allowance and Estimated Average Requirement; and portrayed a comparative analysis of nutrient intake between rural and urban population.

**Dr. G Bhanuprakash Reddy**, Scientist G, ICMR- National Institute of Nutrition, Hyderabad spoke on '*Biochemical and functional evidence of micronutrient deficiencies*'. He presented a detailed account of micronutrient deficiencies and the diseases associated with these deficiencies.

**Dr. Mahtab S Bamji**, INSA Emeritus Scientist, Dangoria Charitable Trust, Hyderabad; Director Grade Scientist (Retd.), ICMR- National Institute of Nutrition, Hyderabad spoke on '*Nutritionally sensitive and environmentally sustainable agriculture for household food security*'. Describing the four pillars of food security, viz. availability, access, utilization and stability she suggested a way forward to achieve this security. She also mentioned about the efforts made/ steps taken by the Dangoria Charitable Trust in this direction.

**Dr. B DayakarRao**, Principal Scientist, ICAR- Indian Institute of Millets Research, Hyderabad spoke on '*Nutritional importance of Millets*'. Sharing detailed information on the nutritional importance of millets, Dr. Rao highlighted its role in combating various diseases, especially, the diabetes, colon cancer and cardiovascular diseases.

The poster is for a webinar titled "NASI-NIN Webinar on 'Food-based Remedies to Nutritional Maladies'". It commemorates the Rashtriya POSHAN Maah in September 2021. The event is scheduled for September 23, 2021, at 11:00 am. The poster features a central image of a plate of diverse food items, including fruits, vegetables, grains, and proteins, with the slogan "One Nutrition, One Nation" below it. Surrounding the central image are portraits of seven speakers: Dr. G Bhanuprakash Reddy, Dr. Mahtab S Bamji, Dr. B DayakarRao, Dr. K Madhavan Nair, Dr. Ch Monan Rao, Prof. (Mrs.) Manju Sharma, and Prof. V. P. Kamboj. Logos for NASI and ICMR-NIN are in the top corners. A URL for joining the webinar is provided at the bottom: <https://nasi.webex.com/nasi/j.php?MTID=m71b711ed3ac61e851c1b15e746911a3>

**Dr. K Madhavan Nair**, Scientist F (Retd.), ICMR-National Institute of Nutrition, Hyderabad; Chairperson, Scientific Panel on Labelling & Claims/Advertisements, FSSAI spoke on '*Food synergy as a public health strategy to improve bioavailability of micronutrients*'. He suggested various ways and approaches for enhancing the bioavailability of various micronutrients.

**Dr. Ch Monan Rao**, Former Director, CSIR, Centre for Cellular and Molecular Biology, Hyderabad summing up the entire proceedings gave his *Concluding Remarks* and stressed the need to spread awareness and disseminate knowledge to combat malnutrition.

A general discussion was held among the experts. Prof. (Mrs.) Manju Sharma stressed on the need of having multi-institutional and interdisciplinary programmes on Nutrition; and suggested NIN, Hyderabad to come forward in implementing such programmes of which NASI could be a part. She further recommended taking up a small programme on *malnutrition* for poor/school children of Hyderabad and other areas of Andhra Pradesh to be jointly executed by NASI & Hyderabad Local chapter. Prof. V. P. Kamboj suggested to promote/spread more awareness on state/ area specific dietary intake (food) having nutritional value. Dr. Dayakar Rao invited NASI and proposed that NASI should work on promoting the millets, a rich source of nutrition.

At the end, **Ms Archana Pant**, YWS, NASI expressed her gratitude to all for their support and contribution to this event.

## 2. Webinar on 'POSHAN' jointly organised by NASI &NER Chapter on Sep 30, 2021

NASI organized another event on 'POSHAN' in joint collaboration with ICMR-NIN, Hyderabad on Sep 23, 2021.

The event was joined by 250 participants on WEB including the students and researchers from universities and several eminent scientists/ dignitaries including Prof. V. P. Kamboj, the Past President of NASI, Prof. P.K. Seth, NASI Senior Scientist, Former CEO, Biotech Park, Prof. Pramod Tandon, CEO, Biotech Park, Lucknow, Prof. Veena Tandon, Former General Secretary of NASI, Dr. Subhra Chakraborty, Director, NIPGR, New Delhi, Dr. Ritu Trivedi, CSIR-CDRI, Lucknow, Dr. R. D. Tripathi, NASI Senior Scientist, NBRI, Lucknow.

The *Welcome Address* was delivered by **Prof. Anupam Chatterjee**, Chairman, NER Chapter of NASI.


**Prof. S.R. Joshi**, Secretary, NER Chapter talked about *NASI and NE relevance* and gave a brief account of scientific works and activities relevant to Science & Society being carried out by the NER Chapter in disseminating the scientific knowledge in NE region, conducting awareness and training programmes on mushroom cultivation, vermicomposting, developing fertilizers, especially for the tribal people; also the efforts made by the Chapter to spread awareness on COVID-19 Appropriate behaviour and expressed hope to further visit the interior parts of the region.

**Prof. P.S. Shukla**, Vice-Chancellor, NEHU, Shillong in his *Opening remarks*, focused on the holistic nutrition to ensure a healthy future of women and children and developing a sustainable food system which involves production, processing, preparation and distribution.

**Prof. (Mrs.) Manju Sharma**, Former Secretary to the Govt. of India Department of Biotechnology, New Delhi; Chairperson, NASI New Initiatives, while delivering her *Inaugural address*, stressed on the importance of good nutrition required for enhancing the economic productivity, national security and making India self-reliant. She also portrayed statistics on malnutrition of women and children in India.




**Dr. M.S. Lakshmi Priya**, Deputy Commissioner, Bongaigaon District, Assam, talked on '*Project SAMPOORNA- Community management of malnutrition and empowerment of mothers in Bongaigaon district, Assam*'. Providing an overview of the project *Sampoorna*, an initiative by the district administration of Bongaigaon district of Assam to tackle the problem of severe malnutrition among the children of the district and also spreading awareness among the women, especially the pregnant women and lactating mothers regarding their nutritional requirement, she talked in detail about its genesis, vision and mission, structure, various levels under which the project is being operated, and activities being organized under the project; formation of SHGs involving the women, the innovation aspect and income generation for the women/ mothers to make them self-reliant.

**Ms. Mandari M. Blah**, Assistant Professor, St. Mary's College, Shillong, spoke on '*Incorporating indigenous super foods in our daily diet*'. Narrating the concept of traditional and indigenous food, she stressed on the importance of indigenous food as good source of micro nutrients and portrayed detailed nutritional information of various locally available varieties of foods used by the indigenous tribal groups adding how the variety of wild edibles used by the local tribes could be a good source of nutrition.



**Webinar on POSHAN- Commemorating the Rashtriya POSHAN Maah/ Azadi ka Amrut Mahotsav**  
jointly organized by NASI HQ & NER Chapter

Inaugurated by  
**Prof. (Mrs.) Manju Sharma**  
Former Secretary to the Govt. of India, DBT; Past President, NASI; NASI-DST Distinguished Woman Scientist Chair

**Date: Sep 30, 2021 Time: 11:00 am-2:00 pm**

Meeting link: <https://nas.webex.com/nas/l.php?MTID=m2222f86c0d65d3450b800b8c7a7454b>

**Prof. Madhoolika Agrawal**, Head, Department of Botany, BHU, Varanasi; Chairman NASI Varanasi Chapter spoke on '*NASI's Efforts*'. She gave a detailed account of the work done under a project on POSHAN and the efforts made by Varanasi Chapter to spread awareness about nutrition, cultivating the nutri/ kitchen gardens; and distribution of nutrient supplements and seeds of vegetables among the rural people in the Koori and Dadra villages of Mirzapur district for cultivating the nutri-gardens. She also briefed about another NASI-sponsored project, executed in Jayapura, Rajgarh and Barachcha villages of Mirzapur under ST sub-plan for spreading awareness among the tribal people regarding the importance of underutilised nutritional food crops available in and around these villages; and portrayed nutritional data of these crops with reference to macro and micro nutrients.

**Dr. Niraj Kumar**, Executive Secretary, NASI presenting an *Overview of the events* organized by NASI, suggested that the local Chapters of NASI should work on the local projects (under NASI's New Initiatives/ Science and Society banner) focusing on area/ region specific problem of malnutrition; and using locally available herbs/ fruits/ vegetables to combat the problem of malnutrition and spreading the message using the local dialect.

A few suggestions were also made by the experts. Prof. Mrs Manju Sharma suggested organizing a programme on Biodiversity/ POSHAN in Sikkim. Dr. Subhra Chakraborty suggested that the students from North-eastern region can join a lecture series started by Human Development Cell of NIPGR and NIPGR could be associated with NASI in the programme on 'Nutrition'. Prof. P.K. Seth suggested having details/information on the nutritional aspects of *Moringa* to be added in future programmes; and also to make a booklet on POSHAN to be used in future training programmes.

At the end, **Ms. Archana Pant**, YWS, NASI, proposed the *Vote of thanks*, expressing her gratitude to all for their efforts and support to make the event successful.



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## School Outreach Program

jointly organized by

**The National Academy of Sciences India - Delhi Chapter**  
**Deen Dayal Upadhyaya College (University of Delhi)**  
under the aegis of DBT Star College Program

**Special Public Webinar**  
**August 23, 2021 at 04:30 pm**  
**Einstein and  $E=mc^2$**

**Professor Ajoy Ghatak**

President - The National Academy of Sciences, India  
Meghnad Saha Fellow of NASI (The National Academy of Sciences, India)



Ajoy Ghatak is currently Professor Meghnad Saha Fellow of NASI (The National Academy of Sciences, India). He received his BSc from Agra College, M.Sc from Delhi University and PhD from Cornell University. After a short tenure as a Research Associate at Brookhaven National Laboratory, he joined IIT Delhi in 1966. Professor Ghatak has research interests in Fiber Optics & Quantum Mechanics. He has authored several books including his undergraduate text on OPTICS which has been translated to Chinese and Persian. His other books include Quantum Mechanics: Theory & Applications (coauthored with Professor S. Lokanathan), Fiber Optics, Lasers, Optical Electronics (all 3 coauthored with Professor K. Thyagarajan) and a popular book on Albert Einstein: The Story of a Genius. He is recipient of the 2008 SPIE Educator award in recognition of "his unparalleled global contributions to the field of fiber optics research, and his tireless dedication to optics education worldwide."; the 2003 Esther Hoffman Beller award (instituted by The Optical Society of America) in recognition of his "outstanding contributions to optics education ..."; International Commission for Optics 1998 Galileo Galilei award and also the CSIR 1979 S.S. Bhatnagar award for "outstanding contributions in physical sciences". He is an OSA Fellow and was the President of Optical Society of India.

