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SCIENCE & TECHNOLOGY

GLOBAL

[A New Kind of AI Copy Can Fully Replicate Famous People](#)

Chinese researchers at Tsinghua University have built a bot, nicknamed “Ask Martin,” which can replicate virtually Martin Seligman, a noted American psychologist. The Chinese-built virtual Seligman is part of a broader wave of AI chatbots modeled on real humans, using the powerful new systems known as large language models to simulate their personalities online. Over two months, by feeding every word Seligman had ever written into cutting-edge AI software, the team had built an accurate version of Seligman himself — a talking chatbot whose answers drew deeply from Seligman’s ideas, whose prose sounded like Seligman’s own speech, and whose wisdom anyone could access. In Southern California, tech entrepreneur Alex Furmansky created a chatbot version of Belgian celebrity psychotherapist Esther Perel by scraping her podcasts off the internet. He used the bot to counsel himself through a recent heartbreak, documenting his journey in a blog post that a friend eventually forwarded to Perel herself. Both Seligman and Perel eventually decided to accept the bots rather than challenge their existence. But if they had wanted to shut down their digital replicas, it’s not clear they would have had a way to do it. Training AI on copyrighted works is not actually illegal. AI-generated digital replicas illuminate a new kind of policy gray zone created by powerful new “generative AI” platforms, where existing laws and old norms begin to fail. A draft bill in the US Congress seeks to force the makers of AI-generated digital replicas to license their use from the original human. Neither Perel nor Seligman reside in the country where their respective AI chatbot developers do. Perel is Belgian; her replica is based in the U.S. And AI Seligman is trained in China, where U.S. laws have little traction.

[Low Cost SQUID Submarine Detector is World's Most Sensitive](#)

Chinese scientists claim to have developed an ultra-sensitive version of Superconducting Quantum Interference Devices (SQUIDs) the world’s most sophisticated submarine detection technology, at a low cost that enables it to be used by packs of drones to find and attack hidden vessels in the open sea. The researchers from North University of China, said their design slashed costs while increasing performance by an order of magnitude, making it possible for the detectors to be widely fitted to unmanned aerial vehicles (UAVs). The probes use superconducting coils that can detect the faintest disturbances in the Earth’s magnetic fields caused by submarines as they navigate deep waters. The researchers designed a probe that uses a single superconducting magnetic gradiometer to achieve a “remarkable” increase in precision, compared to those in use by anti-submarine forces across the globe. They increased the number of coils to four, arranging them so that they perform

the work of six gradiometers (or 12 superconducting coils). The reduction in components significantly minimised the device's internal noise, resulting in a cost-effective model that surpassed the sensitivity of its high-priced predecessors. The simplified design would not only drastically reduce costs, it would also minimise maintenance requirements and the risk of malfunctions during operational use. Field tests have shown that the instrument remains stable in open and complex environments, and detect extremely weak magnetic anomaly signals. The team works with Beijing Milestone Technology, a joint venture between the government and private capital, which has already integrated some magnetic detectors into UAVs and underwater vehicles.

Bottled Water Contains Tiny Plastic Particles, Posing Unknown Health Risks

Using newly refined technology, US researchers have counted and identified minute plastic particles in bottled water for the first time. They found that, on average, a liter contained some 240,000 detectable plastic fragments 10 to 100 times greater than previous estimates, based mainly on larger sizes. Nanoplastics can pass directly into the bloodstream and travel from there to organs. Medical scientists are studying the possible effects on a wide variety of biological systems. Microplastics are sized from 5 millimeters down to 1 micrometer; Nanoplastics are smaller than 1 micrometer. The new study uses a technique called stimulated Raman scattering microscopy, which involves probing samples with two simultaneous lasers tuned to make specific molecules resonate with seven common plastics. The researchers tested three popular bottled water brands sold in the United States analyzing plastic particles down to just 100 nanometers in size. They spotted 110,000 to 370,000 particles in each liter, 90% of which were nanoplastics; the rest were microplastics. They also determined which of the seven specific plastics they were. One common one was polyethylene terephthalate or PET widely used for bottled products. However, PET was outnumbered by polyamide, a type of nylon that probably comes from plastic filters used to supposedly purify the water before it is bottled. Other common plastics the researchers found were polystyrene, polyvinyl chloride, and polymethyl methacrylate, all used in various industrial processes. The seven plastic types the researchers searched for accounted for only about 10% of all the nanoparticles they found in samples. The researchers are now reaching beyond bottled water to look at tap water, wastewater, snow and human tissues.

