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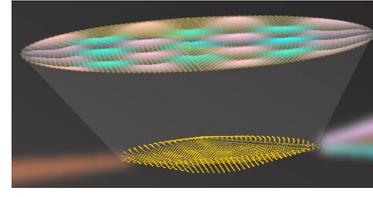
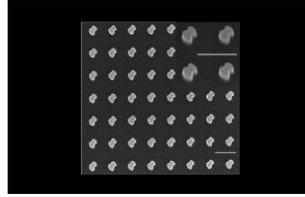
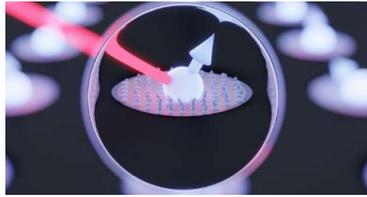
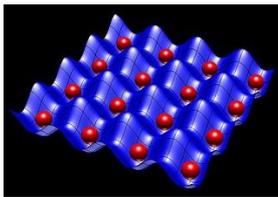
Dear Readers,

Welcome to **NewsEffect** –
MARCH 2023

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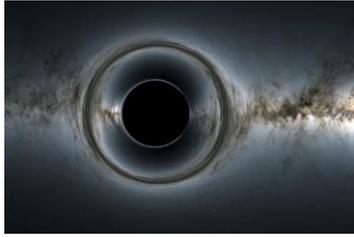
- **Quantum Information Storage**
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Quantum Information Storage



- [The methods discovered by a team of researchers can now increase the storage time of quantum information in a spin-rich material.](#) An international team of researchers has achieved substantial progress in preserving the quantum coherence of quantum dot spin qubits as part of the global initiative to develop useful quantum networks and computers. The fundamental building blocks of quantum networks are spin-photon interfaces, which allow the conversion of stationary quantum information i.e. quantum state of an ion or a solid-state spin qubit into light specifically, photons which may be distributed across large distances. The studies, published in Nature Nanotechnology, show that the device made of semiconductor materials with the same lattice parameter, the nuclei 'felt' the same environment and behaved in unison. As a conclusion, it is now feasible to filter out this nuclear noise and increase storage time by almost two-order of magnitude.
- [The postdoctoral researcher, who works with the Q-NEXT quantum research Centre, has created high-tech materials that carry quantum information in the form of photon packages.](#) The scientist Feng Pan develops the materials with sculptural features that use light to encode information rather than for visual effects. His materials, unlike an opal or a prism, are nearly invisible. Only a strong microscope can view the 2D etchings that he developed. The metamaterials are designed using computer-aided numerical simulations. He defines the 2D pattern with use of electron beam and prints it onto a specific material. To create the metamaterial, the design is put onto a silicon layer hundreds of nanometers thick, 1/1,000th the thickness of a sheet of paper. A second layer of an atomically thin semiconductor material is merged with the metamaterial. Such metamaterials are small bas reliefs that reliably store and transmit quantum information. It can store light energy for a millionth of a second, which is a long time in the quantum realm.
- [Recently, Researchers at University of Oxford created a quantum memory within a trapped-ion quantum network node.](#) Trapped ions are the charged particles are confined in space using electromagnetic fields. These are commonly used platform for realizing quantum computations and to transmit quantum information between distant nodes photons are used. Researchers exploring the possibility to combine trapped ions with photons to create powerful quantum technologies. To connect quantum processing devices, they used single photons emitted from a single atomic ion and utilize quantum entanglement between this ion and the photons. The main focus of researchers is on the quantum information stored in the memory. It must not degrade while a network link is established.
- [Quantum error correction codes using chamon model in realising of fault-tolerant quantum computing.](#) Chamon model is a 3-D generalization of the toric code. The error correction computation on Chamon model has not been explored so far. In this work, the Chamon model is turned to a non-CSS error correction code. Here logical qubits are built by the construct of logical Pauli operators. An error elimination algorithm is proposed according to topological properties of Chamon models.
- [The C-centre in silicon realised an optically readable quantum register in the L-band wavelength region.](#) As the transmission losses in commercial optical fibres are minimal, an optically readable long-living quantum memory can be established in silicon. Here, the scalability of qubits is achieved by CMOS-compatible technology.

