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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

GLOBAL

[BWC challenges discussed ahead of the 2021 Review Conference](#)

States-parties to the Biological Weapons Convention (BWC), met in Geneva from 4th to 7th December 2018, and discussed challenges ranging from longstanding financial arrears by some member countries, and measures against diseases such as Ebola, misuse of scientific advances such as gene editing, and possible covert bioweapons programs. The annual meetings of experts and of states-parties provide further opportunities for consideration of measures to strengthen the convention prior to the BWC ninth review conference in 2021.

[Intensifying Youth Activism over Climate Change](#)

Greta Thunberg, the 16-year-old Swedish climate activist behind the fast-growing School Strikes 4 Climate Action, is rapidly becoming the voice for a generation who are demanding urgent action to slow the rise in global temperatures. She started the protest by striking for three weeks outside the Swedish Parliament, lobbying MPs to comply with the Paris Agreement. The movement started by Greta is gathering momentum and support from across the world, with more than 20,000 students having skipped school in Germany, Belgium, Switzerland and Australia recently. Having already addressed the UN Climate Change Conference COP24, Thunberg recently took her campaign to another global platform of the World Economic Forum at Davos, to take the attention of world leaders and business chiefs to the global emission crisis.

[Breakthrough reported in organic semiconductors](#)

Researchers led by Chalmers University of Technology of Sweden have discovered a simple new tweak that could double the efficiency of organic electronics. OLED-displays, plastic-based solar cells and bioelectronics are just some of the technologies that could benefit from their new discovery, which deals with 'double-doped' polymers. Doping in organic semiconductors operate through redox reaction. This discovery could allow further improvements to technologies which today are not competitive enough to make it to the market. It could help researchers to achieve advances in flexible electronics, bioelectronics and thermoelectricity.

[Ordinary Cameras can now photograph out-of-sight objects](#)

Electrical engineer Vivek Goyal and his colleagues at Boston University have developed a

new photo-analysing computer program which enables the photographer to capture something that's not even in frame. The system analyses light that is reflected off matte surfaces, such as walls, to discern out-of-sight images, similar to the way a periscope mirror reveals what's around a corner. While other techniques for spotting out-of-sight objects require expensive, specialist optical equipment, the new program can render a rough, full-colour reconstruction of a hidden scene using a single snapshot captured with an ordinary digital camera. This technology, described in the Jan. 24 Nature, may also help police monitor buildings from the outside during hostage situations or first responders scout out collapsed buildings after disasters.

[Self-administered contraceptives to transform family planning paradigm](#)

Researchers from the Georgia Institute of Technology have designed a new long-acting contraceptive designed to be self-administered by women. This may provide a new family planning option, particularly in developing nations where access to healthcare can be limited. The contraceptive would be delivered using microneedle skin patch technology originally developed for the painless administration of vaccines.

[New Bioinspired nanoscale drug delivery method developed](#)

Washington State University researchers have developed a novel way to deliver drugs and therapies into cells at the nanoscale without causing toxic effects. The work could someday lead to more effective therapies and diagnostics for cancer and other illnesses. The flower-like particle that the team developed, is about 150 nanometers in size, or about one thousand times smaller than the width of a piece of paper. It is made of sheets of peptoids, which are similar to natural peptides that make up proteins. The peptoids make for a good drug delivery particle because they're fairly easy to synthesize and, because they're similar to natural biological materials, work well in biological systems. The work could someday lead to more effective therapies and diagnostics for cancer and other illnesses. The team has filed a patent application for the new technology, and they are seeking industrial partners for further development.

[Virtual video visits may improve patient convenience without sacrificing quality of care](#)

A team of researchers at Massachusetts General Hospital (USA) Centre for Telehealth, reports that virtual video visits, one form of telehealth visit used at the hospital, can successfully replace office visits for many patients without compromising the quality of care and communication.

Virtual video visits are personal video chat communications between a health professional and patient using a computer or tablet via a secure application. The authors note that their study may have important lessons for a future in which several different modes -- such as text, video, online, home and office visits -- are available for patient-clinician communication. With a telehealth visit, 95 percent of the time spent by the patient is face-to-face with the doctor, compared to less than 20 percent of a traditional visit, in which most time is spent traveling and waiting. This method could have large benefits for India, where the physical access to doctors may be difficult for all.

