Technology Roundup

A NEWS BULLETIN

TECHNOLOGY INFORMATION SERVICES (TIS)

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE

PASTIC

May - June 2025

VOLUME 17 NO. 3

Forthcoming Tech Events

- Third Refresher Course for Physics Teachers - Problem Solving and Concept Development
- AI & Robotics Summer Camp'25
- Workshop on Materials Characterization
- Workshop on Data-Driven Decision Making
- 1st International Conference on Climate Resilient Mountain Agriculture (CRMA-25)
- 4th International Conference on Innovation in Teaching and Learning (ICITL-2025)

More inside

Tech News Headlines

- PTA Marks Milestone as Telecom Users Cross 200M
- Pakistan's Allia Health Raises $2M funding
- Inclusive Innovation Spotlighted at NUST 2025 Summit
- Eco-Tech Solutions for Cleaner Air in Pakistan
- Pak-American Founder Secures $600M for Applied Intuition's AI Cars
- OIC Scientific Cooperation Enhanced by COMSTECH
- Pakistan Taps Chinese Tech to Power Solar Future
- Pakistan Unveils National Big Data Platform
- Humanized AI: The Future of Banking in Pakistan
- US, Pakistan Discuss Crypto at Key White House Talks
- Pakistani Astronaut to Join China's Space Station
- Next-Gen Jacket Turns Any Spot Into a Sleep Zone
- The World's First Non-Silicon Device Based on 2D Tech
- Oxford Physicists Break Record in Qubit Performance
- A Smart Dental Floss that Detects Stress Levels
- China's Autonomous Air Taxi at Paris Air Show
- Technology Aids Tornado Recovery Efforts
- Technology Turns Classroom Into Spacecraft Simulation
- New Tech Enhances Safety in Dangerous Chemistry
- Golf Ball-Inspired Dimples Boost Vehicle Agility
- Frozen Ethanol Enables Creation of Tiny Bio Tools
- Innovative Shelf-Life Technology Boosts Preservation
- Infrared-enabled Lenses Work with Closed Eyes
- Nanoparticle to Boosts Cancer Treatment Safety
- Smart Material Converts Pressure into Water
- Universal Translator for Quantum Tech

Tech & Trade Offers

PASTIC National Centre,
Quaid-i-Azam University Campus,
Islamabad.

Phone: 051-9248103-4, 9248128
Fax: 051-9248113
email: tis.pastic@gmail.com
web: www.pastic.gov.pk

PTA Marks Milestone as Telecom Users in Pakistan Cross 200 Million

The Pakistan Telecommunication Authority (PTA) has announced a landmark achievement: over 200 million telecom subscribers across the country, including 150 million broadband users and more than 2 million “Fiber To The Home (FTTH)” connections. This milestone underscores the nation's fast-paced digital growth and PTA's commitment to inclusive connectivity. To celebrate, PTA and cellular operators (Jazz, Telenor, Ufone, Zong, and SCO) are offering free 2GB data and 200 on-net minutes to all users on June 20, 2025. Mobile users can activate the offer by dialing *2200#. As part of its digital inclusion drive, PTA, in collaboration with PTCL, Nayatel, Transworld, Cybernet, and Wateen, will provide free Wi-Fi hotspots for six months at selected HEC-recognized universities, especially women's institutions. Additionally, 200 locally assembled smartphones will be distributed to female SIM owners through computerized balloting across Pakistan, AJK, and GB. PTA reaffirms its vision of a digitally connected and empowered Pakistan.

Pakistan's Allia Health Raises $2M for Mental Health Innovation

Pakistan's healthtech sector received a significant boost as Allia Health secured $2 million in funding, led by billionaire investor Tim Draper. The startup, co-founded by Karachi-born Saroosh Khan, is developing AI-driven tools that support mental health professionals in treatment planning, telehealth services, and tracking patient progress.The funding round also included contributions from Stanford’s Healthcare Innovation Lab and several U.S. based angel investors. Allia Health already operates in the U.S. and is now setting its sights on Pakistan, with plans to digitize mental healthcare across the country. The platform is HIPAA-compliant, offers one-click assessments, and includes AI assistants aimed at reducing clinician burnout. Unlike typical mental health apps, Allia focuses on serving therapists rather than patients, helping build a performance-based, scalable care model. With its engineering team fully based in Pakistan, the company aims to collaborate with local clinics to address critical gaps such as outdated medical records and limited access to quality care. This investment reflects growing global confidence in Pakistan's tech and healthcare innovation potential.