Graphene-based Implantable Technology for High-precision Therapeutic Applications

A novel class of flexible, high-resolution, high-precision graphene-based implantable neurotechnology, EGNITE (Engineered Graphene for Neural Interfaces) has been developed. It adds an innovative technology to the blooming landscape of neuroelectronics and brain-computer interfaces. EGNITE builds on the vast experience of its inventors in the fabrication and medical translation of carbon nanomaterials. This innovative technology based on nanoporous graphene integrates fabrication processes standard in the semiconductor industry to assemble graphene microelectrodes of a mere 25 μm in diameter. The development addresses a critical gap in neurotechnology, which has seen little advancement in materials over the last two decades. The development of EGNITE electrodes has the capacity to place graphene at the forefront of neurotechnological materials.

Light-powdered Catalyst to Make Hydrogen Developed

A team from the Universitat Politècnica de Catalunya, BarcelonaTech (UPC) and the Catalan Institute of Nanoscience and Nanotechnology (ICN2) have designed an efficient and stable photocatalyst capable of producing hydrogen directly using sunlight. Using a mechanochemical

process, the researchers deposited metal clusters on titanium dioxide nanoparticles of various morphologies and found that the different exposed crystallographic faces of titanium dioxide also play a key role in hydrogen production. Both the stability of photocatalysts and the strength of electron transfer between the semiconductor and the metal nanoparticles are strongly related to the semiconductor's exposed faces, which are responsible for atom mobility and aggregation. The outcomes of this research will enable the design of new catalysts for the efficient and sustainable production of green hydrogen.

INDIA

ISRO Successfully Launched India's First X-ray Polarimeter Satellite

The Indian Space Research Organisation (ISRO) launched India's first X-ray Polarimeter Satellite (XPoSat) into orbit. This groundbreaking initiative aims to delve into X-ray polarization and explore various cosmic sources, including black holes, neutron stars, and magnetars. XPoSat stands as the world's second mission of its kind, distinct from NASA's 2021 launch of the Imaging X-ray Polarimetry Explorer (IXPE) focusing on soft X-ray band measurements. Conversely, XPoSat is designed to operate within the medium X-ray band. Equipped with two payloads—POLIX (Polarimeter Instrument in X-rays) and XSPECT (X-ray Spectroscopy and Timing)—XPoSat anticipates observing nearly 40 distinct bright astronomical sources while studying the electromagnetic spectrum generated by different matter, as outlined by ISRO. X-ray polarization enables an intricate examination of radiation mechanisms and celestial source geometries. These insights gleaned from X-ray polarization measurements hold immense potential in augmenting our understanding of the physics governing black holes, neutron stars, and active galactic nuclei. Developed by two Bengaluru-based institutes — the ISRO's UR Rao Satellite Centre and Raman Research Institute — XPoSat was conceptualized in 2008, with formal collaboration with ISRO initiated in 2015. This is India's third space-based observatory following the recent solar mission Aditya-L1 and the 2015 launch of AstroSat.

India's Space Startups Conduct Experiments Onboard ISRO's POEM

In a significant stride for India's burgeoning space sector, Hyderabad-based Dhruva Space and Bellatrix Aerospace have marked remarkable successes in their recent tests onboard the Indian Space Research Organisation's (ISRO)'s PSLV Orbital Experimental Module (POEM) which acted as the host platform for these experiments, leveraging the spent PS4 stage as an orbital platform for scientific endeavours. Dhruva Space announced the successful testing of its 'Launching Expeditions for Aspiring Payloads - Technology Demonstrator' (LEAP-TD) aboard ISRO's platform. Key subsystems validated during this test include the On-Board Computer, Ultra High Frequency (UHF) TT&C Module, UHF Beacon, Attitude Control System featuring a Reaction Wheel from Comat, and Power Distribution Board. Meanwhile, the Defence Research and Development Organization (DRDO) announced the successful testing of Bellatrix Aerospace's high-performance green propulsion system. The eco-friendly technology is anticipated to lower satellite costs and enhance India's space capabilities. ISRO's POEM platform facilitates in-orbit experiments for space startups, university students, and research institutes. This initiative optimizes the spent PSLV rocket stage, which would otherwise crash into the sea post-satellite deployment, providing standard interfaces and packages for experimental payloads' design, development, and validation.

