

Department of Chemistry
Report on Lecture Series - INSIGHT

The “Insight” lecture series, organized by **ChemFranza**, the Chemical Society of Department of Chemistry, Sri Aurobindo College, featured five insightful sessions from Sept. 28, 2024 to Oct. 23, 2024, aimed at enhancing scientific knowledge and providing practical skills relevant to various fields. The series invited experts from diverse domains to discuss important contemporary topics, ranging from nanotechnology to employability skills, cybersecurity, green computing, and green chemistry. Below is a detailed summary of each session from the five-day event:

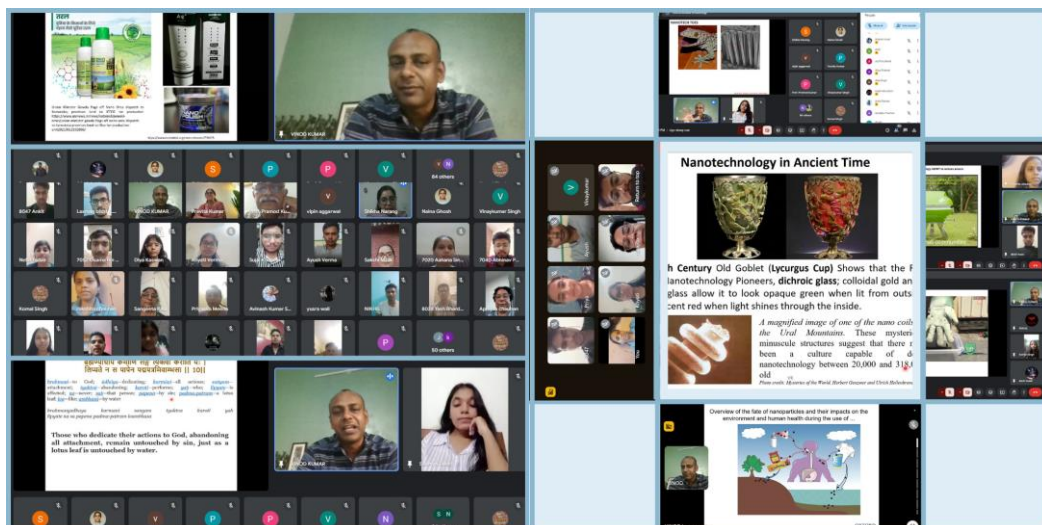
Day 1:

Speaker: Dr. Vinod Kumar, Special Centre for Nanoscience, Jawaharlal Nehru University

Title: Nanotechnology for Sustainable Circular Economy and Future Challenges

The inaugural lecture, delivered online on 28th September by Dr. Vinod Kumar, focused on the transformative potential of nanotechnology in driving sustainability and innovation across multiple industries. Dr. Kumar highlighted the revolutionary uses of nanotechnology in the fields of pharmaceuticals, medicine, energy production, and water filtration systems. He explained how nanomaterials can be used to create more efficient water filters, enhance energy storage in batteries, and contribute to the development of next-generation solar cells. Moreover, he discussed how nanotechnology could revolutionize cancer treatment by using infrared radiation combined with nanomaterials to selectively target cancerous cells while sparing healthy ones.

Dr. Kumar also underscored the challenges associated with nanotechnology, particularly nanomaterial toxicity, environmental risks from nanoparticle dumping, and issues of cost and scalability. He stressed the need to address these concerns to ensure the sustainable and safe use of nanomaterials, advocating for increased collaboration between researchers, industries, and policymakers to overcome these challenges. Dr. Kumar’s presentation illustrated how nanotechnology could play a vital role in creating a sustainable circular economy if its full potential is responsibly harnessed.



