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NEWS ALERT

Forum for Indian Science Diplomacy

RIS Science Diplomacy News Alert is your fortnightly update on Indian and global developments in science research, technological advancements, science diplomacy, policy and governance. The archives of this news alert are available at <http://fisd.in>. Please email your valuable feedback and comments to science.diplomacy@ris.org.in

GLOBAL

Scientists call for a global moratorium on heritable genome editing

18 Scientists from 7 countries have called for a global moratorium on all clinical uses of human germline editing — that is, changing heritable DNA (in sperm, eggs or embryos) to make genetically modified children. Setting up of an international framework for the clinical use of Germline Editing becomes important in the midst of pending discussions on technical and medical issues having ethical and moral repercussions for the society. The proposed moratorium would not apply to research uses. The group advocates voluntary pledges by countries rather than an international treaty.

Harvard conducts large scale, single cell CRISPR editing

In an attempt to redesign species with large scale DNA changes, a research team at the George Church's Harvard Lab has made 13,200 alterations to a single cell setting a record for the gene-editing technology. An important goal is to create supplies of human organs or tissues whose genomes are revised so they are immune to all viruses. That process, called recoding, would involve about 9,811 precise genetic modifications, according to the team.

Wood-based technology to generate Energy like Human body

A University of Maryland-led team of researchers has transformed a piece of wood into a flexible membrane that generates energy from the same type of electric current (ions) that the human body runs on. This energy is generated using charged channel walls and other unique properties of the wood's natural nanostructures. With this technology, they have demonstrated a proof-of-concept device, to harvest low-grade heat using nanoionic behaviour of processed wood nanostructures.

New technique to detect Dopamine developed for biomedical diagnosis

Using nanotechnology, University of Central Florida (UCF) researchers have developed the first rapid detector for dopamine, a chemical that is believed to play a role in various diseases such as Parkinson's, depression and some cancers. The new technique developed at UCF requires only a few drops of blood, and results are available in minutes (instead of hours because no separate lab is necessary) to process the sample, using a few drops of blood on a palm-sized, rectangular chip. Plasma is separated from the blood within the chip. Cerium oxide nanoparticles, which coat the sensor surface, selectively capture dopamine at microscopic levels from the plasma. The capture of dopamine molecules

subsequently changes how light is reflected from the sensor and creates an optical readout indicating the level of dopamine.

INDIA

IISc collaborates to develop self-repairing flexible electronics

Scientists from the Indian Institute of Sciences (IISc), Bangalore in collaboration with the University of Cambridge have developed a novel technique for making flexible electronic parts self-healing too. This technique doesn't require any rare earth materials or complex circuitry like the previous attempts made in the field of flexible electronics.

IIT - IISc collaborate on Climate Change initiative

Indian Institutes of Technology (IITs)-Guwahati and Mandi as well as Indian Institute of Science Bengaluru have collaborated to develop a 'Climate Change Vulnerability Assessment for the Indian Himalayan Region Using a Common Framework' covering all the 12 Indian Himalayan region (IHR) states. This will be useful for government officials, implementers, decision makers, funding agencies and development experts.

India and EU to step up cooperation on Research and Innovation

The 12th EU-India Joint Steering Committee meeting on Science and Technology took place earlier this month. India and EU acknowledged the existing technological cooperation and the need to tap the potential of large innovation capacities of both EU and India. Emphasis was also laid on making science relevant for society and on strengthening cooperation on health research and bio-economy.

India-Afghanistan collaborate on digital education initiatives

The Ministry of Human Resource Development signed a memorandum of understanding with the Ministry of Higher Education, Afghanistan to work on Digital Education Initiatives that will include many programmes including Sharing of Online Education Platform, named 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM), sharing and access to various Indian facilities and sharing of experience and participation of higher educational institutions of Afghanistan in various activities.

Innovative technique by Punjab companies to tackle stubble burning

Farm2Energy Pvt Ltd, a Ludhiana-based company has a business model which uses the crop residue, thereby preventing stubble burning and also saving the lungs of the population. The business use balers and tractors to scoop up the stubble, roll it into bales which are then sold to neighbouring sugar and cement factories. These factories and power plants then burn the stubble in a controlled environment for their own industrial purposes.

Chandrayaan-2 to carry NASA's laser instruments to Moon

India's lunar mission, Chandrayaan-2 which is scheduled for launch in April will carry NASA-owned retroreflector arrays. The 800- crore Chandrayaan-2 mission comes a decade after India's first lunar mission, Chandrayaan-1 launched in October 2008.

Study reveals shielding effect of Nitrogen against climate change

Agricultural scientists from IIT Kharagpur have revealed in their new study the effect of adding more Nitrogen as a possible way to offset the climate change repercussions on wheat crop. The findings have been published in the European Journal of Agronomy.

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