Inclusive Innovation Spotlighted at NUST 2025 Summit

The Assistive Technology and Inclusion Summit (ATIS-2025), themed “Transformative Solutions for Inclusive Development”, convened at NUST with over 200 experts, innovators, and stakeholders. Jointly organized by NUST and Pak Everbright Development Organization (PEDO), the summit emphasized the importance of affordable assistive technologies for persons with disabilities and the elderly in Pakistan. It served as a hub for awareness, collaboration,

and actionable strategies to improve local access to such technologies. A key panel focused on the collaborative role of academia, industry, and organizations of persons with disabilities in advancing inclusive innovation. The summit also saw the inauguration of the NUST Disability Resource Center (NDRC), developed with PEDO, to support equitable learning environments in higher education. Notable voices from ICRC and PEDO underscored the summit's impact in driving R&D, strengthening service networks, and aligning national progress with global inclusion goals like the SDGs and UNCRPD. ATIS-2025 is poised to catalyze meaningful, lasting change in assistive tech development.

Eco-Tech Solutions for Cleaner Air in Pakistan

NUST, in partnership with 3Pol and the Ministry of Climate Change and Environmental Coordination, convened a high-level roundtable focused on leveraging green technologies to combat Pakistan's air pollution crisis. The session was honored by the presence of Ms. Aisha Humera Chaudhry, Secretary of MoCC & EC, and brought together stakeholders from academia, public institutions, and civil society. The gathering aimed to explore challenges related to air quality assessment and management across the country. Participants stressed the importance of multisectoral collaboration and the urgent need to generate foundational data that can guide the development of targeted, effective interventions. The conversation also underscored the significant role of research institutions in fostering innovation and supporting evidence-driven policy decisions.

Pak-American Founder Secures $600M for Applied Intuition's AI Cars

Applied Intuition, an AI-focused mobility startup led by Pakistani-American entrepreneur Qasar Younis, has raised $600 million in fresh funding, pushing its valuation to $15 billion, according to Bloomberg. Founded in 2017, the Silicon Valley-based company, partners with major automakers such as Toyota and Volkswagen. The company integrates artificial intelligence into vehicles, enhancing automation and safety. Applied Intuition's technology is used not only in cars, but also in drones, industrial equipment, and factory systems. The latest funding will help expand the platform's reach across mobility sectors. A public listing is also under consideration, with this round likely being the last before an IPO, depending on market conditions. Earlier this year at CES Las Vegas, AI in vehicles emerged as a major trend, highlighting how Applied Intuition's rapid growth aligns with the industry's future direction in smart mobility. Younis, originally from Lala Musa in Pakistan's Gujrat District, moved to the U.S. in 1988. His journey from rural Pakistan to leading a cutting-edge AI startup mirrors the broader rise of global tech leadership.

OIC Scientific Cooperation Enhanced By COMSTECH and University Partnership

The Pakistan Institute of Engineering and Applied Sciences (PIEAS) and COMSTECH, the science and technology wing of the Organization of Islamic Cooperation (OIC), have signed an agreement to strengthen collaboration in scientific research, knowledge exchange, and

capacity building among OIC countries. This partnership aims to advance innovation and foster long-term academic cooperation across member states. As part of the agreement, the two institutions will initiate joint research projects, host international conferences and training programs, and facilitate the exchange of faculty and students. A major outcome of this partnership is the launch of the Jabir Bin Hayyan Scholarship Program, which offers undergraduate to postdoctoral study opportunities at PIEAS for students from OIC nations. The program covers high-demand fields such as artificial intelligence, cybersecurity, engineering, nuclear medicine, and medical physics. The Memorandum of Understanding was signed by Professor Dr. M. Iqbal Choudhary, Coordinator General of COMSTECH, and Dr. Naseem Irfan, Rector of PIEAS. The agreement also includes provisions for fellowships and international academic sabbaticals, fully supported by PIEAS.