**Attendees: 463**

The screenshot shows a Zoom webinar interface. The main content area displays a diagram illustrating the mass of two magnets. At the top, two separate magnets are shown, each with a mass of 1 kg. Below them, the magnets are shown stuck together, with a bracket indicating their total mass is "slightly less than 2 kg". The text states: "Each magnet has an exact mass of 1 kg" and "The total mass of the two magnets stuck together will be slightly less than 2 kg".

The right sidebar shows a list of participants (298 total). The list includes:

- AS Amandeep Singh
- 9 - Avinaash - 9A
- AV Aadish Vikram Chakravorty
- AB aaditya baria
- AC Aadya Chaturvedi
- AP Aashish Prasad
- AP Aashish Prasad
- AB Aashray Biswal
- AB Aayush Bakshi
- AB Aayush Barik
- AS Abha Sharma
- AK abhay Kumar
- AA Abhiman Akula
- AP Adit Patel



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### Special Public Webinar

August 24, 2021 at 04:00 pm

### Mysteries, Clues, Surprises and Creativity in Physical Sciences

Professor Patrick Das Gupta

Department of Physics and Astrophysics, University of Delhi



After receiving the National Science Talent Search scholarship in 1976, Patrick Das Gupta joined B.I.T.S., Pilani, to do a 5-years integrated M.Sc. Physics. In 1981, he took admission in the Ph.D. program at Indian Institute of Science., Bengaluru, but left for Tata Institute of Fundamental Research, Mumbai, in 1982 as a research scholar in the Theoretical Astrophysics Group. There he did his PhD with Professor Jayant V. Narlikar. During that period, he also collaborated with Late Professor Geoffrey Burbidge, USA. Soon after submitting his Ph.D. thesis in 1988, he joined IUCAA, Pune, as a postdoctoral fellow. During 1989-90, he had short stints at the University of Wales, Cardiff (UK), as a senior research fellow to learn

about gravitational wave data analysis techniques, as well as at the Observatoire de Paris, Meudon, to have an exposure to the topic of gravitational radiation from Hulse-Taylor binary pulsar. During those visits, he worked with Prof. Bernard Schutz and Prof. Thibault Damour, respectively. After his return he published a paper in 1992-93 with Prof. Narlikar on gravitational waves from mini-creation events in cosmology. He joined the department of Physics and Astrophysics, University of Delhi, in 1993, and has been a full professor there since 2004. His current research interests include studies related to confirmation of Hawking Area Theorem from the observed gravitational waves from binary black holes, proposing a unified model for Gamma Ray Bursts and Fast Radio Bursts, modelling dark energy, torsion and Chern-Simon gravity using a dynamical four-form, mechanisms to generate supermassive black holes from Bose-Einstein condensation of bosonic dark matter, gravitational radiation from dyon-dyon bound states and baryogenesis from primordial black holes. Currently, he is the elected President of the Indian Association of General Relativity and Gravitation. He is also an associate editor of Resonance, an Indian Academy of Sciences journal for undergraduate science topics. He has also been active in training and leading students for the International Physics Olympiad under the aegis of Homi Bhabha Centre for Science Education, TIFR, Mumbai.

Youtube link of the Webinar: <https://www.youtube.com/watch?v=qNObhP7xkHc> ; Attendees: 357

The screenshot shows a Zoom webinar in progress. The main content area displays a slide with the following text:

**Aristotle's law had a fallacy that Galileo had spotted:**

- Tie a heavier body with a lighter body → Mass of the combined system is sum of the individual masses
- Drop both of them → Heavier body will fall faster and hence pull the lighter body down, and therefore will get slowed down
- But the combined system is heavier than the individual bodies → Combined system is should fall

The slide also features a cartoon illustration of a man with a beard and a hat, standing on a platform and holding a string attached to a ball. The background of the slide is a blue sky with a sun.

At the bottom of the Zoom window, there is a list of participants:

- Panelists (2): Professor Manoj Saxena, Professor Patrick Dasgupta
- Attendees (218): KP Kaustubh Pundir, CV Chanchal Verma, AD Aarika Dubey, AB Aashray Biswal, AB Aayush Barik, AS abha soodan, AK abhishek kumar, AS Abhishek Soni, AN Aditi Nayak, AS Aditi Shukla, AK ADITYA KATHOLE, AK Aditya Khurana, AM AJANTA MUKHERJI

The Zoom interface also shows various controls like Unmute, Start Video, Participants, Polls, Chat, Share Screen, Raise Hand, Pause/Stop Recording, and End.



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Special Public Webinar

August 25, 2021

Carbon Membranes for Separating Mixtures:  
A Theorist's Perspective

Dr. R. S. Swathi

Associate Professor, Indian Institute of Science Education and Research Thiruvananthapuram

Chemistry is no longer only an experimental science. Modeling and computation are the pillars on which most of modern chemistry research rests. I shall illustrate the role of modeling and computation by considering the well-known text-book example of separating chemical mixtures, albeit achieving it with the state-of-the-art membrane technologies. I shall also highlight some of the most exciting and intriguing features of quantum mechanics in the talk.



R. S. Swathi obtained an integrated B. Sc. Ed degree from Regional Institute of Education, Mysore and an M. Sc. Degree in Chemistry from Indian Institute of Technology, Guwahati. Subsequently, she pursued PhD in theoretical chemistry from Indian Institute of Science, Bangalore working under the supervision of Prof. K. L. Sebastian. Since 2010, Swathi has been working as a faculty member at the School of Chemistry, Indian Institute of Science Education and Research Thiruvananthapuram and is currently an Associate Professor there. Her multiscale modelling and computation group employs analytical and computational approaches for modeling interesting phenomena involving carbon-based and metal-based nanostructures. Swathi is a recipient of the Young Scientist Awards from Indian National Science Academy, National Academy of Sciences, Kerala State Council for Science, Technology and Environment, and Distinguished Lectureship Award from the Chemical Society of Japan. Swathi was also a young associate of the Indian Academy of Sciences, Bangalore. Swathi is a recipient of the A V Rama Rao Foundation Prize in Chemistry awarded by the JNCASR, Bangalore for the year 2020.

Youtube Link of the Webinar: <https://www.youtube.com/watch?v=6F304wrSpjY&t=2s>; Attendees: 232

Zoom Webinar | You are viewing Dr. R.S Swathi's screen | View Options

Recording... | View

### Quantum Transmission: Manifestation of Tunneling

Interaction energy

Distance

Quantum Mechanics in Action!

Transmission probability

Energy (eV)

$^3\text{He}/^4\text{He}$

Schrier, J., J. Phys. Chem. Lett. 2010, 1, 2284.

Finite transmission probabilities for atoms with energies below barrier height – Tunneling!

August 25, 2021 @ NASI-DDUC Science Promotion Activity | 29

Unmute | Start Video | Participants (200) | Polls | Chat | Share Screen | Raise Hand | Pause/Stop Recording | More | End

Type here to search | 34°C | 18:02 25-08-2021





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Special Public Webinar

August 27, 2021 at 04:00 pm

The Impossible Dream of Neutrino Astronomy

Basudeb Dasgupta

Associate Professor, TIFR Mumbai

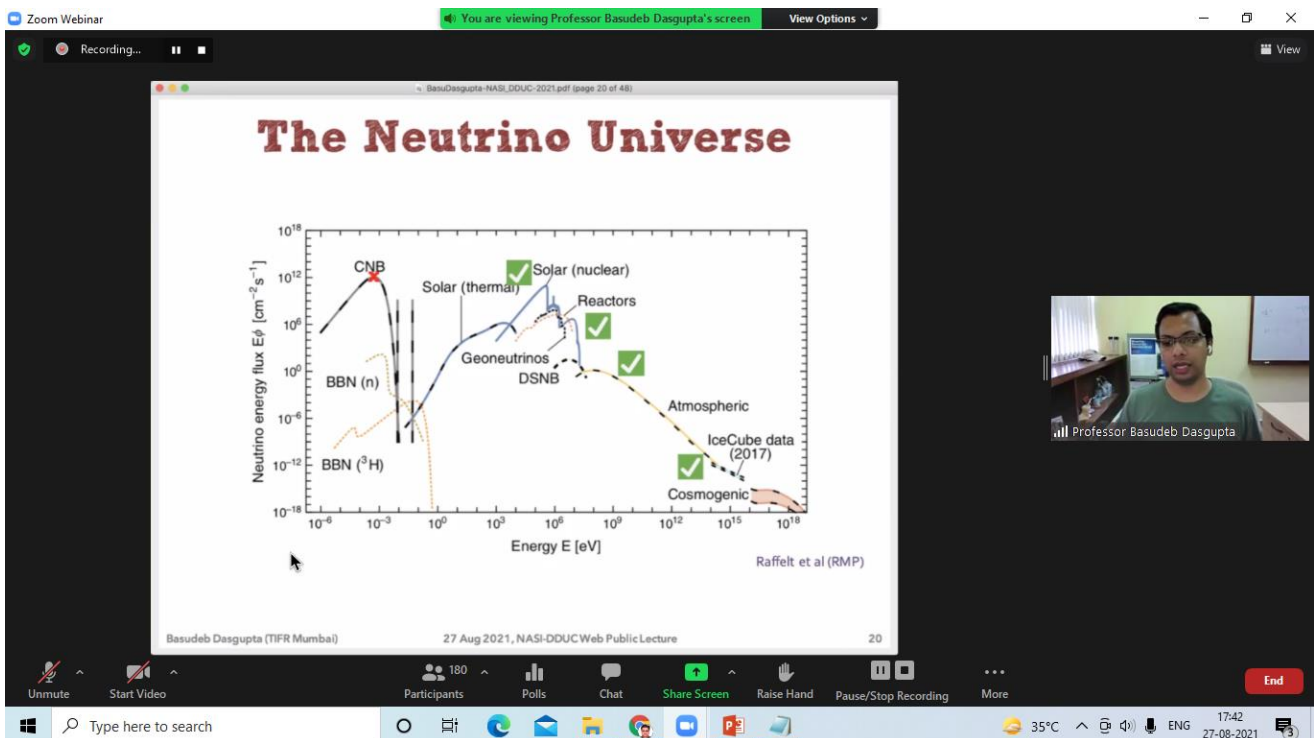
Neutrinos are unique: almost massless, barely interacting, and capable of preserving quantum coherence over macroscopic distances. This unique mix of properties proves to be both a blessing and a curse. On one hand, it makes neutrinos an extraordinary tool, allowing one to probe new regions and physical regimes that remain invisible using conventional astronomy. On the other hand, these same properties make it extremely challenging to detect and interpret them. In spite of these challenges, the dream of neutrino astronomy hasn't remained impossible. In this talk, we will take a walk through the fascinating history of this exciting area of research



Prof. Basudeb Dasgupta is a theoretical physicist at TIFR Mumbai. He studies astroparticle physics, which is the interplay of particle physics, astrophysics, and cosmology. For his significant contributions to neutrino and dark matter physics, he was awarded the ICTP prize in 2019.

