Embassy of India, Berne

INDIA SCIENCE AND INNOVATION WEEKLY

16 October 2023

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

JNCASR Experimentally Demonstrated the Presence of Magnetic Stress as a Driving Force Behind the Metal-Insulator Transition

Researchers at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) an autonomous institute of the Department of Science and Technology (DST) experimentally demonstrated that magnetic stress that stems from the peculiar arrangement of atomic spin drives the simultaneous structural, magnetic, and metal- insulator transition. The new mechanism of metal-insulator phase transition could lead to better understanding on how spin, charge and lattice degrees of freedom are coupled in materials and would also result in new classes of materials that exhibit metal-insulator phase transition.

MeitY inaugurated Robotic Process Automation (RPA) Lab

To upskill/reskill manpower in emerging technology of Process Automation (RPA), Ministry of Electronics & IT (MeitY) inaugurated a state-of-art Robotic Process Automation (RPA) Lab in NIELIT Gorakhpur. This is the First-of-its-kind lab in Uttar Pradesh under FutureSkill PRIME Project, which has been established to bridge the gap between Industry and Academia. MeitY also added that the state-of the-art RPA lab is going to play a pivotal role in transforming India into a global technology powerhouse as RPA has an important role in improving services to citizens by automating repetitive & manual processes such as data entry and verification.

MRC, IISc Developed a New Type of Enzyme Mimetic

Scientists at the Materials Research Centre (MRC), Indian Institute of Science (IISc), developed a new type of enzyme mimetic that could degrade toxic chemicals in industrial waste-water effectively in the presence of sunlight. In the current study, the IISc team synthesised a platinum-containing nanozyme called NanoPtA, which could be converted into powder form for industrial use. It mimics the function of oxidases – natural enzymes that remove hydrogen from substrates in the presence of oxygen to give water. This nanozyme is not only highly specific in breaking down certain substrates but is also robust because it could withstand a range of pH and temperature changes. The team tested the nanozyme's effect on common effluents that pollute water, like phenols and dyes and found that it could degrade even small (micromolar) quantities of phenols and dyes within ten minutes when placed under sunlight.

IIT-Madras Patented 'Combined Power Generation Technology'

Indian Institute of Technology (IIT) Madras, patented a 'Combined Power Generation Technology' that could generate electricity from both Tidal and Wind sources. This could be deployed as a mobile vehicle For Power Generation, Transmission and Storage. The current innovation is an energy converter system that generates electricity in coastal areas to reduce electricity demand. The converter system could be deployed depending on the power requirements in the coastal areas. At present, the Researchers are focused on scalability and affordability and are trying to build a cost-effective prototype using 3D-Printing. Elaborating on the key aspects of this innovation, IIT Madras added that the current invention creates electricity using only one vertical axis wind turbine.

Special Update: MeitY launched three Indigenous Intelligent Transportation Systems Solutions for Traffic Scenario

During the 11th Traffic Expo and Smart Mobility Conference, Ministry of Electronics & IT launched three Indigenously developed technologies, i.e.

i. CMOS Sensor based Camera for Industrial Application (iViS): an Indigenous technology for automated inspection and identification of objects.

ii. Thermal Sensor Camera for Intelligent Transportation System-(TvITS): AI powered thermal sensor based smart vision camera for road traffic applications.

iii. Online Sucro Crystal Imaging System (OSIS): It is a system developed using the industrial camera for measurement of crystal size in sugar industries.

The technologies have been developed under 'Intelligent Transportation System Endeavor for Indian Cities initiative' of the Ministry.

Disclaimer: The news articles mentioned in the India Science and Innovation Weekly are taken from open sources/public platforms