INDIA

[Microsoft plans big AI push in India](#)

Microsoft is planning to set up 10 AI labs in different universities and aiming to train 5 lakh youth, including 10,000 developers in Artificial Intelligence. The company recently also announced the Intelligent Cloud Hub Program with an aim to equip higher education and research institutions with AI infrastructure and related skills. Working with stakeholders

across the public, private sector, civil society and academia, the technology giant aims to create the right conditions for human-focused AI.

Government launches two major national level initiatives in the field of science communication

The Department of Science Technology (DST), along with Doordarshan (DD), Prasar Bharti launched two science communication initiatives on January 15th, 2019. The two science channels are a major milestone in the history of science communication in the country. While DD Science is a one-hour slot on Doordarshan National channel, which will be telecast Monday to Saturday from 5 pm to 6pm, India Science is an internet-based channel, which is available on any internet-enabled device, and will offer live, scheduled play and video-on-demand services. The two channels will have science-based documentaries, studio-based discussions, and virtual walkthroughs of scientific institutions, interviews and short films and will be completely free to access.

IIT Delhi and Tata Trusts join hands to scale up Institute's new School of Public Policy

The Indian Institute of Technology Delhi (IITD) and the Tata Trusts today announced a major partnership through which the recently established IITD School of Public Policy, the first of its kind in India, will become a world-class hub of public policy research and education on issues at the intersection of science and technology (S&T) and development. Tata Trusts will provide a grant of Rs 50 crore for five years. The School intends to contribute to improved policy-making such that the Indian S&T enterprise can better meet the country's developmental priorities and also address major global challenges.

Indian Council of Agricultural Research & Department of Biotechnology to increase cooperation

ICAR and DBT have signed a MoU for mutual collaboration to explore the possibility of cooperation, convergence and synergy to promote and accelerate the progress of research and training in various disciplines of agricultural biotechnology. The specific objectives are to plan and implement jointly the mutually agreed major National programmes through joint funding and sharing of resources in the priority areas of agricultural biotechnology. The collaborations also encompass to promote agri-innovations and start-ups, through the well-established BIRAC mechanism. This flagship synergistic approach would be taken-up in mission mode through networking with the elite institutions in India.

India and Republic of Uzbekistan sign contract for supply of Uranium concentrate

A contract was signed between the Department of Atomic Energy of India and the Novoi Minerals and Metallurgical Company of the Republic of Uzbekistan on long-term supply of Uranium Ore Concentrate for India's energy requirements. Uzbekistan is the seventh largest exporter of uranium in the world. India has been working on securing a stockpile of nuclear fuel to sustain the country's nuclear reactors for the next five years. It currently imports natural Uranium from Kazakhstan and Canada for its pressurised heavy water reactors. Apart from that, it has agreements in place to import uranium from Namibia and Mongolia.

India sets a new world record for continuous operation of a nuclear reactor

The unit-1 of the Kaiga Generating Station (KGS-1, 220 MW) has surpassed the previously held record by being in continuous operation for 962 days (till 31.12.2018). The earlier record of 940 days continuous operation was held by Heysham-2 Unit-8 of the United Kingdom. The Kaiga Nuclear Power complex, situated in Karnataka, comprise of four indigenously developed Pressurized Heavy Water Reactors (of 220 MW each), fuelled by natural uranium fuel. This record is an exemplar milestone which depicts the capability of NPCIL in the design, construction and operation of PHWRs with unprecedented levels of efficiency and safety.

India-Norway S&T cooperation boosted

Ms. Erna Solberg, Prime Minister of the Kingdom of Norway, paid a State Visit to India on 7-9 January 2019. Discussions centred on the importance of sustainable use of the oceans, including for food security, energy sources, mineral exploration and climate-friendly maritime transport. A MoU was signed on India-Norway Ocean Dialogue and the establishment of the Joint Task Force on Blue Economy in order to promote multi-sectoral cooperation in various aspects of Blue Economy. The two sides agreed to strengthen their partnership as knowledge-based economies and make concerted efforts for cooperation in the domains of higher education, research & innovation, energy, ICT, climate & environment, maritime sector, fisheries & aquaculture. Norway was also invited to participate in the International Solar Alliance.

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Research and Information System for Developing Countries

Core IV B 4th Floor, India Habitat Centre, Lodi Road, New Delhi 110003, India

Tel:-011- 24682176, E-mail: science.diplomacy@ris.org.in

Website: www.fisd.in

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