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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*

IIA Accurately Estimated the Physical Parameters of Thermal and Magnetic Field Structures of Solar Coronal Holes

Astronomers of Indian Institute of Astrophysics (IIA), an autonomous institute of Department of Science and Technology, have accurately estimated the physical parameters of thermal and magnetic field structures of solar coronal holes which have significant influence on space weather that affects satellites, as well as the Indian summer monsoon rainfall. Coronal holes, which are dark regions in X-ray have open magnetic field lines and are hence important for understanding the interplanetary medium and space weather. IIA astronomers used eight years of full-disk calibrated images observed by the Solar and Heliospheric Observatory (SOHO) space probe to study these coronal holes.

IIT Madras' CeRAI Teamed Up with Roche Diagnostics for R&D

Indian Institute of Technology Madras (IIT-Madras) Centre for Responsible AI (CeRAI) teamed up with the Swiss based multinational pharmaceutical company 'Roche Diagnostics International Ltd', for collaboration in Research and Development (R&D). Roche joined CeRAI as a Gold Consortium Member with a Memorandum of Understanding (MoU) signed between the two organizations. CeRAI and Roche a global leader in in-vitro diagnostics and developer of digital health solutions, will engage in collaborative research activities in Analytics/ AI solutions as well as services for IVD diagnostics.

STPI Inaugurated State-of-the-Art Incubation Facility at Salt Lake, Kolkata

Software Technology Parks of India (STPI), under the Ministry of Electronics and Information Technology (MeitY), Government of India, inaugurated a state-of-the-art incubation facility at Salt Lake, Kolkata. The initiative aims to foster innovation-led entrepreneurship, boost IT exports, and strengthen the IT/ITeS/ESDM industry in West Bengal.

CeNS Bengaluru Developed HEA catalyst 'PtPdCoNiMn' for Efficient Generation of Green Hydrogen

Researchers at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute of the Department of Science and Technology (DST) developed a novel high-entropy alloy (HEA) catalyst called PtPdCoNiMn (consisting of Platinum, Palladium, Cobalt, Nickel and Manganese). This innovative approach using high-entropy alloy (HEA), could reduce reliance on expensive materials like platinum for clean energy production and could pave the way for cleaner, more affordable hydrogen production, benefiting industries and renewable energy technologies. As the PtPdCoNiMn HEA catalyst, created by combining platinum (Pt), palladium (Pd), cobalt (Co), nickel (Ni), and manganese (Mn), resulted in efficient hydrogen production with minimal energy loss, high durability, and long-term stability.

India's First Indigenous Automated Bio Medical Waste Treatment Plant

Ministry of Science & Technology (MeiTY), Govt. of India, launched India's first indigenous **Automated Bio Medical Waste Treatment Plant 'Srjanam'** at AIIMS New Delhi. This innovative, environmentally friendly technology, developed by CSIR-NIIST (National Institute for Interdisciplinary Science and Technology), offers a significant advancement in the sustainable management of biomedical waste. The "Srjanam" rig can disinfect pathogenic biomedical waste such as blood, urine, sputum, and laboratory disposables, without the use of costly and energy-intensive incinerators. Additionally, the rig imparts a pleasant fragrance to the otherwise foul-smelling toxic waste. With a daily capacity of 400 kg, the equipment is capable of handling 10 kg of degradable medical waste per day in the initial phase.

INST Mohali Developed Innovative Drug Delivery System

Researchers from Institute of Nano Science and Technology (INST) Mohali, an autonomous institution of the Department of Science and Technology (DST) developed a smart system that responds directly to the bio-chemical signals in the inflamed synovial environment. By targeting specific inflammatory enzymes present in the joints, the system ensures that therapeutic agents are released only when needed, offering a more precise and safer treatment option for RA patients. The system uses specially designed microspheres loaded with methotrexate, a commonly used anti-rheumatic drug. These microspheres are engineered to sense inflammation in joints and release the drug only when needed, minimizing side effects and improving therapeutic outcomes.

Special Update: IIT Madras & ISRO Jointly Developed & Successfully Booted an Atmanirbhar Aerospace Quality SHAKTI-Based Semiconductor Chip

Indian Institute of Technology (IIT) Madras and India's national space agency 'Indian Space Research Organisation' (ISRO) have led the way in developing and successfully booting an **Atmanirbhar aerospace quality SHAKTI-based Semiconductor Chip**. The SHAKTI class of systems are based on RISC-V, an open-source Instruction Set Architecture (ISA), for designing custom processors. 'SHAKTI' is backed by Ministry of Electronics and Information Technology, Government of India, under its 'Digital India RISC V' initiative (DIRV). It aims to promote indigenous development of microprocessor-based products that offer best-in-class security and visibility for users adopting RISC-V technology. The ISRO Inertial Systems Unit (IISU) in proposed the idea of a 64bit RISC-V-based Controller and collaborated with IIT Madras in defining the specifications and designing of the semiconductor chip.