



Embassy of India, Berne

# INDIA SCIENCE AND INNOVATION WEEKLY

03 July 2023

*Ask the right questions, and nature will open the door to her secrets  
- Dr. C.V. Raman, The Nobel Prize in Physics 1930*

## Ministry of Power Established a CoE to Accelerate Adoption of Energy Efficient Technologies in Indian Industry

To accelerate industry adoption of clean technologies and also to scale up India's contribution to the global energy transition, Ministry of Power, Govt. of India, set up a dedicated Centre of Excellence (CoE) 'UTPRERAK' (Unnat Takniki Pradarshan Kendra). The CoE to Accelerate Adoption of Energy Efficient Technologies that seeks to play a catalytic role in improving energy efficiency of Indian industry. The Centre is mandated to become the key reference and resource institution on industrial energy-efficient technologies. The CoE also envisages to also provide key inputs for national energy policy formulation, link education and research in energy-efficient solutions, and develop innovative applied solutions for energy efficiency.

## NIT Warangal Developed New Low Cost Technology that Reduces Textile Effluent Pollution

NIT Warangal along with Prime Textiles, Rampur with support from IMPRINT, a joint effort of MoE and SERB, developed a pilot-scale textile effluent treatment plant using biosurfactants (BS), cavitation (a process in which pressure variations in a liquid could in a short period of time cause countless small cavities to form and then implode--C), and membrane (M) technology. The use of BS in MBBR helped in dye removal and was effective in reducing operational time and cost.

## IIT-Madras Devised Mathematical Model that Promises Equal Benefits to Farmers & Agri-Firms

Researchers at Indian Institute of Technology Madras (IIT-Madras) devised a mathematical model on contract farming to predict farmers' delivery of commodities using a decision-theoretic framework based on the 'Prospect Theory.' The IIT-Madras model, based on contract farming, also suggests the optimal timing for paying the advances to the farmers using two different strategies - one that favors the firm's profit maximisation objective, while the other only maximises its marginal cost savings from contracting to create a socially inclusive payment policy. The model could also be further modified to include the risk attitudes of the contracting firms and farmers, the relationship between the amount of payment given in advance to the farmers' output, the variability in the spot price of the contracted commodity. Further this model could also be adjusted to suit the needs of larger firms sourcing from poor suppliers in sectors other than agriculture.

## New Foam Material Capable of Immobilizing Multiple Enzymes

In a collaborative effort, a team of researchers Indian Institute of Science Education and Research (IISER), Kolkata; CSIR-National Chemical Laboratory (CSIR-NCL), Pune; CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum; and Nottingham Trent University, UK developed a foam to soak in biocatalyst molecules which holds potential for biofuel production. Biocatalysis is the process of using natural substances from biological sources or whole cells to speed up chemical reactions. In this foam material, enzymes are loaded, and they use the large pores, particularly the macropores, to enter it. Multiple enzymes could enter this foam material simultaneously.

## Special Update: International Conference on Green Hydrogen 05-07 July

With the aim and objective to bring together the global scientific and industrial community to discuss recent advances and emerging technologies in the entire green hydrogen value chain, Ministry of New and Renewable Energy (MNRE) is organizing an International Conference on Green Hydrogen (ICGH-2023) from 05-07 July 2023 in New Delhi. The conference will enable the sector stakeholders to explore the evolving green hydrogen landscape & innovation-driven solutions. The fundamental aim of the Conference is to explore how we can establish a Green Hydrogen ecosystem and foster a systemic approach for meeting the global goals for decarbonization through Green Hydrogen. IGH 2023 to enable to Learn Best Practices & to help Attain Production Targets under National Green Hydrogen Mission