Youtube link of the Webinar: <https://www.youtube.com/watch?v=3eRd4iw2Q-I&t=1s>

Attendees: 219





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### Special Public Webinar

August 31, 2021 at 04:00 pm

### Ethics in Learning and Practising Science

Dr. Malapaka Chandrasekharam

Sr. Principal Scientist & Professor (AcSIR), Department of Polymers & Functional Materials  
Chair, Department of Knowledge & Information Management (DKIM)  
CSIR-Indian Institute of Chemical Technology-Hyderabad

In ancient India, *Vidya* was understood as a process to raise an individual consciousness to its highest potential and Ethics was a part of instruction. Ethics and Value education are required to make students overcome prejudice, discrimination and other unethical practises. Such value-based education can help students overcome ethical dilemmas in their profession and social lives too. Our Education Policy makers through The Radhakrishna Commission, the Ramamurthy Committee and other commissions on education have stressed the need for developing core values such as love, compassion, social order based on truth and non-violence among the students at a tender age in order to carve them out into fully matured responsible citizens. Such values integrate science with spirituality to serve the humanity. The presentation attempts to bring out the importance of value education right from school days among children.



Chandrasekharam is presently a Senior Principal Scientist at the CSIR- Indian Institute of Chemical Technology, Hyderabad. He has been working at IICT since 2002 and published over 100 articles in international journals. He trained 10 Ph.D students and two of them worked in prestigious Marie Curie Fellowship funded by EU. He delivered several lectures in National and International conferences in India and abroad include at Solar World Congress-2011, Germany, National Institute of Materials Science (NIMS) Japan, American Ceramic Society conference Clear water, Florida, Green Energy Expo, Korea etc He gained experience ranging from Green Technologies, organometallics, total synthesis, pharmacologically important molecules to materials for energy applications. He has been actively involved in all major projects on Dye Sensitized Solar Cells (DSSCs) funded by DST-UK, DST-EU and CSIR/MNRE. He made significant research contributions in this area and achieved certified world record efficiency of 11.4% in DSSCs employing the co adsorbent designed and developed at IICT. He is honored with a prestigious "Humboldt fellowship" (2003-2004), Germany, "Guest Researcher" (NIMS) Japan and "visiting Scientist" position at Gujarat Energy Research Management Institute (GERMI), Gandhinagar, Gujarat. Recipient of CRSI Bronze medal (2018), he is a Fellow of Andhra Pradesh Academy of Sciences (FAPAS), Telangana Academy of Sciences (FTAS) Royal Society of Chemistry (FRSC). He served as Technical Advisory committee member during 2013-16, for solar energy centre, ARCI, Hyderabad. He visited US, UK, Germany, Japan, South Korea, Italy, Spain, Switzerland, Taiwan etc.

Youtube link of the webinar: [https://www.youtube.com/watch?v=qoxRI8u\\_Wc0&t=249s](https://www.youtube.com/watch?v=qoxRI8u_Wc0&t=249s); Attendees: 150

The screenshot shows a Zoom webinar interface. The main slide is titled "Persual of science for Knowledge" and contains the following content:

- Curiosity driven enquiry
- Passion
- Search for truth
- Self motivation
- Promotion
- Recognition, Awards & Rewards
- Fund raising for research
- Publications & Patent

Below the list, there is a section on "Plagiarism" and "Predatory Journals Manufacture of Data":

Plagiarism  
Predatory Journals  
Manufacture of Data

Short cut to success  
Aspiration of less meritorious to raise higher in profession  
Mismatch between institutional goals & Competence of the employee

The slide footer reads: "CSIR-Indian Institute of Chemical Technology 31<sup>st</sup> August 2021, DDUC & NASI". The Zoom interface shows a participant list on the right with names like Professor Manoj Saxena, Dr. Sudhir Verma, and Shweta Wadhwa. The bottom of the screen shows the Windows taskbar with the date 31-08-2021 and time 16:42.



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**Special Public Webinar**

**September 02, 2021 at 04:00 pm**

**Learning insights with innovative approach and Career Prospects for Science Students**

**Dr. Manish Mohan Gore**

Scientist, CSIR-NIScPR, New Delhi

In this talk, I will talk about the challenges in science learning and education and how to transform these challenges into possibilities by the learners. Innovative approach of science learning as well as career prospects for science students will also be discussed.



I have done my higher studies (M.Sc. & Ph.D.) in life sciences. I have also done B.Ed. and P.G. Diploma in Mass Communication. I am working as the *Scientist* in CSIR-NIScPR since Oct 2019. Earlier I have served *Vigyan Prasar*, DST, Govt. of India for 12 years. I am also a faculty in the Academy of Scientific and Innovative Research of CSIR. In addition to my academic attainment, I have contributed in science popularization among the general public especially young generation. 8 books, more than 300 popular science articles and a number of science fiction are written by me. Several radio and TV programs have been broadcast from All India Radio and Doordarshan & DD Kisan Channel.

Youtube link of the webinar: <https://www.youtube.com/watch?v=qanPzuSyfSU> , Attendees: 199

The screenshot shows a Zoom webinar interface. At the top, it says "You are viewing Dr. Manish Mohan Gore's screen". Below this, there are three video thumbnails for "Professor Manoj...", "Dr. Manish Mohan Gore", and "Dr. Priya Goel". The main content is a slide titled "OTHER CAREER OPTIONS" with a list of professions:

- Psychologist
- Environmental Science and Protection Technician
- Industrial Psychologist
- Epidemiologist/Medical Scientist
- Anthropologist
- Biochemist
- Archaeologist
- Data Scientist
- Paleontologist / Fossil scientist

The Zoom interface includes a "Recording" indicator, a "Participants" list showing 150 participants, and a bottom toolbar with icons for "Start Video", "Participants", "Polls", "Chat", "Share Screen", "Raise Hand", "Pause/Stop Recording", and "End". The Windows taskbar at the bottom shows the search bar, system tray with weather (31°C, Light rain), and date (02-09-2021).



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**Special Public Webinar**

**September 08, 2021 at 04:00 pm**

**Wealth from waste: Towards environmental sustainability**

**Dr N Nishad Fathima**

Senior Principal Scientist, Inorganic and Physical Chemistry Laboratory, CSIR-CLRI, Adyar, Chennai-600020

Industrial activities result in harming the environment. Nevertheless, industrial activities are required for development of a society. In order to achieve environmental sustainability it is imperative to reduce, recycle and reuse the waste. This talk will discuss various means and ways to achieve the same and the role which the students can play in achieving environmental sustainability.



Dr N Nishad Fathima is a Senior Principal Scientist in CSIR-Central Leather Research Institute (CLRI), India. She holds B Tech, M Tech and PhD degree in Leather Technology from Anna University, Chennai, India. She is a gold medalist at both undergrad and postgrad levels. She is a recipient of DAAD fellowship. Dr Nishad Fathima's work is focused on protein assemblies and has made significant contributions on use of ionic liquids in the stabilization/destabilization process of collagen. Her work on biophysical studies on collagen has led to development of biomaterials and value added materials from proteinous waste. In recognition of her contributions, Dr Nishad Fathima has been awarded the prestigious INSA medal for Young Scientist, INAE Young Engineer Award, IEI Young Engineers Award, SERB Woman Excellence award, Nayudamma Young Scientist Award, Fellow, Madras Science Foundation, INSA-DFG visiting scientist fellowship, Tamilnadu Young Scientist award from Government of Tamilnadu. She is a member of INYAS and young associate of INAE. Dr Nishad Fathima has about 110 papers in international journals of repute, 6 book chapters, 3 Indian patents and 1 US patent to her credit. She has visited several countries including USA, Germany, Ethiopia, Greece, Spain, Turkey, Japan, Brazil for delivering invited talks and lectures. Dr Nishad delivers popular lectures to school and college students under INSPIRE programme of DST and JIGYASA programme of CSIR.

**Youtube link of the webinar:** <https://www.youtube.com/watch?v=W5dI5AH5VdU> , **Attendees: 186**

The screenshot shows a Zoom webinar in progress. The main window displays a presentation slide with a woman (Dr. Nishad Fathima) in the foreground. The chat window on the right contains the following messages:

- how can we treat water for drinking
- From Prerana Kubal to Hosts and panelists: Can we convert any industrial waste into a useful product ??
- From SHREYA SHREYA to Hosts and panelists: sir please take my question
- From Kirandeep Kaur to Hosts and panelists: please give the example of nanofibers.
- From Nitya Sharma to Hosts and panelists: If the material is biodegradable then won't processing it cause a greater harm to the environment ?
- From Prerana Kubal to Hosts and panelists: What can I do to recycle leather ??

The Zoom interface also shows a list of participants at the top, including Professor Manoj Saxena, Dr. Sachin Mittal, Dr. V. GANESH, and Dr. Vinod Kumar. The bottom of the screen shows the Windows taskbar with the time 16:27 on 08-09-2021.



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Special Public Webinar

September 08, 2021 at 04:45 pm

Electrochemical Science and Technology: A Viable and Efficient Solution to Global Issues

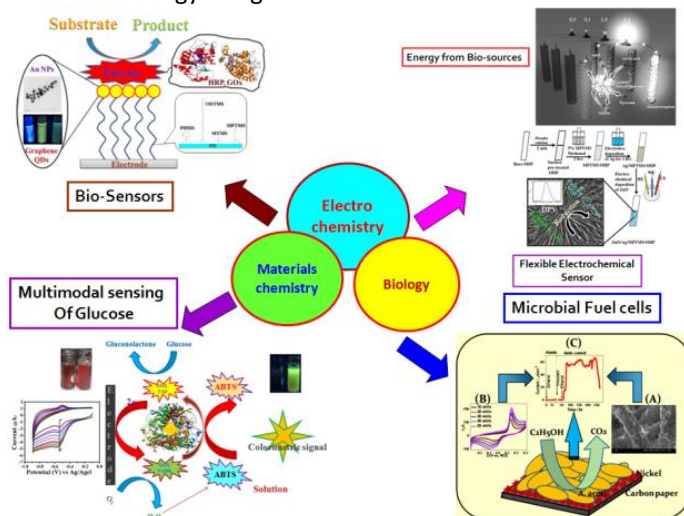
Dr. V. GANESH

Principal Scientist, Electrode and Electrocatalysis (EEC) Division

CSIR – Central Electrochemical Research Institute (CSIR – CECRI)

Karaikudi – 630003 Tamil Nadu, India.