Disruptive Technology Leads



- [New fuel cell implant can help manage type-1 diabetes.](#) Scientists have created a novel implantable fuel cell that could be used to improve type 1 diabetes management in the future. Type 1 diabetes is a condition in which our immune system destroys insulin-producing cells (beta) in the pancreas. Developed by scientists from ETH Zurich, the prototype functions by using excess glucose in the blood to generate electrical energy.
- [Hydrogen-ICE should be included in auto-PLI schemes': Dr N Saravanan, President and CTO, Ashok Leyland.](#) The hydrogen-internal combustion engine (ICE) vehicles, which appear to be low-hanging fruit for Indian OEMs, should be included in the production-linked incentive (PLI) scheme for the automobile industry. This is the word coming in from Dr. N Saravanan, President and Chief Technology Officer, Ashok Leyland.
- [Govt sanctions Rs 800 crore for installing 7,432 EV fast charging stations.](#) The ministry has released Rs 560 crore or 70 per cent of the total amount to three OMCs -- Indian Oil (IOCL), Bharat Petroleum (BPCL), and Hindustan Petroleum (HPCL) -- as the first installment for the installation and commissioning of upstream infrastructure and charging equipment of EV public charging stations at respective retail outlets in the country.
- [Firestorm Labs joins \\$46bn contract to provide disruptive tech to USAF.](#) FIRESTORM LABS, INC, the defense tech startup, announced today their participation in the \$46bn Eglin Wide Agile Acquisition (EWAAC) indefinite delivery, indefinite quantity (IDIQ) contract which empowers selected industry partners to provide the Air Force weapons acquisitions hub at Eglin AFB with innovative munitions technologies.
- [Elon Musk, experts urge pause on training AI systems more powerful than GPT-4.](#) Elon Musk and a group of artificial intelligence experts and industry executives are calling for a six-month pause in training systems more powerful than OpenAI's newly launched model GPT-4, they said in an open letter, citing potential risks to society and humanity.
- <https://eturbonews.com/sabre-plan3-provide-airlines-with-holistic-disruption-management/>. Sabre Corporation, a leading software and technology provider that powers the global travel industry, today announced a new agreement with automated airline disruption management solution Plan3 to enable airlines to be more proactive when disruption strikes. The new alliance will allow Plan3 to draw upon Sabre's extensive industry reach and deep domain knowledge in airline technology to help accelerate the adoption of its service, while enabling Sabre to quickly deliver a holistic approach to passenger disruption for its airline partners. Plan3 will link via APIs and web services to augment native irregular operations and schedule change options available through an airline's Passenger Service System (PSS).
- [Supercomputer helps detect black hole with mass of 30 billion Suns.](#) A team of astronomers used a novel method to discover one of the biggest black holes ever discovered, a press statement reveals. The team, led by scientists at Durham University, UK, used a combination of gravitational lensing and supercomputer simulations to gain new insight into the cosmic giant located hundreds of millions of light-years from Earth.

Disruptive Technology Leads (Contd.)



[US researchers have invented a drug delivery technology that has implications for opioid epidemic, cancer treatment, rehabilitation care and more.](#)

A team of scientists at Northwestern University, US, has developed a novel technology with the potential to change the future of drug delivery. The device developed, published in Proceedings of the National Academy of Sciences (PNAS), represents the first implantable drug delivery system that is triggered by external light sources of different wavelengths, and not by electronics. It also is the first to be absorbable by the body (avoiding surgical extraction) while still allowing active control and programming by the operator. This technology represents a breakthrough addressing shortfalls of current drug delivery systems- one that could have important and sweeping implications for everything from the opioid epidemic to how cancer treatments are precisely delivered. To test this novel technology, the researchers surgically implanted it into the right sciatic nerve of individual rats. Each device contained three drug reservoirs filled with lidocaine- a common nerve-pain-blocking drug.