India Mauritius Joint Satellite Project Approved

The Union Cabinet has approved a Memorandum of Understanding signed at Port Louis, Mauritius on November 01, 2023 between Indian Space Research Organization (ISRO) and Mauritius Research and Innovation Council (MRIC) of the Republic of Mauritius, concerning cooperation on the development of a Joint Small Satellite. MoU provides for the development of a joint satellite as well as for cooperation on the use of the MRIC's Ground Station. Some of the subsystems for the joint satellite will be taken up through the participation of Indian industries and would benefit the industry. Collaboration through this joint development of satellite will help ensure support from the Mauritius Government for the Indian ground station at Mauritius, which is critical for ISRO/India's launch vehicle and satellite missions. In addition, the joint satellite building will also help in ensuring MRIC support from their ground station for ISRO's small satellite mission in future. Some of the subsystems for the joint satellite will be taken up through the participation of Indian industries. The satellite project is proposed to be completed in 15 months' time frame. The estimated project cost for realisation is Rs.20 crore, which will be borne by the Government of India. The space cooperation between India and Mauritius is dated way back in late 1980s when ISRO established a ground station in Mauritius for tracking and telemetry support for ISRO's launch vehicle and satellite missions, under a country-level agreement signed in 1986 for this purpose. The current space cooperation is being governed by the country-level agreement signed on 29.7.2009, which superseded the 1986 agreement mentioned above.

India's Aditya-L1 Solar Observatory Enters Orbit Around Lagrange Point

India's Aditya-L1 solar observatory has reached its destination orbit around Sun-Earth Lagrange point 1 around 1.5 million kilometers from Earth. Aditya-L1 entered orbit around Sun-Earth L1 at around 1230 UTC on Jan. 6, following a burn by the spacecraft's engines. The spacecraft is the country's first dedicated mission to study the Sun. Its halo orbit at L1 will allow it to continuously study solar phenomena, such as coronal heating, solar wind acceleration, Coronal Mass Ejections, solar atmospheric dynamics and temperature anisotropy. The nominal lifespan of the spacecraft is five years, but this could be extended, according to the Indian Space Research Organization (ISRO). Aditya-L1 performed four Earth-bound orbital maneuvers before entering a transfer orbit for L1. Its arrival came 126 days later. The 1,480-kilogram spacecraft is equipped with seven scientific instruments developed indigenously for solar research, including an ultraviolet imaging telescope, soft and hard X-ray spectrometers, and a coronagraph for solar observations. Additionally, it carries a pair of particle analyzers and a magnetometer for direct in-situ measurements.

Indian PM Dedicates Demonstration Reprocessing Plant

Prime Minister Narendra Modi ceremonially dedicated the DFRP, at the Indira Gandhi Centre for Atomic Research (IGCAR) in Kalpakkam, to the nation on 2 January. The facility - which has cost INR4 billion - is the first industrial-scale plant in the world that is capable of handling both carbide and oxide spent fuels from fast reactors. The Indian-designed facility will serve as a precursor to large-scale commercial fast reactor fuel reprocessing plants. Fast reactors are part of India's vision for a closed nuclear fuel cycle and making use of its abundant reserves of thorium. IGCAR is home to the MWt Fast Breeder Test Reactor (FBTR), in operation since 1985. Work on a 500 MWe prototype fast breeder reactor - the PFBR - began at Kalpakkam in 2004.

Single Screw Extruder Developed for Mechanical Recycling

IIT Bombay has developed an instrument named GoldN (pronounced as Golden) for melt-mixing of waste thermoplastic polymers and inorganic particulate fillers to manufacture polymer composites. It can carry out melt mixing as a continuous process, particularly in laboratory conditions, to replicate the real-life conditions as compared to other conventionally available instruments. The researchers at the institute considered some key parameters such as compression ratio and clearance depth to facilitate efficient mixing of waste polymers and fillers. The technology is ready for commercialization for carrying out melt-mixing operations in a laboratory environment. It can bring down the cost of this instrument to INR 5 lakhs (by 6-8 times at least) by avoiding the complex design and operating tools and including the indigenous fabrication that are required.