Continued growth of worldwide population and huge expenses associated with modern day healthcare diagnostics in conjunction with highly volatile economics has placed increasing demands for energy and environmental protection at the forefront globally. Modernization of technologies and ever increasing use of digitization even in the under developed and developing nations like India force researchers across the globe to come up with alternative and efficient solutions to tackle these global issues. Among these challenges energy and healthcare sectors play a dominant role. Development of efficient, clean and renewable energies (such as wind, solar energy) has also been attracted increasing attention recently. However, the electricity generated from these sources is generally intermittent and geographically limited. Therefore electrochemistry through modulation of electron transport across the electrode – electrolyte interface plays an important and critical role in providing solutions to the above stated problems. Ideally, a successful combination of electrochemistry and materials chemistry can provide wonderful platforms that can be used to generate or convert renewable energy and in energy storage systems. In this context, this lecture will highlight the significance of multidisciplinary approach primarily using electrochemistry and allied fields. Particularly the experiments performed in our laboratory (**Scheme 1**) in order to tune and enhance the electron transport across the interface using various chemical modification processes will be highlighted. Importantly an example each for energy generation, storage and electrocatalytic applications (Fuel cells and microbial fuel cells [MFC]) will be discussed. Moreover, immobilization of microbes on the high surface area electrodes leads to specific catalytic activity of the prosthetic groups of enzymes present within the microbes which in turn demonstrated to be the potential anodes for microbial fuel cells (MFC) applications. Further energy generated from biochemical reactions and from human excretory fluids will also be presented. Moreover, some of the recent developments made at our laboratory in the area of flexible electrodes based sensors for biosensors and environmental applications will also be discussed. In all these applications, electrochemistry is demonstrated to be a simple yet powerful technique to generate and convert renewable energy using modified interfaces.



Artistic representation of the fabrication of new electrochemical platforms for healthcare diagnostics, energy and environmental related applications.



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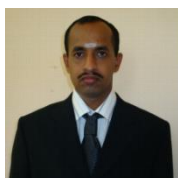
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Dr. V. Ganesh is currently working as a Principal Scientist at CSIR – Central Electrochemical Research Institute, so called CSIR-CECRI located in Karaikudi, Tamilnadu, India. He has completed his undergraduate degree in Chemistry from Ayya Nadar Janaki Ammal College (ANJAC), Sivakasi and he received a Gold Medal for securing the first place with a percentage of 91.50%. In addition, he also received gold medals for Tamil and English for securing the first place. He did his masters in Chemistry from The American College, Madurai. Similar to B.Sc. he also received the gold medals for securing the first place in M.Sc. as well. After completing his master's degree, he went to Raman Research Institute (RRI), Bangalore to pursue a Ph.D. degree in Chemistry under the guidance of Prof. V. Lakshminarayanan. Basically he worked on the subject of electrochemistry and surface chemistry. He completed his Ph.D. degree in the year 2006 and then he moved over to UK to do a postdoctoral research at University of Edinburgh in Scotland, UK. He worked with Prof. Juan C. Mareque-Rivas for a period of three years where his research work is mainly focused on Biosensors, bio-electrochemistry, bio-electrocatalysis and bio-inorganic chemistry. Then he came back to India to take-up a position of Scientist at CECRI, where he is working since 2009. Meanwhile, Dr. Ganesh also went to Canada to avail a Visiting Researcher fellowship to carry out research work at University of Manitoba, Winnipeg, Canada for a period of six months, where he worked on the area of nanomaterials for electrocatalysis, liquid crystals and electrochemistry with applications primarily focused on biology and catalysis. Overall he has more than 100 publications in internationally reputed journals and contributed two Book chapters. He is the recipient of prestigious *CSIR Young Scientist award in Chemical Sciences* for the year 2014 and *Puthiyathalaimurai Nambikai Natchathiram Award for Science and Technology* for the year 2015 in addition to *SAEST Golden Jubilee Young Scientist Award* for the year 2015. He has delivered many invited lectures across India and in other countries like Japan, Canada and UK. He has completed 9 sponsored projects and currently possesses 4 sponsored projects. Moreover, he also has a teaching experience of about more than 10 years. His research interests mainly include electron transfer studies, electrocatalysis, self-assembled monolayers, microbial fuel cells, scanning probe microscopy, catalysis, electro-analytical chemistry, nanomaterials, liquid crystals, biosensors & bio-energy and graphene based materials for bio-sensing, catalytic and supercapacitor applications.

Youtube link of the webinar: <https://www.youtube.com/watch?v=W5dI5AH5VdU> , Attendees: 186

Zoom Webinar

You are viewing Dr. V. GANESH's screen

View Options

Participants (134)

Panelists (5) Attendees (129)

Q Search

AH Aastha Hooda  
AK Aayati Kalra  
AT Abhishek Tripathi  
AK Aditya Kumar  
AK Akanksha Kumari  
AT Akanksha Tandale  
AB AKSHAT BHARDWAJ  
AK Alok Kumar Singh  
AA Alvira Alvira Khatoon  
AS Amandeep Singh  
AS Ananya Sharma  
AM Anish Mukherjee  
AS ARANI S

Lower All Hands

Recording...

Professor Manoj Saxena Dr. V. GANESH Dr. N Nishad Fathima Dr. Sachin Mittal Dr. Vinod Kumar

### BASIC ELECTROCHEMISTRY: TECHNIQUES

- EQUILIBRIUM/NEAR TECHNIQUES: OCP (Potentiometry) Measurement of surface tension, capacitance, E with Temp.**
- TRANSIENT TECHNIQUES: Relaxation in the time domain**
- STEADY STATE TECHNIQUES: control of mass transfer**

- GALVANOSTATIC/COULOSTATIC**
- POTENTIOSTATIC**
- POTENTIODYNAMIC**

AC/DC TECHNIQUES

a. 2 terminal

b. 3 terminal

E, I, Q with time  
 $C_p$ ,  $T$ , *in situ* Vs *ex situ*

Unmute Start Video Participants 134 Polls Chat Share Screen Raise Hand Pause/Stop Recording More End

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### Special Public Webinar

September 10, 2021 at 04:00 pm

### Emerging Trends in Engineering: Artificial Intelligence & Smart Manufacturing

Dr. R. Sindhuja

Senior Scientist, CSIR-Central ElectroChemical Research Institute, Karaikudi

With the increase in quality of life, out demand for large number of quality products at nominal cost increases. This puts a constraint on available material resources and also pushes factories to look for every possible way to save cost. This situation is pushing engineering and manufacturing sector to another industrial revolution, which is known as Industry 4.0. In this talk a brief introduction to Industry 4.0 will be provided. A glimpse of different smart technologies including Artificial Intelligence, IoTs and data analytics will be provided. The use of these technologies in enabling manufacturing will be discussed. Different career options available for students to be part of this industry revolution will be enumerated.



Dr. R. Sindhuja has done her M.S. and Ph.D. in Chemical Engineering from University of South Carolina, USA. She has completed her B.Tech. (Chemical & Electrochemical Engineering) from Center for Education, CSIR-Central Electrochemical Research Institute, Karaikudi. After her Doctorate degree, she worked as a Chemist Postdoctoral Fellow at Lawrence Berkeley National Lab at Berkeley, California, USA. Dr. Sindhuja has more than 4 years of Industrial experience in the field of lithium ion battery and its integration in electric vehicles. She worked as a Researcher in India Science Lab of General Motors at Bangalore and worked as a Manager at Mahindra & Mahindra, Chennai. She is currently working as a Senior Scientist at CSIR-Central ElectroChemical Research Institute, Karaikudi. Dr. Sindhuja is also an Assistant professor in CSIR's academic (ACSIR) and

assistant professor (Chemical Engineering) at CFE, CSIR-CECRI Since December 2017. Dr. Sindhuja has been part of the technical team that helped draft "Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India)". She has around 11 publications to her name. She has managed 4 individual research projects and part of 2 major developmental projects. she is also a member of technical committees of Bureau of Indian Standards.

Youtube link of the Webinar: <https://www.youtube.com/watch?v=8lHsbd8h-AY> , Attendees: 127

**Cloud Computing**

Cloud computing is the delivery of **computing services**—including servers, storage, databases, networking, software, analytics, and **intelligence**—over the **Internet** ("the cloud")

**Cybersecurity** or information technology security is the **protection** of computer systems and networks from **information disclosure**, **theft of or damage** to their hardware, software, or electronic data, as well as from the **disruption or misdirection of the services** they provide

Participants (90)  
Panelists (2) Attendees (88)

Q Search

- Mala MANDHYAN
- Mausami Mihika
- Monisha M
- mridul sharma.s
- Muskan kaur X D 4781
- Naveenapriya A
- Neeraj Kumari
- Nirvaan Mehra
- Nusrat Jahan
- Poongulazhi Poongulazhi
- Prabha Sharma
- PRADUMIN KUMAR
- Prerana Kubal

Unmute Start Video Participants Polls Chat Share Screen Raise Hand Pause/Stop Recording More End

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### Special Public Webinar

September 13, 2021 at 04:00 pm

### Ethics in Science Education and Practice

Dr. Saranyan Vijayaraghavan

Senior Scientist, Central Electrochemical Research Institute, Karaikudi – 630003

Success as a scientist rests not only on successful data acquisition, but also in the way a scientist behaves toward his work. Further to the rules that defines a limited way of working, an ethical scientific outlook is a way of expression that permeates our existence even outside science. Ethical norms sometimes seem straight forward that we deem it as commonsense and hence have a chance to discard. However, the successful implementation of very simple ethical guidelines serves us well even in advanced scientific studies. In this lecture, we will have a look at the way a scientist should look at experiments, interpretation and implementation of ideas and the code of conduct which will help us stabilize our careers over the years to come.



**Research Interests:** Scanning Tunneling Microscopy, Spectroscopy, Atomic & Dynamic Force Microscopy, Interfacial charge transport, Corrosion monitoring.

B.Sc (Physics): Loyola College, Chennai

M.Sc (Nanoscience): Delft University of Technology, The Netherlands

M.Sc (Nanotechnology): Chalmers University of Technology, Sweden

Research Scientist: University of Basel, Switzerland

PhD (Molecular Nanoscience): Technical University of Munich, Germany

Post-doc: National Institute of Materials Science, Japan

Youtube link of the webinar: <https://www.youtube.com/watch?v=Oy5TDhbNgt8> , Attendees: 79

The screenshot shows a Zoom webinar in progress. The main slide is titled "How to do experiments.." and contains the following bullet points:

- Scientific investigations must be guided by what is right and what is wrong. That's where ethical rules come in. They help ensure that science is done safely and that scientific knowledge is reliable
- Scientific research must be reported honestly. It is wrong to change results
- We must try to see things as they really are without bias**
- Avoid errors. Try again and again until errors are eliminated
- Share knowledge
- When tests are done using humans, we should inform them that they can reject it any time

The chat window on the right shows the following messages:

- experiment. so is using mice or rodents for experiment is unethical too
- From Avi Jain to Hosts and panelists: sir why do freezing magnet have a affect in its reaction
- From Prerana .P. Kubal to Hosts and panelists: Why do people use knowledge for negative consequences ??
- From Anish Mukherjee to Hosts and panelists: Sir now most of the students are either either distracted or addicted(social media ,) also why do students tend to go for a greater dopamine rush
- Sir now most of the students are either either distracted or addicted(social media ,) also why do students tend to go for a greater dopamine rush

The Zoom interface shows 69 participants, a recording indicator, and a control bar at the bottom with options like Unmute, Start Video, Participants, Polls, Chat, Share Screen, Raise Hand, Pause/Stop Recording, and End.