[New wood-based technology removes 80% of dye pollutants in wastewater.](#)

Researchers at Chalmers University of Technology, Sweden, have developed a new method that can easily purify contaminated water using a cellulose-based material. This discovery could have implications for countries with poor water treatment technologies and combat the widespread problem of toxic dye discharge from the textile industry. The researchers have built up solid knowledge about cellulose nanocrystals and this is where the key to water purification lies. These tiny nanoparticles have an outstanding adsorption capacity, which the researchers have now found a way to utilise.

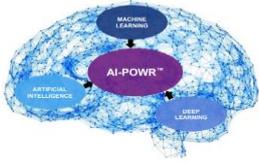
[Study: Cancer detection, treatment to improve using new technology.](#)

The University of Technology Sydney researchers have created a novel tool “The Static Droplet Microfluidic device” that enables doctors to skip invasive biopsy operations and to track the effectiveness of treatment by detecting and analyzing cancer cells from blood samples. The Static Droplet Microfluidic device is able to rapidly detect circulating tumour cells that have broken away from a primary tumour and entered the bloodstream. The device uses a unique metabolic signature of cancer to differentiate tumour cells from normal blood cells.

[Anticancer Activity of Nano-formulated Orlistat-Dopamine Conjugates Through Self-Assembly.](#)

Orlistat-Dopamine conjugates (ODCs) were synthesized by design underwent polymerization and self-assembly in the presence of oxygen to form nano-sized particles (Nano-ODCs). The resulted Nano-ODCs of partial crystalline structures demonstrated good water dispersion to form stable Nano-ODC suspensions. Because of the bioadhesive property of the catechol moieties, once administered, Nano-ODCs were quickly accumulated on cell surfaces and efficiently uptaken by cancer cells. In the cytoplasm, Nano-ODC experienced biphasic dissolution followed by spontaneous hydrolysis to release intact orlistat and dopamine. The strong synergistic effects between orlistat and dopamine determined a good cytotoxicity activity and a unique cell lysis mechanism, explaining the distinguished activity of Nano-ODC to drug-sensitive and -resistant cancer cells. This new technology-enabled orlistat repurposing will contribute to overcoming drug resistance and the improvement of cancer chemotherapy.