Photocatalyst to Breakdown Chemical Warfare Agents Developed

Researchers at the Indian Institute of Science Education and Research, Bhopal have developed an effective photocatalyst, a substance that absorbs a wide range of solar energy and light to quicken chemical processes in laboratories and industries. This contributes to harnessing a renewable energy source for detoxifying harmful substances such as chemical warfare agents. The material called 'UC-POP-Au' displays strength and catalytic efficiency as it absorbs the entire spectrum of light, making it a more potent catalyst during chemical processes.

IISc Develops Heat Tolerant COVID-19 Vaccine

Researchers at the Indian Institute of Science (IISc) are on the verge of unveiling a heat-resistant vaccine designed to combat the mutating COVID-19 virus. The vaccine aims to provide protection against various strains of SARS-CoV-2, including current and future variants, addressing the evolving nature of the virus. The research team has completed pre-clinical trials and is poised to commence human testing for their innovative vaccine candidate. Concerns about the effectiveness of current vaccines against evolving virus mutations prompted the IISc team to develop a novel approach. Researchers selected two components of SARS-CoV-2's spike protein – the S2 subunit and the Receptor Binding Domain (RBD) – for the new vaccine, creating a hybrid protein named RS2. Tests on mice and hamster models revealed that RS2 induced a strong immune response and offered superior protection compared to vaccines containing the entire spike protein. RS2 provides better coverage and could potentially become India's first homegrown vaccine for the JB.1 variant, as existing vaccines like Covaxin have become inactive against it. Remarkably, the RS2 antigen can be stored at room temperature for a month without requiring cold storage, presenting an economic advantage in distribution and storage. The vaccine could be updated as needed to tackle future mutations. Post clinical trials, the vaccine holds the potential to be administered widely, starting with healthy individuals.

Eco-friendly Waste Management Technology Developed

A new approach to assist municipal corporations in managing organic waste has been developed by researchers at the Indian Institute of Technology, Guwahati. The technique combines rotary drum composting (RDC) with vermicomposting (RDVC), resulting in an efficient and environmentally friendly process that allows municipal corporations to derive value-added products from organic waste. The technique can also be used to produce nutrient-rich soil conditioner from invasive aquatic weeds. RDC can convert diverse organic feedstock into nutrient-dense compost within 20 days and significantly reduce the volume of waste by 60-70 per cent.

[Hydrogen Valley Innovation Hub to Come up in Madras](#)

The Hyundai Motor India and the Indian Institute of Technology, Madras is establishing a Hydrogen Valley Innovation Hub at an outlay of Rs 180 crore, which would promote hydrogen-based clean energy solutions in various applications and sectors. The hub will be established with an investment of Rs 100 crore by Hyundai Motor India Ltd, towards its capital expenditure requirements. IIT Madras will provide both the building as well as research and development infrastructure. IIT-M would also develop a curriculum and body of knowledge for skill development while operating and maintaining Hydrogen Valley. This project would give India's green hydrogen goals a push and also inculcate knowledge sharing, and skill development among others.

G-20 AND GLOBAL CHALLENGES

[Urban 20 engagement group activities planned](#)

The U-20 engagement group will be led by the Mayor of Rio de Janeiro and the Mayor of São Paulo. Building on the central theme of Brazil's upcoming Presidency, One of the main goals for the U-20 in 2024 is to guarantee direct investment and access to public and private financing so that cities, especially in the Global South, can promote a just climate transition with better urban infrastructure. The 2024 U20 programme will include a Sherpa meeting and in-person mayoral activities hosted in each of the cities, leading up towards the G20 Leaders' Summit in Rio de Janeiro in November 2024. By 2050, 68% of the global population – 6.6 billion people – will live in cities. Most of this growth will take place in cities in Asia, Africa, and Latin America. The Organisation for Economic Co-operation and Development (OECD) estimates that 65% of the 169 Sustainable Development Goal (SDG) targets cannot be achieved without involving subnational governments, including cities.

IN BRIEF

[Inhalable Sensors Could Enable Early Lung Cancer Detection](#)

MIT researchers have developed a new technology that enables early detection of lung cancer. The new diagnostic is based on nanosensors that can be delivered by an inhaler or a nebulizer. If the sensors encounter cancer-linked proteins in the lungs, they produce a signal that accumulates in the urine, where it can be detected with a simple paper test strip. This approach could potentially replace or supplement the current gold standard for diagnosing lung cancer, low-dose computed tomography (CT). It could have an especially significant impact in low- and middle-income countries that don't have widespread availability of CT scanners. These sensors consist of polymer nanoparticles coated with a reporter, such as a DNA barcode, that is cleaved from the particle when the sensor encounters enzymes called proteases, which are often overactive in tumors. Those reporters eventually accumulate in the urine and are excreted from the body. The researchers tested their diagnostic system in mice that are genetically engineered to develop lung tumors similar to those seen in humans. The sensors were administered 7.5 weeks after the tumors started to form, a time point that would likely correlate with stage 1 or 2 cancer in humans. They tested that combination in the mouse model and found that it could accurately detect early-stage lung tumors.