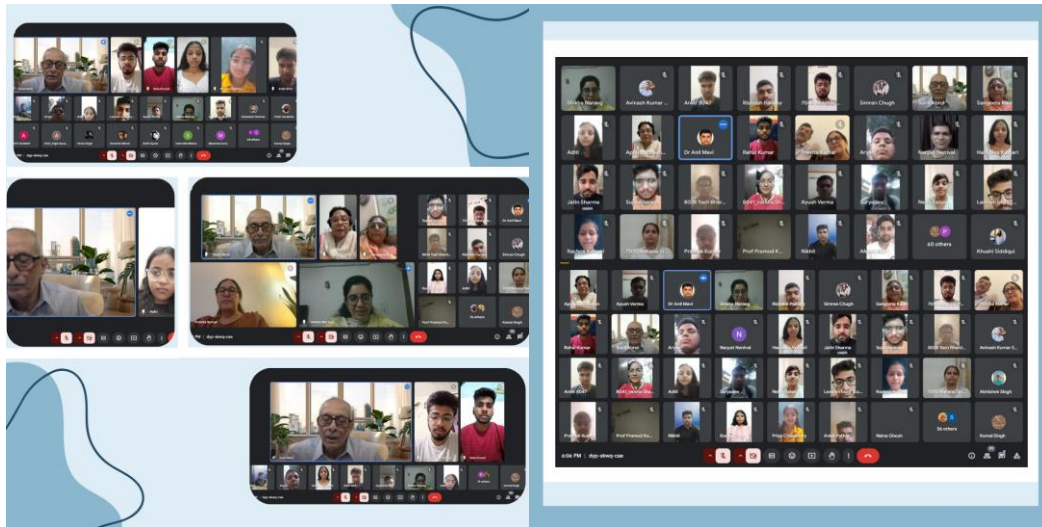
Day 2:

Speaker: Dr. Sunil Abrol, Director, WCPS & Vice-President, WAPS

Title: Skills Key to Employability

The second day of the series, held on 30th September, featured Dr. Sunil Abrol, who spoke on the importance of developing the right skills to thrive in today's competitive job market. His lecture focused on the hard and soft skills that individuals need to enhance their employability and achieve their career goals. Dr. Abrol outlined the critical role of communication skills, both verbal and written, in creating strong professional relationships and conveying ideas effectively. He emphasized that effective communication, whether for team collaboration or professional networking, is indispensable in modern workplaces.

In addition to communication skills, Dr. Abrol highlighted other essential employability skills such as problem-solving, critical thinking, adaptability, and teamwork. He stressed that developing these competencies is key to not only securing employment but also progressing in one's career. Moreover, he discussed the growing importance of digital literacy in an increasingly technology-driven world, urging participants to continuously update their skill sets to stay relevant in the evolving job market.



Day 3:

Speaker: Dr. Arjun Chaudhary, Deputy Director, Centre for Cyber Security

Title: Cyber Security in Current Times

On the third day, 3rd October, Dr. Arjun Chaudhary provided a comprehensive overview of the current landscape of cyber threats and the strategies that individuals and organizations can use to protect themselves from cyberattacks. Dr. Chaudhary highlighted the increased risks of cyber threats in today's interconnected world, where businesses and individuals rely heavily on digital infrastructure. He discussed common cyber threats, including phishing, malware, ransomware, data breaches, and hacking, and explained the importance of employing strong security protocols to safeguard sensitive data.

Dr. Chaudhary further emphasized the critical role of cyber hygiene, urging individuals to adopt strong passwords, multi-factor authentication, regular software updates, and awareness of phishing schemes as part of their daily digital routines. For organizations, he recommended robust firewalls, encryption technologies, and continuous cybersecurity training for employees. His lecture underscored the fact that cybersecurity is not just the responsibility of IT professionals but a shared responsibility that everyone must take seriously to mitigate cyber risks.



Day 4:

Speaker: Prof. Sanjay K. Khare, Pt. Ravishankar Shukla University, Raipur

Title: Green Computing

The fourth lecture is held on 15th October which is delivered by Prof. Sanjay K. Khare, focused on the concept of green computing, which aims to minimize the environmental impact of technology use. Prof. Khare discussed the urgent need to reduce energy consumption and electronic waste (e-waste) generated by the rapidly growing tech industry. He explained how sustainable computing practices can be implemented in both hardware and software development to reduce carbon footprints and create more environmentally responsible systems.