Advancement in AI



- [Shiru Debuts OleoPro, a Sustainable Plant Fat That Performs Like Animal Fat.](#) Shiru, an AI-powered discovery and development company for novel ingredients, has launched its first commercial product. OleoPro is a novel, sustainable plant protein-based fat ingredient for use in a range of alternative meat products. The new ingredient delivers a 90 percent reduction in saturated fat while enhancing technical performance in alternative meats compared to commonly used structured fats. The new fat is patent-pending and comes from Shiru's proprietary technology platform, Flourish, which leverages AI to generate unique plant protein insights.
- [Medtronic and NVIDIA Collaborate to Build AI Platform for Medical Devices.](#) NVIDIA announced that it is collaborating with Medtronic, to accelerate the development of AI in the healthcare system and bring new AI-based solutions into patient care. The companies will integrate NVIDIA healthcare and edge AI technologies into Medtronic's GI Genius™ intelligent endoscopy module, developed and manufactured by Cosmo Pharmaceuticals. GI Genius is the first FDA-cleared, AI-assisted colonoscopy tool to help physicians detect polyps that can lead to colorectal cancer.
- [Nuance and Microsoft Announce the First Fully AI-Automated Clinical Documentation Application for Healthcare.](#) Nuance Communications, Inc., a Microsoft Company, announced Dragon Ambient eXperience (DAX™) Express, a workflow-integrated, fully automated clinical documentation application that is the first to combine proven conversational and ambient AI with OpenAI's newest and most capable model, GPT-4. DAX Express makes available world-class AI to more than 550,000 Dragon Medical users, is enhanced by GPT-4, and amplified by the power of Microsoft Azure.
- [Nextech3D.ai Files Multiple Generative AI Patents Covering Breakthrough 3D-Model Creation For Global \\$5.5 Trillion Dollar Ecommerce Industry.](#) Nextech3D.AI, a Generative AI-Powered 3D model supplier for Amazon, P&G, Kohls and other major e-commerce retailers announced that the Company has filed its second in a series of patents for converting 2D photos to 3D models. A patent filed titled "Generative AI for 3D Model Creation from 2D Photos using Stable Diffusion with Deformable Template Conditioning", and late last year the Company filed a patent for creating complex 3D models by parts. Nextech3D.ai is using its newly developed AI to power its diversified 3D/AR businesses including Arway.ai, Toggle3D.ai and Nextech3D.ai.
- [EPO Decision to Grant European Patent for Rencofilstat.](#) Hepion Pharmaceuticals, Inc. announced that the European Patent Office ("EPO") has granted European Patent No. EP3886813, covering the innovative formulation of Hepion's lead cyclophilin inhibitor, rencofilstat. The newly granted rights, which will encompass 38 European countries, are expected to extend the drug candidate's patent life by approximately eight years, to 2044. Hepion intends to use AI-POWR™ to help identify which NASH patients will best respond to rencofilstat, potentially shortening development timelines and increasing the observable differences between placebo and treatment groups.
- [SNAPPLE drinks brand uses AI for new marketing campaign.](#) Snapple, a well-known US beverage brand that offers flavoured teas and juice drinks, has announced the launch of the Snapple fAIct Generator, an AI-powered tool that makes it easy to create facts about any topic. The generator can be accessed by scanning the QR on the bottle. "The Snapple fAIct Generator makes it easy for a new generation of Snapple fans to experience the fun of facts in a tech-forward, and interactive way."

IP News



• [Md. woman with uterine cancer sues over chemicals in hair relaxers.](#)

A Harford County woman who developed uterine cancer after using hair relaxers for decades is suing the cosmetics company L'Oreal, joining of a growing wave of lawsuits brought by Black women who say their health suffered because of harmful chemicals in the products. The new complaint filed this week in U.S. District Court in Maryland is likely to be consolidated into multidistrict litigation that has already been launched in the Northern District of Illinois.

• [Kurve Therapeutics, Inc. Announces Development of New Intellectual Property to Target Drug Delivery in the Brain.](#)

Kurve Therapeutics announced it has filed for new intellectual property on its nose-to-brain technology platform. Kurve's technology uses the neuronal pathway rather than the circulatory system, which means the drug is delivered to the extracellular space in the brain. This means there is the opportunity to move the drug once it reaches the brain. The new IP will incorporate this ability allowing for treatments throughout the brain rather than just the frontal lobe. In contrast, the circulatory system traps the drug in the blood vessels blocking the opportunity to move the drug to a desired target.

• [Patent office rejects J&J TB drug move.](#)

The Indian Patent Office has rejected US pharmaceutical firm Johnson & Johnson's (J&J) attempt to extend its monopoly in India on the TB drug bedaquiline beyond the primary patent's expiry this July, according to people familiar with the matter. The ruling paved the way for the entry of generic versions of the tuberculosis (TB) drug that are likely to be 80% cheaper for a six-month course for patients suffering from drug-resistant TB. J&J currently has a monopoly through its primary patent on the bedaquiline compound that will expire in July 2023.

