



## NEWS ALERT

*Forum for Indian Science Diplomacy*

RIS's 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](mailto:science.diplomacy@ris.org.in)

### GLOBAL

#### [Future of Science and Technology Policy unclear in the midst of the Brexit](#)

The EU'S draft documents outlining a future relationship with the UK after 2020 contains little detail about the science and technology component. The key unresolved issues remaining are role of UK in - Euratom including the ITER project, and in space and security related programmes. Mobility of UK researchers across the UK and vice versa and UK's participation in EU flagship programme Horizon 2020 and Horizon Europe needs to be clarified.

#### [Poland passes a new law on Science & Technology](#)

The new legislation "Constitution for Science" passed by the Polish Parliament gives autonomy to universities in setting research priorities, and makes research financing simpler, with the aim of enabling them to become more successful in EU R&D funding programmes and increase their international standing. Separate streams of funding for teaching and for research would now be combined into a single fund by universities. Federations of universities can be created. Research funding will be linked to performance of individual researchers, also changing the way university performance is assessed.

#### [Asia on way to becoming the new home of Higgs Boson studies](#)

Chinese scientists have released plans for a \$5 billion, Circular Electron Positron Collider (CEPC) to be completed in 2030. The machine will enable detailed studies of Higgs bosons. CEPC will consist of an underground tunnel 100 km in circumference. It will produce intense beams of electrons and positrons and investigate high energy collisions of up to 240 GeV and produce Higgs bosons, W bosons and Z bosons. The IHEP expects the Chinese government will fund 75% of the project while 25% will be sourced from an international collaboration. After 10 years, the CEPC can be upgraded to a super proton-proton collider (SPPC) with an energy range of 75 TeV, five times higher than the Large Hadron Collider of CERN. Japanese physicists are also planning a \$5 billion machine called the International Linear Collider, to produce and study Higgs bosons.

#### [Greenhouse Gas levels continue to rise](#)

The latest (22 November) Greenhouse Gas Bulletin issued by the World Meteorological

Organisation indicates the level of major Greenhouse Gases in the atmosphere continue to increase. The levels reached in 2017 and growth rates are (1) Carbon Dioxide 405.5 ppm (2.2 ppm per year) (2) Methane 1859 ppb (7 ppb per year) (3) Nitrous Oxide 330 ppb (0.9 ppb per year\*). The report also noted that there was a higher than expected level of chlorofluorocarbon CFC-11, a potent greenhouse gas (GHG) and a stratospheric ozone-depleting substance (ODS) and said that "the most likely cause of this slowing is increased emissions associated with production of CFC-11 in eastern Asia. "

(\* ppm- parts per million by volume ppb- parts per billion by volume)

### [World's first full body scanning technology EXPLORER produces its first 3D images](#)

Researchers at the University of California-Davis have developed a scanner - EXPLORER that uses a combination of Positron Emission Tomography (PET) and X-ray Computed Tomography (CT) – to look at the entire body's organs and tissues in one go. This machine can take a full body scan in just 30 seconds. The researchers also claim it is far safer, and needs a much smaller radiation dose than a PET scan alone. EXPLORER can also produce movies of the body in motion, capable of tracking blood vessels or even drugs that are making their way through the body.

### [Nano Grenades developed by Russian chemists to help fight Cancer](#)

Russian chemists have developed a unique "transforming nanoparticle" that can help fight cancer and other diseases. The hollow nanoparticles with a covering of polymer filaments and granules of titanium oxide and silver; When illuminated with an infrared laser, the nanoparticle collapses from heat releases the particle's contents, and also releases oxygen. Tests showed that the nanoparticles could release sugars into bacteria. Since infrared radiation passes easily through the human body, the use of such nanoparticles to fight cancerous tumours or various infections will be possible in virtually any part of the body.

### [CBD COP14 in Egypt](#)

COP 14 to the Convention of Biological Diversity is taking place in Egypt, from 17-29 November 2018. The theme of the 2018 Biodiversity Conference is "Investing in Biodiversity for people and planet"

## INDIA

### [MoU between Atal Innovation Mission & SIRIUS for promotion of innovative cooperation between students of India and Russia](#)

The Union Cabinet appraised the Memorandum of Understanding signed between India and Russia during Russian President Vladimir's visit to India in October. The MoU aims at promoting new scientific knowledge, generation of intellectual property, innovations and product development in both countries.

### [Panjab University researchers propose a novel strategy to treat diabetic wound infection](#)

Researchers from the Department of Microbiology have successfully treated multi-drug resistant bacterial infection in diabetic mouse model. Phage therapy, as it is called, uses a special virus to target particular bacteria. It was much prevalent before the popularisation of antibiotics.

### [CSIR- National Botanical Research Institute, Lucknow develops transgenic rice with reduced arsenic accumulation](#)

Researchers from CSIR, Lucknow have developed transgenic rice by inserting a novel fungal gene, which results in reduced arsenic accumulation in the rice grain.

#### **[EURAXESS Science Slam India Award for Bengaluru-based researcher](#)**

Prabahan Chakrabarty, a graduate student from National Centre for Biological Sciences has won the EURAXESS Science Slam India Competition 2018. The contest is held in collaboration with the Embassy of France, Alliance Francaise, India Bioscience, Global Innovation & Technology Alliance and Indo-German Science & Technology Centre which offers a platform for young researchers to showcase their work outside their labs.

#### **[Boron-rich nanosheets developed by researchers from IIT-Gandhinagar can also act as chemical reagents](#)**

The discovery can have potential applications in energy storage devices and next-generation sensors.

#### **[India seeks collaborators for a mission to Venus in 2023](#)**

ISRO has announced an orbiter mission to Venus in 2023 and has invited proposals from scientists around the world for instruments to be carried as payload to study the planet's atmosphere.

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