Embassy of India, Berne

INDIA SCIENCE AND INNOVATION WEEKLY

14 November 2022

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

Indian Tech Startup Launched Indigenously Developed State-of-the-Art 3D Bio-Printer 'Mito Plus'

Indian Tech Startup Avay Biosciences during the 'Bengaluru Tech Summit' Nov. 2022, launched an indigenously developed state-of-the-art 3D Bio-Printer 'Mito Plus', which has been found to be helpful in printing human tissues. The prototype of Mito Plus was installed at the Indian Institute of Science (IISc), Bangalore, the top-ranked science research institute by NIRF Rankings. Mito Plus is an advanced version of 3D bio-printer developed with inputs on the prototype from IISc Bangalore & is one of the advanced 3D bio-printers in India. The Startup also informed that MITO plus could be used for pharmaceutical drug discovery and drug testing applications etc.

Researchers Discovered New Material for Efficient Lithium-ion Batteries

Researchers from the Indian Institute of Technology (IIT) Gandhinagar in collaboration with the Japan Advanced Institute of Science and Technology (JAIST) discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs). This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds. Anode material is the negative electrode in lithium-ion batteries and is paired with cathode material in a lithium-ion battery cell. The anode materials in lithium-ion cells act as the host where they reversibly allow lithium-ion intercalation/de-intercalation during charge or discharge cycles. Li-Ion batteries enabled by nanosheets based anode material have an edge as they offer ultra-fast charging time (full charge within minutes).

IISc Bengaluru & BSSE Collaborated with Startup 'Prayasta' Developed State-of-the-Art 3D Printer

Indian Institute of Science (IISc) Bengaluru's Center for BioSystem Science and Engineering (BSSE) has collaborated with a startup Prayasta and a state-of-the-art 3D printer that could 3D print medical implant grade silicone. Researchers and team involved further informed that since the conventional 3D printer cannot use implant-grade silicone to make medical silicone implants because traditional 3D printers either use a filament or a powdered material. The natural form of the 'implant-grade' silicone is a liquid (of high viscosity) and cannot be converted to a filament or a powder. Hence, conventional 3D printers cannot use 'implant-grade' silicone. The newly developed 3D printer developed by Prayasta is world's first 3D printer to make medical-grade silicone implants and has been named Silimac P250. Prayasta has also received the Technology Startup Awards 2022 from the Department of Science and Technology(DST), Government of India.

IIT Madras & Ashok Leyland to Jointly Developed Hybrid Electric Vehicles

For the development and commercialization of 'Swirl Mesh Lean Direct Injection (LDI) System' technology, that would be used in developing a series of hybrid Electric Vehicles (Evs), Researchers at the National Centre for Combustion Research and Development (NCCRD) of Indian Institute of Technology-Madras (IIT-Madras), joined hands with Ashok Leyland. NCCRD, IIT-M, highlighting the key outcomes from the collaboration, commended the industry collaboration that would also enhance the scope of inhouse developments. IIT-M also commented that as the currently used battery-powered EVs, these newly developed Hybrid Electric Vehicles micro turbines would have a lighter power train and better weight-to-power ratio.

Special Update: CeNS, Bengaluru Developed New Technique for Efficient Fabrication of LCDs Devices With Lowered Cost

A team of scientists from the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute of the Department of Science and Technology (DST) conceptualized and implemented a novel way of employing a 2D materials and developed a new technique for efficient fabrication of liquid crystal display devices with lowered cost. The latest among these techniques is to employ 2D nanomaterials --- graphene, hexagonal boron nitride (h-BN), transition metal dichalcogenides, and so on as alignment layers. Scientists, further added that the new novel technique would help to overcome the drawbacks of current methods.