• [Drug developed using DRDO technology gets DCGI approval for radiological and nuclear emergencies.](#)

The Defence Ministry announced that Prussian blue insoluble formulations, a critical drug developed under the Technology Development Fund for radiological and nuclear emergencies, has been granted approval by the Drugs Controller General of India (DCGI). Manufacturing and marketing licenses for the commercial use of Prussian blue insoluble formulations, developed under the Technology Development Fund (TDF) scheme, have been granted to Scott-Edil Pharmacia Ltd, Baddi, Himachal Pradesh and Skantr Lifescience LLP, Ahmedabad, Gujarat by Drugs Controller General of India (DCGI).

• [ABBVie announced it received a Complete Response Letter \(CRL\) from the U.S. Food and Drug Administration \(FDA\) for the New Drug Application \(NDA\) for ABBV-951 \(foscarbidopa/foslevodopa\) for the treatment of motor fluctuations in adults with advanced Parkinson's disease.](#)

ABBV-951 (foscarbidopa/foslevodopa) is a solution of carbidopa and levodopa prodrugs for continuous subcutaneous delivery that is being investigated for the treatment of motor fluctuations in patients with advanced Parkinson's disease.

• [Pfizer Inc. and Seagen Inc. announced that they have entered into a definitive merger agreement under which Pfizer will acquire Seagen,](#)

a global biotechnology company that discovers, develops and commercializes transformative cancer medicines, for \$229 in cash per Seagen share for a total enterprise value of \$43 billion. The Boards of Directors of both companies have unanimously approved the transaction.

IP News (Contd.)



[EU patent body to oversee tech-standard patent royalties: EU draft rule.](#) The European Union patent body will oversee a new process to set fair royalties on patents for technologies widely used in products like cellphones, according to a draft EU regulation that seeks to reduce litigation over royalty disputes. Standard-essential patents cover technology that devices must include to comply with international standards like 4G, Wi-Fi and USB. Some standards entail thousands of essential patents, and their owners are required to offer licenses on fair and reasonable terms.

[China: Prospects Of Applying ChatGPT In The Intellectual Property Industry.](#) ChatGPT was developed by OpenAI and was released on November 30, 2022. In just two months, it became popular worldwide, with over 100 million monthly active users. ChatGPT can engage in conversation and communication by learning and understanding human language, achieving true artificial intelligence. It has aroused extensive attention on AI in human history. (Note: The release of the new model ChatGPT-4 on March 14th, 2023 has once again amazed people.) The hotly discussed about ChatGPT in various fields are: what works can ChatGPT do in a particular field and which work will be replaced? As intellectual property industry practitioners, we believe that ChatGPT supports strong capabilities in underlying architecture, models, algorithms, and data, which have high adaptability to the current work requirements of intellectual property. From a short-term perspective, ChatGPT is bound to replace those jobs in the field of intellectual property where communication and creativity are less relied upon, and will have a profound impact on the jobs that are survived.

[Immusoft Acquires Exclusive, Worldwide Rights to Intellectual Property for Genome Edited Primary B Cells from the University of Minnesota.](#) -Immusoft, a clinical-stage cell therapy company dedicated to improving the lives of patients with rare diseases, today announced that it has successfully closed a license with the Regents of the University of Minnesota for the exclusive, worldwide rights to intellectual property (IP) for compositions of matter and methods to make and use genome edited primary B cells. The parent patent application is titled, "Genome Edited Primary B cell and Methods of Making and Using."

[Anaqua Provides Platform for Intellectual Property Management to Fujitsu.](#) Anaqua, the leading innovation and intellectual property (IP) management technology provider, today announced that information and communications technology company Fujitsu has adopted Anaqua's AQX platform to optimize the digital management of the company's IP portfolios.

[Antibody-patent row could have far-reaching impact on biotech.](#) An unusual patent case before the US Supreme Court could have wide-reaching impacts on drug prices and technology. "It could spill over into all types of biotechnology cases," says Sean Tu, a legal scholar at West Virginia University in Morgantown. "Today we're talking about antibodies, tomorrow we might be talking about CRISPR or CAR T-cell therapies."

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