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**Special Public Webinar**

**September 14, 2021 at 04:00 pm**

**Recent advances in methods to visualise Biomolecules**

**Dr. Atul Kumar**

Assistant Professor, Department of Biological Sciences, IISER Bhopal

Visualization of any object has been a fundamental key in major discoveries on this planet. Biomolecules are key features of any organism which play a crucial role in maintaining various functions in our body. Biomolecules are beyond the resolution range of human naked eye or simple microscopes, and therefore difficult to visualize. Determining the structures of biomolecules is reminiscent of visualization of any other object. Obtaining high-resolution images of these biomolecules have helped discovery of various interesting biological mechanisms and has led to the discovery of drugs to cure various diseases. In this talk we will discuss the advances that have been made in the process of visualization of biomolecules and methods/processes to determine structures of biomolecules. We will discuss how modern-day technologies have led to revolution in the field of structure biology to help understanding the function of biomolecules.



Dr Atul Kumar is working as Assistant Professor at IISER, Bhopal. His lab is working to elucidate molecular mechanisms of pathways which play crucial roles in diseases such as Parkinson's and COVID-19. He was awarded PhD for identification, structural and biochemical characterization of rRNA methyltransferases from *M. tuberculosis*. He is a trained crystallographer with expertise in several biophysical, biochemical and molecular biology techniques. During his post-doc at MRC PPU, United Kingdom, his work on two important enzymes in Parkinson's disease, PINK1 kinase and Parkin E3-ubiquitin ligase, has provided deep insights of the molecular mechanism and rationale behind pathogenic mutations on these enzymes. Dr Atul Kumar is recipient of various national and international awards/fellowships including his most recent accolade Innovative Young-Scientist Award by DBT.

Youtube link of the webinar: <https://www.youtube.com/watch?v=NBdyf8uMJcc>, Attendees: 75

**High resolution details of Biomolecules**

- Hydrogen
- Oxygen
- Nitrogen
- Carbon
- Phosphorus

Pyrimidines Purines

Image Source: Google

Chat:

Google Form will be shared during the Q&A session

From K.Sai Satvika to Hosts and panelists: what is meant by Vimentin?

From Prerana .P. Kubal to Hosts and panelists: A

From Me to Everyone: Attendees can type questions in the CHAT section

From Prerana .P. Kubal to Hosts and panelists: Can we mix proteins, lipids and DNA in water to create a cell ??

From Ganga Sagar V... to Hosts and panelists: How animals can synthesize carbohydrates from amino acid

Who can see your messages? Recording On

To: Everyone

Type message here...



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**Special Public Webinar**

**September 15, 2021 at 04:00 pm**

**Exoplanets: A search for new home**

**Dr. Vishal Joshi**

Assistant Prof., Astronomy & Astrophysics Division, Physical Research Laboratory, Ahmedabad

Exoplanets (or extra-solar planets) are the planets revolving around the stars other than the Sun. Exoplanets existed only in science fiction till 1990 but in last three decades, with the advancement of technology, we have discovered more than 4000 candidate exoplanets. They are very diverse in terms of their sizes, masses, structure and composition, temperature etc. Various space- and ground-based telescopes are designed primarily to search for and study the exoplanets. In this talk, we will discuss how astronomers discover new exoplanets and study them to know their sizes, masses etc. We will learn direct and indirect astrophysical techniques and the underlying principles. We will also see some interesting examples of exoplanets and their unique properties.



Dr. Vishal Joshi, currently working as an Assistant Professor in Astronomy & Astrophysics division, Physical Research Laboratory (PRL), Ahmedabad has been working in the field of Astronomy & Astrophysics for over 15 years. His research interests are observational studies of novae, supernovae and other variable stars. After obtaining a master's degree with a gold medal in Physics from Saurashtra University in the year 2004, Dr. Joshi joined PRL as a Research scholar. He completed his Ph.D. in the year 2012. He joined Inter-University Centre for Astronomy & Astrophysics (IUCAA), Pune as a post doctoral fellow in the year 2014. He joined PRL as a Scientist in January, 2016. He has published more than 30 Research papers in reputed international journals, including one in "Nature" - the most prestigious journal in scientific research. He uses many large telescopes like Mount Abu Infrared telescope, Himalayan Chandra Telescope, NASA Infrared Telescope Facility and Hubble Space Telescope for his research. He is currently working on the project to establish a 2.5m class telescope at Mount Abu observatory which is going to be the second largest telescope in India. He is a member of various national and international associations e.g. International Astronomical Union, Astronomical Society of India, Gujarat Science Academy etc. He has delivered more than 150 popular lectures and conducted more than 50 workshops on various scientific topics on astronomy, physics and mathematics across the country. He is associated as an advisor and resource person with Science City (Ahmedabad), Gujarat Council of Science & Technology (Gandhinagar), Regional Science Center (Rajkot) etc.

**Youtube link of the webinar:** <https://www.youtube.com/watch?v=5xWvDoZILbk> , **Attendees: 112**

The screenshot shows a Zoom webinar interface. The main slide is titled "The Diamond Planet" and features an image of a planet with a diamond-like surface. The text on the slide reads: "The Diamond planet, 55 Caneri e is largely made of Carbon and has density twice of the earth. The temperature and pressure on the planet is so high that astronomers estimate it must be full of diamonds." The Zoom control bar at the bottom shows 90 participants, a chat window, and various controls like Unmute, Stop Video, and End. The chat window on the right contains several messages, including questions about pulsars and red giant stars.



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**Special Public Webinar**

**September 20, 2021 at 04:00 pm**

**Biography of molecules beyond Earth**

**Bhalamurugan Sivaraman**

Associate Professor, Physical Research Laboratory

Chemistry text books in school discuss many chemical reactions of which the temperature dependent chemical reactions are highlighted. There was a time when scientists thought no chemical reaction may occur when the temperature falls to  $\sim 10$  K ( $-263$  °C). But the new molecules discovered at the coldest regions of deep space reveal such places are the chemical factories. In this talk, we will see the interesting connection between the chemistry learnt in school to the chemistry that is happening in deep space.



B Sivaraman is currently Associate Professor at the Physical Research Laboratory, where he has developed a laboratory to carry out experiments from 4 K to 10000 K simulating various astrochemical environments. He is Visiting Lecturer at the International Space University (France). His research interests include investigating the chemical changes induced in low temperature astrochemical ices by electrons, ions, dust impacts and shockwaves.

**Attendees: 86**



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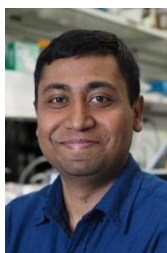
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Special Public Webinar  
September 20, 2021 at 04:45 pm  
Evolution of functionality in biomolecules

Debasis Das

Reader, Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai

The signature of any life-form on earth, starting from unicellular bacteria to human beings, is the collection of functional biomolecules that keep a cell alive. The identity of a certain cell type (e.g., nerve or endocrine or epithelial cells, etc.) is dependent on the functional expression of certain genes within those cells. Protein and RNA are the two key biomolecules that perform functions within the cell. Structurally, both of these biomolecules can achieve distinct threedimensional structures, that allow them to perform distinct functions. In the presentation, we will discuss how tools from physics, chemistry, and mathematics have been used to study the threedimensional structure formation of these biomolecules. This allowed us to identify how the biomolecules' functionality was evolved, as the simple life-form (like bacteria) evolved into the complex multicellular organism.



Debasis Das is a Reader in the Tata Institute of Fundamental Research (TIFR), Mumbai, India. He holds the following degrees - B.Sc.(Hons.) in Chemistry, M.Sc. in Biochemistry, and Ph.D. in Biophysics, Molecular Biology & Genetics; from the University of Calcutta, India. Following his Ph.D., Dr. Das went to the USA to pursue his post-doctoral research in the field of biological science. His research at the University of California, Berkeley, and the University of Maryland provided new insight into the protein translocation mechanism through the membrane. These studies were published in prestigious international journals like Proc. Natl. Acad. Sci. U.S.A, J. Mol. Biol. etc. Dr. Das then shifted his research direction and started working on the fundamental mechanism of membrane fusion at the University of Wisconsin, Madison, USA. There he developed a new biophysical technique to study the mechanism of how chemical messengers' secretion regulate cell-to-cell communication. These studies were published in highly reputed international journals like Nature, Nature Communications, etc. Dr. Das joined TIFR-Mumbai in September 2019, where his research group investigates fundamental mechanisms of protein quality control and cell-to-cell communication. Research works from his group very recently showed a novel insight into why movement abnormality occurs in Parkinson's disease. This work has been published in the prestigious international journal Proc. Natl. Acad. Sci. U.S.A. He has delivered many talks in international and national meetings. Recently he was awarded Daniel T. O'Connor Memorial Early Career Investigator Award at the International Symposium on Chromaffin Cell Biology (ISCCB-20), for his study on membrane fusion. , **Attendees: 86**



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## School Outreach Program

jointly organized by

**The National Academy of Sciences India - Delhi Chapter**  
**Deen Dayal Upadhyaya College (University of Delhi)**  
under the aegis of DBT Star College Program

**Special Public Webinar**  
**September 23, 2021 at 04:00 pm**  
**Career Opportunities for Science Students**

**Dr. Sanhita Roy**

Scientist IV, LV Prasad Eye Institute, Hyderabad



**Sanhita Roy, PhD**, is a Scientist at LV Prasad Eye Institute, Hyderabad, India. She did her PhD in protein chemistry from CSIR-Indian Institute of Chemical Biology, Kolkata. She then did her postdoctoral research from Case Western Reserve University, Cleveland, USA. Dr. Roy started her independent laboratory at LV Prasad Eye Institute, Hyderabad. She is a member of Indian National Young Academy of Science (INIAS) and Royal Society of Biology, UK. The main focus of her research is host-pathogen interactions and innate immune responses during corneal infections. Dr. Roy has published in several peer-reviewed international journals and also serves as an editorial board member and reviewer for several international journals. Dr. Roy's laboratory is supported by grants from national and international funding bodies like DST-SERB, ICMR, DBT, and UK-MRC.

Youtube link of the webinar: <https://www.youtube.com/watch?v=kEeWj8A8En8> , Attendees: 83

**Bachelors of Science**

- > INSPIRE Programme by DST – provides support at various levels  
Scholarship for Higher Education (SHE) – 10,000 scholarships are offered every year to pursue Bachelors and Masters in natural science.
- > HDFC Educational Crisis Scholarship Support – pursue diploma, graduation degree
- > L'Oreal India for Young Women in Science Scholarship – to pursue higher education in science and will cover the college fees for graduation studies in any scientific field.

