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

IIT Delhi Researchers developed Technology for Hydrogen Utilization in Spark-Ignition Engine Generator

Researchers at IIT Delhi, in collaboration with Kirloskar Oil Engines Limited and Indian Oil R&D Centre developed a Technology for Hydrogen Utilization in Spark-Ignition Engine Generator for Electricity Generation with Zero-Emission. This technology was built to combat the air pollution generated by Diesel-fuelled motors and the developed hydrogen engine could also be used in decentralized power generation for industries, buildings. The project was mainly funded by the Ministry of New and Renewable Energy (MNRE), GoI, and supplementary funded by KOEL and IOCL R&D Centre and IIT Delhi and KOEL have jointly filed a patent application for the technology.

Researchers at IIT Madras to develop Indigenous Software to monitor Maritime Traffic

Researchers at the Indian Institute of Technology, Madras (IIT, Madras) reported that they are going to develop an indigenous Vessel Traffic Software (VTS) to track and monitor maritime traffic. This indigenous software to be developed as part of the Maritime Vision 2030 action plans under IIT Madras and VO Chidambaranar (VOC) Port Trust in Tuticorin, Tamil Nadu, for which a MoU was signed recently. The software is also in line with India vision towards 'Aatmanirbhar Bharat to build a 'Digital India'.

Water Analyses Facility setup at the Indian Institute of Science (IISC), Bangalore

A multi-instrument Water Analyses Facility was set-up at the Indian Institute of Science (IISC), Bangalore, which allows for accurate and precise determination of concentration for metals and metalloids from 100 ppm to 10 ppt (9 orders of magnitude). The facility was setup under a multi-institutional project consists of combination of the two instruments i.e. a Quadrupole Inductively Couple Plasma Mass Spectrometer fitted with collision reaction cell (QQQ-ICP-MS) and an Inductively Couple Plasma Optical Emission Spectrometer with dual detection capability (ICP-OES). The Water analysis facility would be key in tracing sources of pollution, quantifying reactive-transport pathways of toxic metals, and assessing the efficiency of remediation methods.

Researchers at IIT Kharagpur developed technique to detect tropical cyclones

Researchers at the Indian Institute of Technology (IIT) Kharagpur developed a novel method using Eddy detection technique to detect tropical cyclones earlier than satellites. Department of Science and Technology, Govt. of India, supported the study under the Climate Change Program (CCP). The method developed aims to identify initial traces of pre-cyclonic eddy vortices in the atmospheric column and track its spatio-temporal evolution. The study was published in the Atmospheric Research journal.

Special Update: ACRI Scientists developed an eco-friendly process towards corrosion resistance to aluminium

Scientists at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous R&D Centre of the Department of Science and Technology, GoI, developed an environmental-friendly process called micro-arc oxidation (MAO), which provides excellent corrosion resistance to the high-strength aluminium (Al) alloys extensively used in aerospace, textile, and automotive applications. MAO is a high-voltage driven anodic-oxidation process, which through an electrochemical method, produces an oxide film on a metallic substrates. This work has been recently published in the 'International Journal of Fatigue'. ACRI Scientists also reported that this process with necessary modifications could be used for wear, corrosion, thermal, and fatigue and corrosion-fatigue life enhancement of a variety of components made out of Al, Mg, Ti, Zr, and their alloys.