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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

Indian Scientists Developed Low-Cost Fe-Based Intermetallic Powders

Researchers & scientists at the Centre for Engineered Coatings (CEC), International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), an autonomous R&D Centre of the Department of Science and Technology (DST), developed low-cost Fe-based intermetallic powders (by synthesizing Fe-based intermetallic powders and utilized the same for depositing the coatings using detonation spray coating (DSC) technique) that could be used as a corrosion-resistant coating for materials exposed to harsher environments like high temperature in thermal power plants where oxidation, corrosion, and wear and tear takes place simultaneously. Further, ARCI developed gas atomized Fe aluminide powder and deposited it on mild steel substrates by DSC without any cracks or spalling & the coatings showed 4 times increased corrosion resistance in the aqueous corrosive media than the mild steel.

IIT Madras Established New research Centre for Wastewater Analysis

The International Centre for Clean Water (ICCW) at the Indian Institute of Technology (IIT) Madras established a new research centre 'Wastewater-Based Epidemiology (WBE)' that would test wastewater for indicator organisms and chemicals. The ICCW team would work on building a hydro-informatics platform for the city with appropriate modelling tools to give spatiotemporal information of the data derived from WBE studies.

Scientists at ARIES Developed a New Model for Inferring Density Inhomogeneity in the Solar Corona

Scientists from Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, an autonomous institute under the Department of Science & Technology, Government of India developed a new theoretical model to quantify the inhomogeneity in density of solar corona generated by the turbulence in the electrically conducting, magnetized fluid present as plasma in it. This method involves numerical simulation. Researchers found that the theoretically estimated values are in good agreement with the observed values in the solar corona. According to the study, magnetohydrodynamic (MHD) wave-driven turbulence increases the filling factor of the overdense structures, and the medium becomes more density homogeneous.

World Class Indigenous Technology Available in India for Road & Highway Construction

Ministry of Science & Technology, reported that in India a world-class indigenous technology is available for road & highway construction, which is Increasing application of Science & Technology in the Road Transport and Highways. Further, the Ministry for Road Transport and Highways launched 'Mobile Cold Mixer Cum Paver' for constructing black top layer using bitumen emulsion and 'Patch Fill Machine' for Potholerepair along the road & added that the use of affordable, sustainable and recyclable technologies in the Road and Highways sector is fast building the arterial network of India.

Special Update: IIT Madras to Develop Technologies for Manufacturing in Space

With an overall aim Researchers Indian Institute of Technology (IIT), Madras to cater the near furtue techonologies which would require technologies that would enable manufacturing products and assemblies in space and at extra-terrestrial locations for use both in space and to bring it back for use on earth. IIT Madras researchers established a research group to develop technologies i.e. 3D printing of metals and functional optical polymers, water-less concrete using martial soils, diamond single crystals, solar cells, and metal foams for manufacturing products at extra-terrestrial locations and address the existing gaps. Further, the research group to develop technologies for Extra-Terrestrial Manufacturing (ExTem) would be working on the first ever Microgravity Drop Tower Research Facility established in India.