

## **Energy & Water Technologies of TMD Division appreciated at ISC**

The Department of Science and Technology (DST) showcased eleven working models on Technology Innovations on clean energy in the DST Pavilion at 107th Indian Science Congress (ISC) at University of Agricultural Sciences, Bangalore which was inaugurated by Minister of Science and Technology, Dr Harsh Vardhan. Some of these technologies have been appreciated by Hon'ble Prime Minister Shri Narendra Modi.



The models exhibited by the Technology Mission Division (Energy & Water), included Ultracapacitor powered lift, High temperature solar selective coating for solar thermal application, Integral Fin Extruded Aluminium Flat Plate Solar Water Heater, Semi-Automatic Equipment for large area Dye-Sensitized Solar Module Fabrication, Supercritical CO<sub>2</sub> Brayton cycle test loop, Thermal energy storage system, Flexible hybrid ion capacitor, High-quality reduced graphene oxide supercapacitor, Water-proof electrochemical supercapacitor, Iron-based redox flow batteries and Space heating system. Several of these energy and water technologies were appreciated by the general public, corporate sector and the scientific fraternity who visited the DST pavilion at ISC.

A process technology for generating functionalized graphene at low-cost for the development of graphene-based supercapacitors for energy storage developed by IISER Pune and to be fabricated at SPEL Pune was displayed. Honourable Prime Minister Shri Narendra Modi during his visit to IISER Pune witnessed this cutting edge technology presentation, took cognisance of this effort, and stressed on need for affordable clean energy solutions.

Carbon nanotube coated cotton yarns (CNT-wires) that converts the electrical insulating yarn into a metallic conductor, thereby behaving like a flexible and pliable electrode, developed by IIT Mumbai, was showcased.



An indigenous, semi-automatic fabrication unit for manufacturing dye-sensitised solar cell (DSSC)-based modules developed by NIIST researchers and their industrial partner, Elixir Technologies, Bengaluru, was also highlighted.

The pavilion provided an opportunity for visitors to understand India's research led achievements in future energy. The five days exhibition witnessed a large number of visitors from the general public, corporate sector, scientific fraternity and academia, R&D institutes, defence, government, PSUs and so on. Dr Ranjith Krishna Pai, Scientist 'E', DST coordinated the overall presentation of the Technology Mission Division (Energy & Water) in the exhibition.