[New Class of Antibiotic Found that Kills Deadly Drug-Resistant Superbug](#)

Researchers have identified an entirely new class of antibiotic that can kill bacteria that are resistant to most current drugs. Zosurabalpin is highly effective against the bacterium carbapenem-resistant *Acinetobacter baumannii* (Crab), which is classified as a "priority 1" pathogen by the World Health Organization due to its growing presence in hospitals. Crab can kill up to 60% of people infected with it. It commonly causes infections of the urinary tract, respiratory tract and blood stream, potentially leading to sepsis. The antibiotic, zosurabalpin, is shown to be highly effective against Crab both in the laboratory and in infected animals. Researchers tested zosurabalpin against more than 100 Crab samples from patients suffering from the infection. The research team, found that zosurabalpin was able to kill all of these bacterial strains. It could also kill the bacteria in the bloodstream of mice infected with Crab, preventing them from developing sepsis. However, zosurabalpin will only kill Crab infections and not those caused by other types of bacteria. Zosurabalpin is now in phase 1 clinical trial for use in patients infected with Crab. It is being developed by Roche.

[Solid State Battery Design Charges in Minutes, Lasts for Thousands of Cycles](#)

Researchers from Harvard have developed a new lithium metal battery that can be charged and discharged at least 6,000 times -- more than any other pouch battery cell -- and can be recharged in a matter of minutes. The team was able to stop dendrites from forming by using micron-sized silicon particles in the anode to constrict the lithiation reaction and facilitate homogeneous plating of a thick layer of lithium metal. In this design, when lithium ions move from the cathode to the anode during charging, the lithiation reaction is constricted at the shallow surface and the ions attach to the surface of the silicon particle but do not penetrate further. These coated particles create a homogenous surface across which the current density is evenly distributed, preventing the growth of dendrites. And, because plating and stripping can happen quickly on an even surface, the battery can recharge in only about 10 minutes. The researchers built a postage stamp-sized pouch cell version of the battery, which is 10 to 20 times larger than the coin cell made in most university labs. The battery retained 80% of its capacity after 6,000 cycles, outperforming other pouch cell batteries on the market today. The technology has been licensed to Adden Energy which has scaled up the technology to build a smart phone-sized pouch cell battery.

RESOURCES & EVENTS

[China's New Fusion Energy Inc to Build 'Artificial Sun'](#)

China is setting up a new state-owned company to pool resources from across the country to bring a nuclear fusion reactor – known as an artificial sun – to life, according to China National Nuclear Corporation (CNNC). This step unites China's fusion energy research and development, which had been scattered among research institutes and private firms. Along with the company, a collaborative innovation consortium comprising 25 entities and led by CNNC was established to work together to overcome some key challenges in the field of nuclear fusion. The members of the innovation consortium are mainly state-owned enterprises, including China Aerospace Science and Industry Corporation Limited and the State Grid Corporation of China. Four universities and a private company are also involved. 13 members have been assigned to tackle the first set of 10 challenges that address issues such as high-temperature superconducting magnets, fusion reactor materials and high-performance energy storage. An innovation fund was also set up at the conference to help secure funding. The newly formed consortium could enable better integration of upstream and downstream resources in the nuclear fusion industry. China Fusion Energy was formed mainly from

the fusion technology of the CNNC-affiliated Southwestern Institute of Physics (SWIP). The Institute of Plasma Physics (IPP), under the Chinese Academy of Sciences, has established a company called Neo Fusion based on technology from the institute.

