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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*

IISc Researchers Discovered Novel Strategy to Make Fast-Charging Solid-State Batteries

Researchers at Indian Institute of Science (IISc) discovered a novel strategy to make fast-charging solid-state batteries. Researchers informed that solid-state batteries are poised to replace the lithium-ion batteries found in almost every portable electronic device. But on repeated or excessive use, they develop thin filaments called 'dendrites' which could short-circuit the batteries and render them useless. Further, researchers identified the root cause of this dendrite and discovered this novel strategy to make fast-charging significantly delays dendrite formation, extending the battery's life and enabling it to be charged faster. Researchers said that the findings are a critical step forward in realising practical and commercial solid-state batteries as this strategy could also be extended to other types of batteries that contain metals like sodium, zinc and magnesium.

Successful Test of Made-In-India 5G call at IIT Madras

Minister of Telecom and IT, successfully tested a 5G call on an indigenously-developed network at the 5G test-bed at Indian Institute of Technology (IIT) Madras. The 5G test-bed shows as India has been developing its local 5G network solution and it would be more efficient in cost as well as productivity. Further, government would be deploying the solution, once its ready for commercialisation, on the BSNL network & later private operators.

Scientists Used Machine Learning to Develop a Design Map of Alloys at the Nanoscale

Researchers & Scientists at the S N Bose Centre for Basic Sciences, an autonomous institute of the Department of Science and Technology used Machine Learning (ML) to develop a design map of alloys at the nanoscale which can help predict the match of pairs of metals that can form bimetallic nanoalloys. These nano alloys, also called core-shell nanocluster alloys, in which one metal forms the core and another stays on the surface as a shell, are a new frontier in the quest of scientists for new materials and have applications in biomedicine and other areas. The ML model designed by the S.N Bose team predicted 872 unknown semiconductor hetero-structures of type 2 where the electrons and holes align themselves in A semiconductor and B semiconductor, respectively, giving rise to a desirable hetero-structure for semiconductor gadgets.

DST Launched Geospatial Self Certification Portal

Ministry of Science & Technology, Department of Science and Technology (DST) with the aim towards liberalization of the Geospatial industry in India, launched the Self Certification Portal for conveying adherence to provisions of Geospatial Guidelines by Individuals, companies, organizations, and Government agencies. Individuals, companies, organizations, and Government agencies, shall be free to process the acquired Geospatial Data as using the Portal would essentially cut down time spent on obtaining clearances and approvals.

Special Update: ARCI Developed Manufacturing Process for Steel Alloy Powder

Scientists at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous institute of the Department of Science and Technology (DST), developed a manufacturing process for steel alloy powder that could act as a tool for developing efficient cooling channels for pressure die casting. This could help improve the tool service life, quality of cast parts and reduce number of rejections during the casting process. ARCI researchers developed an additive manufacturing process for a steel alloy powder called AISI H13 which could act as a tool material for efficient cooling channels or conformal cooling channels (CC) for pressure die casting (PDC). The additive manufacturing process offers the freedom to give any desired shape to the cooling channels so that they can carry out the cooling efficiently.