**Chat**

From K.Sai Satvika to Everyone:  
After B.sc in Forensic Sciences, are there opportunities to pursue?

From Ryansh Arora to Everyone:  
what to do to go ISRO

From Dhriti Gupta to Everyone:  
what to do after msc for entering in teaching

From Aryan Jaiswal to Hosts and panelists:  
is there any way to join ISRO through Medical science field

From Harishankar Nath Tiwari to Everyone:  
I'm B.Sc Physics Hons student and I want to become scientist (theoretical), so any opportunity



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**Special Public Webinar**  
**September 27, 2021 at 04:00 pm**

**Cooperative robotics**

**Dr P B Sujit**

Associate Professor, Department of Data Science and Engineering, IISER Bhopal

**Abstract:** Robots are omnipresent in our daily life. Mobile robots have especially made several routine and tedious tasks simple and effective. With task complexity, the intelligence of the robots needs to be increased. So one can have a highly intelligent super expensive robot performing the task. However, a small failure in the robot part, can significantly affect the performance of the robot making it almost not usable. On the other hand, one can use several robots to work together in achieving a task. So, if one robot fails, we have redundancy where another will take care. In this task, we will try to understand how such cooperative robots can be designed, and deployed for different tasks.

*P.B. Sujit is currently Associate Professor in the Department of EECS at IISER Bhopal. Prior to the current appointment, he was with IIIT Delhi, University of Porto and Brigham Young University. He completed PhD from the Department of Aerospace Engineering from IISc, Bangalore, Masters from Viveswaraya Technological University, and BE in Electrical and Electronics Engineering from Bangalore University. His research interests include guidance and control of unmanned vehicles, multi-robot systems and human-swarm interaction.*

**Youtube link of the webinar:** <https://www.youtube.com/watch?v=4zkBE-0n4d4> , Attendees: 73

The screenshot shows a Zoom Webinar in progress. The main video feed displays Dr. P. B. Sujit, the speaker. The chat window on the right contains the following messages:

- artificial intelligence? If yes, please guide us.
- From Kunal Khanna to Hosts and panelists: coursera
- <https://www.coursera.org/learn/artificial-intelligence-education-for-teachers>
- link
- From Dr. Poonam Kasturi to Everyone: Attendees can type their questions in the CHAT Section
- From Lakshya Sharma to Everyone: don't you think that if we use robots we will become more dependent on them?
- From R Nikhil to Hosts and panelists: What is your view on AI in cooperation robotics?

The Zoom interface also shows controls for muting, video, and chat, along with a system tray at the bottom indicating the time as 16:46 on 27-09-2021.



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**Special Public Webinar**

**September 30, 2021 at 04:00 pm**

**Ecosystem services provided by bees in a changing world**

**Professor Hema Somanathan,**

School of Biology, Indian Institute of Science Education and Research, Thiruvananthapuram



Hema Somanathan completed her PhD from University of Bombay working on plant-pollinator interactions. Subsequently, she was a Wenner-Gren postdoctoral fellow at Lund University, Sweden from 2006 to 2009 working on the sensory ecology of nocturnal and diurnal bees. She joined IISER Thiruvananthapuram as Assistant Professor in August 2009. Her research interests lie in understanding the evolutionary ecology of plant-pollinator interactions, behaviour of social and solitary bees, and collective behaviours in social spiders.

Youtube link of the webinar: <https://www.youtube.com/watch?v=WxOQu35KzOo&t=6952s> , Attendees: 70

The screenshot shows a Zoom webinar in progress. At the top, it says "Zoom Webinar" and "You are viewing Professor Hema Somanathan's screen". Below this, there are three video thumbnails for Prof. Manoj Saxena, Professor Hema Somanathan, and Ms. Shweta Wadhwa. The main content area displays a slide titled "Honey bee dance steps" with a list of five points and a photograph of bees. The chat window on the right contains several questions from participants.

**Honey bee dance steps**

1. Measurement of direction
2. Measurement of distance
3. Coding the direction into the dance
4. Coding distance into the dance
5. Information transfer from dancer to followers

**Chat:**

- take questions after the talk
- From Anish Mukherjee to Everyone: What is the Role of solitude bees
- From Shradhda Singh to Hosts and panelists: How long does a honeybee live?
- From Ganga Sagar Verma to Everyone: is it right or wrong ,if we know that how human brain think and how human brain like and dislike things then it will help to knowing that how and which type of flowers bees to like
- From Ananya Sharma to Hosts and panelists: Ma'am what happens after the queen bee dies? like who decides whos' going to be next queen bee

Who can see your messages? Recording On

To: Everyone

Type message here...



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**Special Public Webinar**

**September 30, 2021 at 04:45 pm**

**Blockchain Technology for Societal Good**

**Professor Sandeep Shukla**

Department of Computer Science, IIT Kanpur

Blockchain technology is most well known in the form of bitcoin and other cryptocurrencies -- which are digital currencies which are generated within a distributed computing system. However, cryptocurrencies are often used by cybercriminals. As law enforcement agencies try to track the criminals, they face a problem when payments of ransom or payment for illegal goods is done with cryptocurrency. This is because cryptocurrencies are used anonymously and finding the real person behind a cryptocurrency handle is almost impossible but not always impossible. It can be done with forensics on the cryptocurrency movement in the blockchain that supports the currency. There has been cases where law enforcement has been able to get back ransom payment using such methods. We will talk about the ways this can be done. Another issue that we want to talk about is how blockchain can be used to reduce corruption in government schemes.



Prof. Sandeep K. Shukla is a professor of Computer Science and Engineering at IIT Kanpur. He was head of the department of the same department between 2017 and 2020. He is currently a program director of the C3i HUB -- a technology innovation hub for cyber security. He also is joint coordinator of C3i Center which is a research center for cyber security of critical infrastructure. He also is a joint coordinator of the National Blockchain project. Before joining IIT Kanpur, he was a professor at Virginia Tech, USA between 2002 and 2015. Prof. Shukla is an IEEE fellow, an ACM distinguished scientist, and a Ramanujan Fellow. Among many awards he received -- presidential early career award for scientists and engineers (PECASE) in 2004 from the US President, Humboldt Foundation Bessel Award etc are prominent ones.

**Youtube link of the webinar:** <https://www.youtube.com/watch?v=WxOQu35KzOo&t=6952s>

**Attendees: 70**

The screenshot shows a Zoom Webinar in progress. The main video feed displays Prof. Sandeep Shukla speaking. The chat window on the right contains the following messages:

- Information about any other person in a block chain then doesn't it pose more threat to one's information?
- From Ganga Sagar Verma to Everyone: can we design an efficient architecture that drive Indian economy for money control
- From Lakshya Sharma to Hosts and panelists: will you please tell us how can we ensure that we are safe during the exchange of cryptocurrency?
- From AJANTA MUKHERJI to Everyone: Why was it necessary to keep the identities of the people who are transacting bitcoin anonymous? what will happen if the identities are known? Can the block chain system be replicated where all identities are known?

The Zoom interface also shows a toolbar with options like Unmute, Start Video, Participants (58), Polls, Chat, Share Screen, Raise Hand, Pause/Stop Recording, and End. The system tray at the bottom indicates the time as 17:42 on 30-09-2021.





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**Special Public Webinar**

**October 07, 2021 at 04:00 pm**

**Higher Studies and Career Opportunities in Mathematics**

**Dr. Dhanya Rajendran**

School of Mathematics, IISER Thiruvananthapuram

She is an Assistant Professor, School of Mathematics and Computer Science, IIT Goa and has been INSPIRE Faculty, Stat-Math Unit, ISI Bangalore Centre. She was Visiting Professor, Department of Mathematical Engineering, University of Concepcion, Chile during May 2015-January 2016 and was Postdoctoral Fellow, Department of Mathematics, IISc Bangalore, January 2013-September 2014.

**Attendees: 27**

Zoom Webinar You are viewing Dr. Dhanya Rajendran's screen View Options

Prof Manoj Saxe...  
Prof Manoj Saxena Dr. Dhanya Rajendran

Recording...

### Research Institutes in India offering excellent undergraduate degree in Mathematics

- [Indian Statistical Institute \(ISI\)](#)
- [Chennai Mathematical Institute \(CMI\)](#)
- [Indian Institute of Science \(IISc\)](#)
- [IIT Bombay](#)

### Admission process for these programs

- Indian Statistical Institute (ISI) - B.Math and B.Stat Program through ISI entrance test and followed by an interview. Stipend is available.
- CMI - Common entrance test. Tuition fee waiver and scholarships are available.
- IISc - 4 year undergraduate program - Admission through IIT JEE.
- IIT Bombay - 4 year B.S Program through IIT JEE.

Some of these institutes offer direct admission through the performance in [Math Olympiad](#). Anyone who wishes to pursue basic sciences can apply for [INSPIRE fellowship](#). [KVPY fellowship](#) is also available for meritorious students.



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**Special Public Webinar**  
**October 08, 2021**

**Emerging Trends in Regenerative Medicine**  
**Satish Khurana, PhD**

DBT/Wellcome trust fellow and Assistant Professor, School of Biology, IISER Thiruvananthapuram

Tissue-intrinsic regenerative potential is responsible for the maintenance of normal wear and tear that physiological processes bring about. Lineage restricted adult stem cell population lead to the recovery of cellular loss. In human various tissues show varied levels of regenerative potential. Knowledge of function of stem cells, responsible for this regenerative processes, has led to the establishment of clinical regimens to cure a variety of ailments. As the world population ages, leading to increased incidence of age related disorders, principles of regeneration present an attractive avenue for alternative medicine. This talk will introduce the students with principles of stem cell function using examples from various adult stem cells, taking them to the model of induced pluripotent stem cells and their applications.



Satish is an assistant professor at the School of Biology, Indian Institute of Science Education and Research Thiruvananthapuram (IISER TVM), India. He completed his doctoral studies from National Institute of Immunology (NII), New Delhi (2009) and pursued post-doctoral research at the Stem Cell Institute, Leuven, Belgium in the lab of Prof. Catherine Verfaillie. After almost six years of post-doctoral experience, he started his lab at IISER TVM in 2015. In 2016, he received prestigious DBT/Wellcome trust India Alliance Fellowship for his research program. His group is interested in understanding various aspects of the process of blood formation, "hematopoiesis", through a developmental lens. The lab majorly focusses on the involvement of integrin signaling and energy producing metabolic pathways in cell fate decisions in hematopoietic system.

**Attendees: 39**

Zoom Webinar

You are viewing Dr. Satish Khurana's screen

Unmute Mute View Options

Prof. Manoj Saxena Dr. Satish Khurana Dr. Priya Goel

Recording...

