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INDIA SCIENCE AND INNOVATION WEEKLY

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

RRI experts develop new way to diagnose various diseases

Scientists from Raman Research Institute (RRI) have developed a new technique to measure DNA alteration, especially its supercoiling, through the novel nanopore-based platform by using very low amounts of sample, which may help in the early diagnosis of many diseases like Cancer, Alzheimer's, and Parkinson's diseases. Further optimization of the technique can help in the development of portable nano-bio sensors for detection and quantification of protein aggregates and cell-free DNA or nucleosomes.

IISER experts develop AI device to deter COVID-19 spread

Innovators at Indian Institute of Science Education and Research (IISER), Bhopal have developed a low-cost Artificial Intelligence (AI)-enabled device, named 'Crowd and Mask' Monitoring System, to prevent COVID-19 from spreading. Using the principal of AI and Machine Learning (AI-ML), the innovators used a high definition camera attached to a microchip computer and a 5V battery in a 3D printed case to monitor the movement of people on the campus, alerting the crowd, if any breach of norms related to social distancing and mask wearing is detected.

Indian scientists discover new species of Alpine plant

Indian scientists have discovered new alpine plant species, named Cremanthodium indicum, which belongs to the family of Himalayan sunflower and generally flowers from July to August in Tawang district in Arunachal Prasesh. This district holds one of the assemblages of flowering plants in the northeastern state, which attracts botanists across the world.

Saha equation

Dr. Meghanad Saha was an Indian astrophysicist, who was noted for his development in 1920 for the thermal ionization equations. The Saha equation links the composition and appearance of the spectrum with the temperature of the light source and can thus be used to determine either the temperature of the star or the relative abundance of the chemical elements investigated.

ISRO commemorates first mission of 2021, with launch of PSLV C51

Indian Space Research Organisation (ISRO) has commenced its first mission of 2021, whereby India's rocket Polar Satellite Launch Vehicle (PSLV) C-51 carrying the 657-kg Amazonia-1 of Brazil and 18 other co-passenger satellites was launched from Satish Shawan Space Centre (SHAR). PSLV-C51/Amazonia-1, which will provide remote sensing data to users for monitoring deforestation in the Amazon region, is the first dedicated commercial mission of the Bengaluru-headquartered ISRO's commercial arm, NewSpace India Limited (NSIL). The other 18 co-passenger satellites are: from ISRO's Indian National Space Promotion and Authorisation Centre, i.e three UNITY sats from consortium of three Indian academic institutes and the Satish Dhawan (SD) SAT from Chennai-based Space Kidz India (SKI) and 14 from NSIL.

Indian school students discover 18 new asteroids

Over the last two years, 150 students from all around India participated in a two month long campaign conducted by Science, Technology, Engineering and Mathematics (STEM) and Space, along with the International Astronomical Search Collaboration (IASC) as part of a NASA citizen science project, to find asteroids, making this the largest asteroid discovery project in India. According to the International Astronomical Union (IAU), an organisation which assigns official names and designations to celestial bodies, Indian students have discovered 18 new asteroids, using advanced software-analysis, as part of a global science programme. In the project, the students from India, and across the globe analysed the high quality astronomical data provided by IASC -- an online scientific program for kids to discover Asteroids and Near Earth Objects (NEO), in an orbit between Mars and Jupiter, which pose a challenge to Earth as they may get perturbed out of their orbit and pose a threat of impact.

JNCASR scientist develop technique to recover electricity from waste heat

Scientists from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, have identified a lead-free material called Cadmium (Cd) doped Silver Antimony Telluride (AgSbTe 2), using an advanced electron microscope to visualize the resultant ordering of atoms in nanometer scale, which can efficiently allow recovery of electricity from 'waste heat'. An effort is being made to commercialize high-performance thermoelectric materials and devices, in collaboration with TATA steel, where lots of waste heat is generated in steel power plant.

Special Update: National Center for Combustion Research and Development

National Centre for Combustion Research and Development (NCCRD) is founded by the Combustion Institute – Indian Section and funded by the Department of Science and Technology at Indian Institute of Technology Madras and at Indian Institute of Science, Bangalore. NCCRD underlines the growing recognition of combustion and its importance on energy and environment. NCCRD's first three important missions among seven includes promotion of academic research in combustion and develop trained resaerchers; To increase the density of scientists and engineers in combustion research by promoting Graduation of more PhDs and Masters Students with research on combustion; and, To conduct series of summer and winter schools to train students and professionals across the country.

Further details can be found at:
https://nccrd.iitm.ac.in/