[Norway to Approve Controversial Deep-sea Mining](#)

Norway is likely to become the first country in the world to move forward with the controversial practice of commercial-scale deep-sea mining. The plan, up before a parliamentary vote on Tuesday, will accelerate the hunt for precious metals which are in high demand for green technologies. Environmental scientists have warned it could be devastating for marine life. The vote concerns Norwegian waters, but agreement on mining in international waters could also be reached this year. The Norwegian government said it was being cautious and would only begin issuing licences once further environmental studies were carried out. Norway's proposal will open up 280,000 sq km of its national waters for companies to apply to mine these sources - an area bigger than the size of the UK. The proposal puts the country at odds with the EU and the UK, which have called for a temporary ban on the practice because of concerns about environmental damage. Techniques to harvest the minerals from the sea floor could generate significant noise and light pollution, as well as damage to the habitat of organisms relying on the nodules, according to the International Union for Conservation of Nature (IUCN). Companies will have to submit proposals, including environmental assessments, for a licence which will then be approved on a case-by-case basis by parliament. While Norway's proposal concerns its national waters, negotiations continue on whether licences could be issued for international seas. The International Seabed Authority (ISA) will meet this year to try to finalise rules, with a final vote expected in 2025. More than 30 countries are in favour of a ban, but countries such as China are keen to see the ISA press on.

[UAE to Build Airlock for Gateway Space Station](#)

NASA announced that the United Arab Emirates will provide an airlock for the Gateway space station that will orbit the Moon. NASA once hoped Russia would provide the airlock. Now the UAE has stepped in. Sending a UAE astronaut to Gateway is part of the agreement. Gateway is a small space station that will orbit the Moon and serve primarily as a transfer point for astronauts traveling to and from Earth and their lunar landers to take them down to and back from the surface. It will not be permanently occupied like the ISS and is much smaller, about 40 Metric Tons instead of 420 MT. NASA and the UAE's Mohammed Bin Rashid Space Centre (MBRSC) said the UAE will provide a crew and science airlock so astronauts can exit to the outside of Gateway. Science experiments also can be exposed to the space environment through the airlock. The UAE also is interested in robotic space exploration. They sent the first Arab orbiter to Mars, Hope. Launched in 2020, it successfully arrived in 2021. They also sent a small (10 kilogram) rover, Rashid, to the Moon last year aboard the HAKUTO-R M1 mission launched by a Japanese commercial company, ispace, but the spacecraft crashed onto the lunar surface.

SCIENCE POLICY AND DIPLOMACY

[India joins the world's largest radio telescope project](#)

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<https://indianexpress.com/article/india/another-eye-in-sky-on-ground-india-is-now-part-of-worlds-largest-radio-telescope-project-9092577/>

India will now also be part of the international mega-science project, the Square Kilometre Array Observatory (SKAO), that will function as the world's largest radio telescope. The SKAO is an array of thousands of antennas, to be installed in remote radio-quiet locations in South Africa and Australia, that will operate as one large unit meant to observe and study celestial phenomena. India, through the Pune-based National Centre for Radio Astrophysics (NCRA) and some other institutions, has been involved in the development of SKA since its inception in the 1990s. SKAO was established as an intergovernmental organisation in 2021 following years of negotiation in which India, too, participated. The Government's approval for joining the project, with a financial sanction of Rs 12.5 billion, is the first step towards the ratification of the SKAO Convention. The approval, which the Department of Atomic Energy announced in its 2023 year-ending note. The SKA will study a range of phenomena being able to peer much deeper into the universe to study galaxies and stars in greater detail. India's main contribution to the SKA is in the development, and operation, of the Telescope Manager element, the "neural network" or the software that will make the telescope work. NCRA, a unit of the Tata Institute of Fundamental Research, which operates India's largest network of radio telescopes called the Giant Metrewave Radio Telescope (GMRT) near Pune, led an international team from nine institutions and seven countries to develop the software. Participation in the project will open up possibilities for the development of niche skills in Indian industry and research organizations in different areas of next-generation technologies such as modern antenna design, sophisticated cryogenic receiver systems, high-volume optical fiber data transport technology, state-of-the-art digital signal processing systems.

We welcome your comments and valuable suggestions. Please write to us for receiving publications, updates and notices regarding seminars, conferences etc. Contact us at science.diplomacy@ris.org.in

NOTE TO OUR READERS AND STAKEHOLDERS:

RIS Science Diplomacy Programme (fisd.in) is glad to present a new version of Science Diplomacy News Alerts, following India's assumption of the Presidency of the G20. A new section G20 and global challenges has been added. We request your cooperation to review the Alerts and improve its content. For this purpose, please complete the form at <https://forms.gle/o4d869FxaM9t3KNw7>, and submit it. Your support and cooperation is appreciated.