**INTER-SPECIES ORGAN GENERATION: SCIENCE FICTION BECOMING REALITY**

1. Generation of autologous iPSCs

2. Interspecies blastocyst complementation

3. Removal of pancreata and isolation of islets

4. Transplantation of islets into diabetic mice

Chat

Attendees can type questions in the CHAT section

From Sarang Gupta to Hosts and panelists: Good evening

From Anish Mukherjee to Hosts and panelists: Sir i didnt get what is ste,cell. can you elaborate please.

\*stem cell

From Me to Everyone: Attendees can type questions in the CHAT section

From NEHA JVOTI to Hosts and panelists: Is it true that Hematopoietic stem cells give rise different types of blood cells?

From Me to Dr. Priya Goel: (Direct Message) Priya please take the questions after the session

Who can see your messages? Recording On

To: Dr. Priya ... (Direct Message) Type message here...

Unmute Start Video Participants Polls Chat Share Screen Raise Hand Pause/Stop Recording More

Type here to search

34°C ENG 16:31 08-10-2021



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**Special Public Webinar**  
**October 09, 2021 at 07:00 pm**  
**Inspiring Science for Aspiring Minds**

**N. Lakshminarasimhan**

Electro-organic and Materials Electrochemistry Division

CSIR-Central Electrochemical Research Institute, Karaikudi 630 003, Tamil Nadu, India.

Science is the systematic study of the structure and behaviour of the physical and natural world. Science involves the careful observation of the physical phenomena and naturally occurring processes and, carrying out meticulous experiments. In the history of mankind, the knowledge acquired based on scientific inquiries is driven by curiosity and serendipity. The curious questions raised by several aspiring minds led to various discoveries. At the same time, the serendipitous or accidental discoveries resulted in the creation of new knowledge. This lecture will emphasize the motivation for doing science.



It is my pleasure to introduce Dr. N. Lakshminarasimhan, Principal Scientist from CSIR Central Electrochemical Research Institute, Karaikudi and Associate Professor, Academy of Scientific and Innovative Research (AcSIR), Ghaziabad. His broad research area is solid state chemistry and materials science, and his work focuses on functional materials for energy and environmental applications. He is actively involved in understanding structure-morphology-property relationships in photofunctional materials including phosphors, photocatalysts and dye-sensitized solar cells, electroceramics and energy materials. He studied at Muthurangam Govt. Arts College, Vellore and obtained his undergraduate and postgraduate degrees in Chemistry from University of Madras. He obtained his PhD from Indian Institute of Technology (IIT) Madras, Chennai. Further, he carried out his postdoctoral research work at Pohang University of Science and Technology (POSTECH), South Korea before joining CSIR-CECRI. He has 49 publications in international peer-reviewed journals and his H-index is 22. He is a recipient of CSIR Young Scientist Award in Chemical Sciences for 2012 which is first of its kind in the history of CSIR-CECRI. Currently, he is a Fulbright Scholar at Oregon State University, USA.

**Youtube link of the webinar:** <https://www.youtube.com/watch?v=Z1e0xwLnkvj> , **Attendees: 55**

The screenshot shows a Zoom Webinar interface. At the top, it says "Zoom Webinar" and "You are viewing Dr. N. Lakshminarasimhan's screen". Below this, there are two video thumbnails: "Prof Manoj Saxena" and "Dr. N. Lakshminarasimhan". The main content is a slide titled "Nobel Week" with a blue header. The slide is divided into two columns. The left column is titled "Physics" and features portraits of Syukuro Manabe, Klaus Hasselmann, and Giorgio Parisi. Below them is the text: "discovery of the interplay of disorder & fluctuations in physical systems from atomic to planetary scales". The right column is titled "Chemistry" and features portraits of Benjamin List and David MacMillan. Below them is the text: "development of asymmetric organocatalysis". Below the Chemistry section is another section titled "Physiology or Medicine" featuring portraits of David Julius and Ardem Patapoutian, with the text: "discoveries of receptors for". The Zoom interface includes a "Recording..." indicator, a "Chat" window on the right with messages, and a bottom toolbar with controls like "Unmute", "Start Video", "Participants", "Polls", "Chat", "Share Screen", "Raise Hand", "Pause/Stop Recording", and "End".



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**Special Public Webinar**

**October 12, 2021**

**Career Opportunities for Science Students with focus on Intellectual Property Rights**

**Dr. Kanika Malik**

Principal Scientist, CSIR–NIScPR, (National Institute of Science Communication and Policy Research)

We live today in a world in which the economic health of nations and the competitiveness of firms is determined largely by the ability to develop, commercialize, and most importantly, to appropriate (or capture) the economic benefits from scientific and technological (S&T) innovations. The 'invention' may not be directly associated with technological commercialization, however, innovations are mainly concerned with the commercialization of new technologies. In a market-driven business environment, technological innovations are the main parameters for overall performance of any enterprise. Innovation is a part of the process for the technological development of the new product or entity and the intellectual property rights (IPR) system plays a significant role in helping these business entities to gain and retain their innovation-based advantages. The innovations establish a new range of products or services which are recognized by the potential competitors much before the launch of these products in the market. Here, the IPR system comes to the rescue of the business entities to formalize offensive as well as defensive IP strategies for the protection of their intellectual assets (technological innovations). Among all the IPR tools, patents are the most preferred in relation to technological innovations. The number of patents owned by an enterprise has often been used as one of the main indicators for determining the innovation potential of that enterprise. Today in the age of technological revolution, the scope of IPR has achieved unimaginable heights. IP is the most valuable asset present in the world today and people are fast realizing that this is where the future lies. With the world's focus shifting from manufacturing to a knowledge economy, IP which is the nucleus of this type of economy has attained the status of one of the most critical professional segments today. A look at the world's biggest companies like Apple, Microsoft, etc., reveals that they are all very rich in IP assets. Also, the economic power of a nation is also highly dependent on whether it has a strong IP regime. For instance, the USA is a superpower in the world and much of its power can be credited to their strong IP regime. In comparison, the scope for IPR in India is only at a nascent stage and people are only becoming aware of the huge potential that IP has to offer. In addition to big corporates, small businesses are familiarizing themselves with various forms of IP rights and realizing the endless opportunities and rights available to them. As a result, the scope for experts in the field of IPR has skyrocketed and is one of the most dynamic, fast-paced and exciting careers one can choose. There is a vast ocean of opportunities which are awaiting IP lawyers in today's world. Law firms and companies are looking for lawyers who have the technical expertise and are familiar with the nuances of IP. One major advantage of pursuing a career in IP field which permeates through various sectors and industries, thereby providing very dynamic and happening career prospects. From science and technology to business, economics, management and law, IP pervades several streams, and success as an IP professional requires a good understanding, if not specialization, in more than one stream. Thus, as a lawyer in this field, it will be a huge learning opportunity for that person.



Dr. Kanika Malik is Principal Scientist in CSIR-National Institute of Science Communication and Policy Research (NIScPR), New Delhi, India. She is PhD in Biotechnology and has 26 years of professional experience; out of which 18 years in the field of Intellectual Property Rights. She has served as Examiner of Patents and Designs in Delhi Branch Patent Office with the Ministry of Commerce and Industries, and was actively involved in the amendment of Indian Patent Act, 2002. Currently, Dr. Kanika Malik is the Editor of Journal of Intellectual Property Rights (JIPR) and Applied Innovative Research Journal (AIR) published from CSIR-NISCAIR and also handling the Business Development, Innovation, Entrepreneurship & Diffusion Research Programmes of the institute.



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The screenshot shows a Zoom webinar interface. The main window displays a slide titled "Indian Geographical Indications" with various images of products like shoes, fabrics, and food. The chat window on the right contains the following messages:

- questions in the chat box
- From Prakash Ranjan to Hosts and panelists: industrial property explain in hindi
- patent means
- From Ganga Sagar V... to Hosts and panelists: how and where we apply for copyright, theoretical thought come into intellectual property categories or not
- From Dr. Khushaboo ... to Hosts and panelists: Please suggest name of few institutions that provide diploma or degree in Intellectual property rights in field of Scientific Research and Development.
- From ANITA MESHRA... to Hosts and panelists: Bio ethics means

The Zoom interface also shows participant names (Prof. Manoj Saxena, Dr. Kanika Malik, Dr. Poonam Kasturi, Dr. Geetika J Saxena) and various controls like mute, unmute, and chat.

Youtube link of the webinar: <https://www.youtube.com/watch?v=c0-tGx0ygNw> , Attendees: 53



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### Special Public Webinar

October 13, 2021 at 04:00 pm

### The fundamental need of ethics for science

Dr Varun S Bhatta

Assistant Professor (Philosophy), Department of Humanities and Social Sciences, IISER Bhopal

Since science is commonly conceived as an enquiry of objective facts, it is usually considered that ethical concerns in science arise only when the scientific knowledge is being put into use. In this lecture, I will show that this simplistic understanding of the role of ethics in science is problematic. Using several case studies, I will demonstrate how ethical concerns arise at every stage of scientific research: while asking a question, while choosing a method, and while analysing the implications of scientific knowledge. Thus, it is important to recognise the fundamental need of ethics in making science relevant for society.



Varun S Bhatta is an assistant professor of philosophy at IISER Bhopal. With a Bachelor's in Mechanical engineering and several years of experience as a software developer, Varun pursued studies in Philosophy and obtained his PhD from National Institute of Advanced Studies (Bengaluru). Varun's research, at present, is situated in metaphysics and philosophy of science. His recent research project was philosophical exploration of scientific objects with a special focus on the concept of wave-particle duality in the context of photons. The papers pertaining to this research have appeared in science and philosophy of science journals. Varun is a member of Barefoot Philosophers collective and is the co-moderator at Indian

Philosophy Network.

Youtube link of the Webinar: <https://www.youtube.com/watch?v=DU0XL09onlo>, Attendees: 27

The screenshot shows a Zoom webinar interface. At the top, there are two video thumbnails for 'Professor Manoj Saxea' and 'Dr. Varun S Bhatta'. The main content area displays a slide with the following text:

**Questioning in Science**

Brain-studies about physical groups

Do humans think differently?

- cognitive-science and brain-studies research
- do women think differently than men?
- do people from different region think differently?
- is it fine to ask these questions?

Troubled history

- craniometry
- Intelligence Quotient } IQ

Handwritten red text 'IQ' with a downward arrow is visible next to the Intelligence Quotient bullet point.

The chat window on the right shows messages from 'Everyone' and 'ANITA MESHARAM' regarding questions in the chat section and ethical decisions influenced by scientific knowledge.



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**Special Public Webinar**

**October 19, 2021 at 04:00 pm**

**Small Molecules and Metals in Life Processes: An Overview**

**Dr. Subrata Kundu**

School of Chemistry, Indian Institute of Science Education and Research Thiruvananthapuram

Understanding the structure-reactivity correlation of small molecules such as dioxygen (O<sub>2</sub>) and nitric oxide (NO) at transition metal sites are of paramount interest due to their relevance in health, the environment, sustainable energy utilization. Nature brilliantly utilizes a wide variety of metalloenzymes in chemical transformations that involve small molecules cycled through several redox states. While the complexity of metalloenzyme active sites can make the trapping and characterization of active species challenging. This talk aims to provide an overview of the factors that govern the binding and bioactivity of O<sub>2</sub> and NO.



