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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 Developed Handheld SERS Device for Early Diagnosis of Dengue Virus

Dept. of Physics, IIT Delhi has developed a handheld device known as Surface Enhanced Raman Spectroscopy (SERS) for early diagnosis of dengue virus. The SERS device provides dengue test results within one hour and was successfully tested on the clinical blood samples collected from hundreds of individuals in collaboration with ICMR-National Institute of Malaria Research (NIMR), New Delhi.

5V Dual Carbon Batteries developed by IIT Hyderabad

Researchers from IIT Hyderabad has successfully developed a sustainable and low-cost Dual carbon battery '5V Dual Carbon' which is a potential alternative for conventional Lithium-ion batteries as it utilizes self-standing carbon fiber mats as both electrodes (cathode and anode). The '5V Dual Carbon' can be potentially used in high voltage applications, sophisticated battery-run medical devices, regenerative braking systems in electric vehicles, and stationary grids. Also, the '5V Dual Carbon' battery is environmentally friendly as it is consisting of zero transition metal and may cut down the overall battery cost by 20-25%.

DRDO Developed a Supplemental Oxygen Delivery System 'SpO2'

The Defence Bio-Engineering & Electro Medical Laboratory (DEBEL), Bengaluru of DRDO has a Supplemental Oxygen Delivery System 'SpO2' (Blood Oxygen Saturation), which can be used at extreme high-altitude areas. The system delivers supplemental oxygen based on the SpO2 levels and prevents the person from sinking in to a state of Hypoxia. DRDO also reported that this SpO2 could also be beneficial to the Covid-19 patients. The SpO2 is designed to function under low barometric pressures, low temperatures and humidity. It comes in various sizes from 1 Litre and 1 Kg with 150 litres of oxygen supply to 10 litres & 10 kg weight with 1,500 litres of oxygen.

ARIES Scientists Discovered the Farthest Gamma-Ray

The Scientists and astronomers from ARIES, the autonomous institute of the Department of Science & Technology (DST) in collaboration with other institutes, discovered a farthest gamma-ray emitting active galaxy with narrow emission lines. This active galaxy is about 31 billion light years and called as Narrow-Line Seyfert 1 (NLS1) galaxy. This discovery is based on the study of around 25,000 luminous Active galactic nuclei (AGN) from the Sloan Digital Sky Survey (SDSS). Until today, gamma-ray emission was been detected in about a dozen NLS1 galaxies, which are a separate class of AGN identified some decades earlier. The finding recorded that the new gamma-ray emitting NLS1 was formed when the Universe was only about 4.7 billion years old as compared to its current age of about 13.8 billion years.

Centre for Nano and Soft Matter Sciences (CeNS) Developed Electronic Nose to Detect Hydrogen Sulphide

Scientists from the Centre for Nano and Soft Matter Sciences (CeNS), Bangalore, which is an autonomous institute of the Department of Science & Technology, GoI in collaboration from Saudi Arabia has successfully developed an electronic nose which detects hydrogen sulphide (H2S) produced from swamps and sewers. H2S is a poisonous, corrosive, and flammable gas. The electronic nose has a high ambient stability of around 8 months without compromising sensing performance.

DRDO Developed an Indigenous Advanced Chaff Technology

On 05 April 2021, Defence Research and Development Organisation (DRDO) of India reported that it has indigenously developed 3 variants of Advanced Chaff Technology i.e. Short Range Chaff Rocket (SRCR), Medium Range Chaff Rocket (MRCR) and Long Range Chaff Rocket (LRCR). The Advanced Chaff Technology is instrumental in safeguarding Indian naval ships from missile attacks. DRDO also reported that this development is another step towards Atmanirbhar Bharat. DRDO informed that Chaff is a passive expendable electronic countermeasure technology used worldwide to protect naval ships from enemy's radar and Radio Frequency (RF).

Special Update: India approved PLI scheme on 'National Programme on High Efficiency Solar PV Modules'

On 07 April 2021, Indian government approved the Ministry of New & Renewable Energy's proposal for implementation of the Production Linked Incentive (PLI) Scheme on 'National Programme on High Efficiency Solar PV (Photo Voltic) Modules'. The PLIC scheme was approved keeping a focus and target for achieving manufacturing capacity of Giga Watt (GW) scale in high efficiency solar PV modules with an outlay of Rs.4,500 crore. The PLI scheme would also support the Atmanirbhar Bharat initiative.