Prof. Khare highlighted innovations in energy-efficient processors, servers, and data centers, which use less power and reduce heat production. He also addressed the importance of recycling and properly disposing of electronic devices to mitigate the growing e-waste crisis. His lecture advocated for the adoption of renewable energy sources to power data centers and computing infrastructure, as well as the development of software that is optimized for energy conservation. Green computing, Prof. Khare noted, is essential for reducing the ecological impact of the technology sector while still enabling innovation.



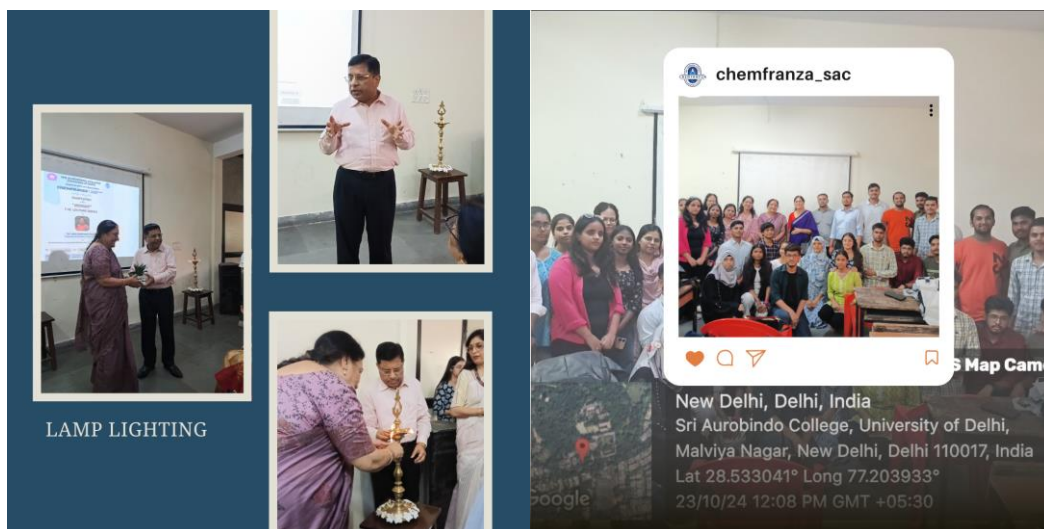
Day 5:

Speaker: Dr. Indu Tucker Sidhwani, Associate Professor, Gargi College, University of Delhi

Title: Green Chemistry: An Essential Building Block for Sustainable Development

The final lecture of the series was delivered offline by Dr. Indu Tucker Sidhwani on 23rd October in Hall 2 of Sri Aurobindo College, where she spoke on the crucial role of green chemistry in fostering sustainable development. Dr. Sidhwani outlined the 12 principles of green chemistry, which focus on reducing environmental harm by designing chemical products and processes that minimize waste, energy use, and hazardous substances. She explained how green chemistry aims to replace traditional chemical processes with eco-friendly alternatives that use renewable resources and generate fewer harmful byproducts.

Dr. Sidhwani further elaborated on the role of green chemistry in the synthesis of green energy fuels and the development of alternative energy solutions that are more sustainable and less damaging to the environment. She provided examples of biodegradable plastics, sustainable solvents, and renewable energy sources that align with green chemistry principles. The lecture concluded by highlighting the importance of interdisciplinary collaboration in advancing green chemistry solutions and fostering a cleaner, healthier future for the planet.



The five-day “Insight” lecture series provided a broad yet focused look at important scientific and professional topics, equipping participants with knowledge on cutting-edge technologies, essential career skills, and sustainable practices. Through expert-led discussions, the series succeeded in sparking curiosity and promoting a deeper understanding of the challenges and opportunities that lie ahead in these dynamic fields.