Subrata Kundu was born and raised in Barrackpore (West Bengal, India). He received his Bachelor of Science (2007) in Chemistry from Jadavapur University, Kolkata (West Bengal, India). Then, he moved to IIT Kanpur for Master of Science (2009). Subrata pursued his doctoral studies under supervision of Prof. Kallol Ray at Humboldt-Universität zu Berlin (Germany). Subrata completed his Ph.D. in Inorganic Chemistry in December 2013 with summa cum laude (Highest grade). Subsequently, he accepted an offer to join a postdoctoral position in the group of Prof. Tim Warren at Purdue and Georgetown University. Since July 2017, he is working as an Assistant Professor at Indian Institute of Science Education and Research Thiruvananthapuram (IISER-Tvm). A research group led by him utilizes synthetically accessible, bioinspired coordination complexes aiming to provide insights into the molecular basis of NO and H<sub>2</sub>S signaling processes in mammalian Biology.

**Youtube link of the Webinar:** <https://www.youtube.com/watch?v=Gqr2OUeDLI>,

**Attendees: 20**



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(SERIES – III)

ON

**NATIONAL PARKS, TIGER RESERVES, WLS AND BOTANICAL GARDENS, ZOOLOGICAL PARKS OF INDIA- IDENTIFICATION, CONSERVATION AND MANAGEMENT.**

Date: 27<sup>th</sup> October - 3<sup>rd</sup> November, 2021, Time: 11:15 AM - 4:30 PM

**:- Organized by :-**

Department of Botany in Collaboration with IQAC

&

In Association with the National Academy of Sciences India- BHOPAL CHAPTER



Eminent Speaker

**Dr. B.S. Corrie (IFS)**

Former PCCF & Head of Forest Force  
Kerala



Eminent Speaker

**Dr. AA Mao**

Director  
Botanical Survey of India(BSI) Kolkata



Eminent Speaker

**Shri Nitin Kakodkar (IFS)**

Formerly PCCF Wildlife Maharashtra



Eminent Speaker

**Shri Anup Kumar Nayak (IFS)**

Former ADG (Project Tiger) & MS  
(NTCA) MOEF & CC, Govt. of India



Eminent Speaker

**Shri Aditya Kumar Joshi (IFS)**

Principal Chief Conservator of Forest  
Manipur, India



Eminent Speaker

**Mr. Saurabh Chaudhury (IFS)**

APCCF & Member Secretary West  
Bengal Zoo Authority Kolkata



Eminent Speaker

**Shri PV Rajarao (IFS)**

CCF, Kothhagudem circle,  
Kothhagudem Telangana



Eminent Speaker

**Shri Sunil Kumar Singh (IFS)**

CCF & Field Director Kanha Tiger  
Reserve of Madhya Pradesh



Eminent Speaker

**Shri Krishnamurthy L. (IFS)**

CCF& Field Director Satpura Tiger  
Reserve of Madhya Pradesh



Eminent Speaker

**Mr. B. Srinivas (IFS)**

CCF & Field Director Amrabad Tiger  
Reserve Telangana



Eminent Speaker

**Dr. Kumar M.K. (IFS)**

Regional Wildlife Warden Jammu



Eminent Speaker

**Dr. N. Senthil Kumar (IFS)**

Field Director KM Tiger Reserve  
Tamilnadu





Eminent Speaker  
**Dr. S. Paulraj (IFS)**

Retd. CF, Executive Chairman Chennai Snake Park Trust Chennai



Eminent Speaker  
**Mr. D. Venkatesh (IFS)**

CF & Field Director Mudumalai Tiger Reserve Tamilnadu



Eminent Speaker  
**Shri SR Natesha (IFS)**

CF & Field Director Bandipur Tiger Reserve (Karnataka)



Eminent Speaker  
**Dr. Sapu Changkija**

Retd. Professor, Depatt. of Genetics and Plant Breeding SASRD, Medziphema, Nagaland University, India



Eminent Speaker  
**Prof. K.K. Sharma**

Head Zoology Department, MDS University Ajmer Rajasthan



Eminent Speaker  
**Dr. Rajkumar V. Jadhav**

Director Rajiv Gandhi Zoological Park Pune



Eminent Speaker  
**Dr. R. Nagarajan**

Principal and Head Zoology and Wildlife Biology AVC College Mayiladuthurai, Tamil Nadu.



Eminent Speaker  
**Dr. Anil Chhangani**

Professor & Head Zoology Depatt. MGS University Bikaner Rajasthan



Eminent Speaker  
**Dr. Lala Aswini Kumar Singh**

Retd. Senior Research Officer (Wildlife), Forest Department of Odisha



Eminent Speaker  
**Vijaya Ratre (IFS)**

Director Kanger Valley National Park Chhattisgarh



Eminent Speaker  
**Dr. Mohan Ram (IFS)**

DFO Wildlife Division Sasan – Gir National Park and Wildlife Sanctuary Gujarat



Eminent Speaker  
**Mr. Sandeep Bendi (IFS)**

Field Director Orange Tiger Reserve (Dihing National Park)



Eminent Speaker  
**Mr. D. Mahesh Kumar (IFS)**

Field Director Nagarhole Tiger Reserve Karnataka



Eminent Speaker  
**Shri S. Jones Justin (IFS)**

Deputy Field Director Sunderban Tiger Reserve WB



Eminent Speaker  
**Mr. Pankaj Sharma (IFS)**

DFO Western Assam Wildlife Division Tezpur Assam



Eminent Speaker  
**Mr. Anand Sivzothi (IFS)**

Deputy Field Director Megamalai Tiger Reserve Tamilnadu



Eminent Speaker  
**Mr. A. Shankaran (IFS)**  
Retd. DCF Wildlife Telangana



Eminent Speaker  
**Dr. S. Sathyakumar**  
Scientist G. Wildlife Institute of India  
Dehradun



Eminent Speaker  
**Dr. Shirish Manchi**  
Principal Scientist and Head  
Conservation Ecology Division, SACON  
Coimbatore (TN)



Eminent Speaker  
**Dr. Manas Bhaumik**  
Scientist E & HOD BSI Industrial  
Section Indian Museum Kolkata



Eminent Speaker  
**Dr. Bhaskar Chaudhary**  
Officer- In-charge CWRC Kaziranga TR  
Assam



Eminent Speaker  
**Dr. Kumaraguru Arumugam**  
Conservation Scientist & Research  
Director Biodiversity Conservation  
Foundation India



Eminent Speaker  
**Mr. Manu Sathyan**  
Asstt. Conservator of Forest Periyar  
Tiger Reserve Kerala



Eminent Speaker  
**Dr. M. Bubesh Guptha**  
Founder and Director Universal Eco  
Foundation Puduchery



Eminent Speaker  
**Dr. Sayan Bhattacharya**  
Education officer Indian Museum  
Kolkata



Eminent Speaker  
**Dr. Anita Tomar**  
Scientist F Forest Research Center for  
Eco rehabilitation Prayagraj UP



Eminent Speaker  
**Dr. Nagarajan Baskaran**  
Asstt. Professor Zoology & WildLife  
Biology, AVC College Mayiladuthurai,  
Tamil Nadu.



Eminent Speaker  
**Dr. S.R. Ganesh**  
Deputy Director Chennai Snake park  
Chennai (TN)



Eminent Speaker  
**Dr. Manoj Borkar**  
Associate Professor & Head Zoology  
Carmel College of Women Goa.



Eminent Speaker  
**Dr. S Rajan**  
Retd. Scientist & Head Medicinal  
Plants Research AYUSH Govt. of India



Eminent Speaker  
**Dr. B. Ramakrishnan**  
Asstt. Prof. Wildlife Biology Govt.  
College Udhagamandalam (TN)



Eminent Speaker  
**Dr. T. Brinda**  
President Biodiversity Conservation  
Foundation Trichirapalli (TN)



Eminent Speaker  
**Dr. A. Manimozhi Biologist**  
Arignar Anna Zoological Park,  
Vandalur, Chennai



Eminent Speaker  
**Dr. Sanjay Kumar Mahato ,**  
Curator Tata steel Zoological Park  
Jamshedpur Jharkhand



Eminent Speaker  
**Dr. Sanjay Gubbi**  
Senior Scientist Nature Conservation  
Foundation Bangalore (Karnataka)



Eminent Speaker  
**Dr. Ramesh Krishnamurthy**  
Senior Scientist Wildlife Institute of  
India, Dehradun



Eminent Speaker  
**Dr. R. Sumathi**  
Assistant Professor Mount Carmel  
College Bangalore



Eminent Speaker  
**Dr. Sanjay Singh**  
Scientist Biodiversity and Climate  
Change Division ICFRE Dehradun



Eminent Speaker  
**Mr. Rajasekhar Bandi**  
Citizen Science Coordinator IISER  
Tirupati Andhra Pradesh



Eminent Speaker  
**M. Hima Sailaja**  
Curator SV Zoological Park Tirupati



Eminent Speaker  
**Dr. PGS Sathy**  
Scientist C Museum and Taxidermy  
Section Zoological Survey of India  
Kolkata.



Eminent Speaker  
**Dr. V. Sai Sarawathi**  
Asstt. Professor (Sr.) VIT University  
Vellore Tamilnadu



Eminent Speaker  
**Mr. Vishnu Vijayan**  
BiologistParambikulam Tiger Reserve  
Kerala



Eminent Speaker  
**Mr. Aritra Kshetry**  
Inspire Fellow- Department of Science  
and Technology Kolkata



Eminent Speaker  
**Ms. Priyanka Chaudhary**  
Education Assistant National  
Zoological park New Delhi



Eminent Speaker  
**Prof. Marry Josephine**  
Principal St. Joseph College for  
Women Tirpur Tamilnadu



Patron  
**Dr. S.M. Shukla**  
Principal Govt. M.S. Golwalkar College  
Rewa Madhya Pradesh



Convener  
**Prof. Skand Kumar Mishra**  
Head Botany Department  
Govt. M.S. Golwalkar College Rewa  
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\* Link for Registration : <https://forms.gle/kSpNdxVZakvxFgQE7>  
\* Link to join webinar : <https://meet.google.com/upj-bfim-oks>  
\* Link to join webinar : **Youtube** <https://youtu.be/ZsSfziqXbx8>

\* **WhatsApp Link\***

Group-1 : <https://chat.whatsapp.com/Db4HUoT13uv3Fyv50bZL1z>  
Group-2 : <https://chat.whatsapp.com/LcMwtd7ntoq9TBh2WR4fVg>