

Shiv Nadar Institution of Eminence

Energy Efficient Services for Industry

At Shiv Nadar Institution of Eminence, energy is one of the priority research areas. We contribute to SDG 7 through teaching and research related to clean energy, outlining policies on energy use, and promoting energy efficiency in the broader community through partnerships and providing direct services to local industry aimed at improving energy efficiency and adopting clean energy.

The Department of Chemical Engineering, School of Engineering established collaboration with nearby industries, such as Kawatra paper mills, Dadri, Kings international Ltd, Unnao (Leather industry), and nearby restaurants to help them not only find an eco-friendly and sustainable solution to the waste management but to also help convert the waste into energy. The intellectual capital of the University professors helped find a feasible solution to effectively handle the waste of these industries including, paper mill sludge or mixed food waste, and convert the same into energy using thermochemical conversion methods of solid waste that include various types of pyrolysis and gasification process. Moreover, liquid waste such as wastewater was also treated with the biomaterials developed from the solid waste generated from these industries. Different kinds of biomaterials are developed from these wastes that include bio-adsorbents, bio-membranes, and biofilms. Bio-adsorbents are used to treat the wastewater via physi-adsorption and produce clean water and biomembranes are used from separating the hydrogen from syngas produced from pyrolysis and gasification of solid waste to produce clean fuel. Department of Chemical Engineering has had industrial collaborations with nearby industries such as Kawatra Paper Mills since 2016 in Dadri and Kings International Ltd. (8th Jan, 2022), Unnao (Leather Industry) since 2021.

Dr. Sanjeev Yadav, Associate Professor, Department of Chemical Engineering, and his research group work with Varhad Capitals Pvt Ltd, a Nagpur-based industry. The industry is supporting work on biomass conversion into bioenergy and leading the initiatives in carbon dioxide removal (CDR) and soil enhancement. They cultivated a vast network of farmers through 165 farmer cooperatives in India. Using carbon-rich materials like cotton and pigeon pea stalks, they achieved a Carbon Dioxide Removal rate of 2.4 tons of carbon dioxide per ton of biochar. The group has also designed a portable pyrolyzer capable of using various kinds of waste biomass, especially agri-residues, to produce biochar. This has already yielded large biochar production across many states with the help of the industry partner. Biochar production is a sustainable and environmentally responsible process that manages agricultural waste efficiently.

The Department of Physics, School of Natural Sciences, in partnership with UNSW Sydney, Australia, and KTH-Sweden, organized the International Conference on Sustainable Nanomaterials Integration & Organization for Energy and Environment (iSNIOE2-2024). With over 250 participants from India and abroad, this conference brought together researchers and practitioners from academia, industry, and research laboratories worldwide, facilitating the dissemination of groundbreaking knowledge in sustainable nanomaterials and their innovative applications in renewable energy and environmental

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conservation. During the four-day event, the conference featured parallel symposia dedicated to both experimental and theoretical research on sustainable nanomaterials, nanoscience, and miniaturized, as well as flexible devices for energy and environmental applications. The conference showcased 183 presentations, comprising 11 Plenary Speakers, 20 keynote speakers, 47 invited speakers, 46 oral presentations, and 59 poster presentations, providing valuable insights and fostering collaborations among participants.

The Department of Chemistry, School of Natural Sciences, in collaboration with HEIA-FR, Chemistry Department, Switzerland, organized MAGSOS, a conference on Modern Aspects of Green and Sustainable Organic Synthesis, at the Shiv Nadar University campus on November 26 - 29, 2024.




Department of Chemistry
School of Natural Sciences, Shiv Nadar University

MODERN ASPECTS OF

GREEN AND SUSTAINABLE ORGANIC SYNTHESIS

In collaboration with:
Chemtech, Haute école d'ingénierie et d'architecture de Fribourg Boulevard de Pérolles 80, 1700 Fribourg, CH

PLENARY LECTURES BY

 Prof. Debabrata Maiti IIT Bombay, India	 Prof. Carsten Bolm RWTH Aachen University, Germany	 Prof. Floris Rutjes Radboud Universiteit Nijmegen, Netherlands
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KEYNOTE LECTURES BY

 Prof. A.T. Biju Professor of Organic Chemistry, Indian Institute of Science	 Prof. Akhilesh Verma Professor of Organic Chemistry, Delhi University	 Prof. Choon Hong Tan Professor of Organic Chemistry, NTU Singapore
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CHAIRPERSONS

 Prof. Subhabrata Sen Professor, Dept of Chemistry, ShriiC	 Prof. Ludovic Gremaud Full Professor, Process Chemistry, HEIA-FR
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CO-CHAIR

 Prof. Bimlesh Lochab Professor & HoD, Dept of Chemistry, ShriiC
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ADVISORY COMMITTEE

 Prof. Ananya Mukherjee Vice-Chancellor, ShriiC

Organizing member: Ludovic Gremaud, Subhabrata Sen, Bimlesh Lochab, Brajaj Bajaj, Dhruv Arora, Animesh Samanta, Santanu Ghosh, Kishoreksh Dutta Dubey and Bappaditya Gole, Santosh Singh and Tatin Rakshit.

Funding agency: Zurich University of Applied Sciences, Leading House South Asia and Iran International Affairs Office, Royal Society of Chemistry India

SHIV NADAR SCHOOL OF NATURAL SCIENCES

HEIA-FR HTA-FR

26-29 NOVEMBER 2024

Conference theme:

- Sustainable organic chemistry
- Photolytic and photocatalytic organic reaction
- Mechanochemistry in organic synthesis
- Electrochemical organic reactions
- Photo-electrochemical organic reactions
- Sustainable radical reactions in organic chemistry

Conference contents:

- 1.5 days of Workshop on Process Research and Green Chemistry
- 2.5 days of Conference on Green and Sustainable Chemistry
- 3 Plenary lectures (2 international and 1 national (Indian)) 45 min + 15 min Q&R
- 3 Keynote lectures 35 min + 10 min Q&R
- 14 Invited lectures 25 min + 5 min Q&R
- 2 poster sessions 6 flash talks (maximum 5 min talk)

Registration deadline: 15th Nov, 2024

Abstract submission deadline: 10th Nov, 2024

Visit Website: <https://snu.edu.in/magsos/> or email at magsos.snu.chem@snu.edu.in

Various events organized for awareness for clean energy