Pakistan Taps Chinese Tech to Power Solar Future

In a bid to reduce fossil fuel dependence, Lucky Cement near Karachi is adopting green technologies using affordable solar panels, wind turbines, and now battery storage systems, all imported from China. The facility, which produces 5 million tonnes of cement annually, has already slashed carbon emissions by 60,000 tonnes since installing renewable systems last year. However, intermittency in solar and wind power still forces reliance on costly backup generators. To address this, Lucky Cement is investing Rs1.5 billion in Pakistan's largest battery energy storage system (20.7MW/22.7MWh), supplied by China's CATL. The system will help store excess renewable energy, stabilizing power supply and reducing fossil fuel use. Falling prices of lithium-based batteries, due to global surpluses, are making such investments increasingly viable. Pakistan imported solar panels generating 19GW last year and continues to bring in 1–3GW more monthly. While solar adoption has surged, energy storage remains expensive but is gaining popularity among industries and wealthier households aiming to reduce grid reliance and control electricity costs.

Pakistan Unveils National Big Data Platform

Federal Minister for Planning, Development, and Special Initiatives, Prof. Ahsan Iqbal, launched Pakistan's National Big Data Portal, developed by LUMS in collaboration with the Pakistan Bureau of Statistics (PBS). The portal aims to democratize access to public datasets, empowering researchers, entrepreneurs, policymakers, and citizens. Speaking at the event, the minister described the platform as a foundational step in Pakistan's journey toward data-driven governance. He emphasized that in the modern world, data is not just information—it's

a strategic asset fueling innovation, economic growth, and smarter public services. The portal forms part of the government's broader 5Es Framework and builds on initiatives like Pakistan's first digital census, cloud infrastructure projects, and AI centers at universities. Prof. Iqbal stressed the importance of integrating data science into all academic disciplines and announced "Quantum Valley Pakistan," a new innovation ecosystem to unite fragmented R&D efforts. With PBS providing robust geo-tagged data, the initiative is expected to support evidence-based decision-making, regional development, and targeted solutions to pressing national challenges.

Humanized AI: The Future of Banking in Pakistan

In today's fast-paced world, customers expect quick, simple, and thoughtful banking experiences. While Pakistani banks have made progress offering mobile apps, WhatsApp banking, and digital onboarding but long queues, slow turnaround times, and rigid procedures still frustrate customers. According to a senior official at Al Baraka Bank, It is clear that progress has been made, but service quality needs a major upgrade. The solution lies in combining artificial intelligence with a human touch. Let machines handle routine tasks like form-filling, data verification, and simple transactions, freeing staff to focus on real customer care. AI can predict needs, detect service issues early, and even sense customer emotions to guide better responses. Improvements like higher teller limits, simplified branch processes, smarter queue systems, and actionable feedback tools can enhance both speed and satisfaction. Regular staff training and inter-bank service collaboration will further raise standards. Yet, technology alone isn't enough. Empathy, active listening, and genuine care must remain central. The future of Pakistani banking lies in smart, simple, and human service, one that not only meets expectations, but creates meaningful experiences.

US, Pakistan Discuss Crypto at Key White House Talks

Pakistan's Minister of State for Crypto & Blockchain, Bilal Bin Saqib, who also serves as CEO of the Pakistan Crypto Council (PCC) met with Robert "Bo" Hines, Executive Director of the U.S. President's Council on Digital Assets, at the White House to discuss cooperation on digital assets, Bitcoin integration, and decentralized technologies. The meeting took place shortly after Pakistan launched its Strategic Bitcoin Reserve (SBR) at the Bitcoin 2025 Conference in Las Vegas, becoming one of the first Asian nations to adopt Bitcoin as part of its national asset strategy. Minister Saqib shared Pakistan's ambition to lead the Global South in digital finance, emphasizing investments in crypto mining infrastructure and AI-powered data zones. Discussions focused on regulatory cooperation, innovation ecosystems, and inclusive economic development through blockchain. He also met White House legal advisors to explore policy frameworks. Pakistan is dedicating 2,000MW of surplus energy to power its digital asset and AI strategy.

Pakistani Astronaut to Join China's Space Station in Upcoming Flight

China's Manned Space Agency (CMSA) has confirmed that the selection process for

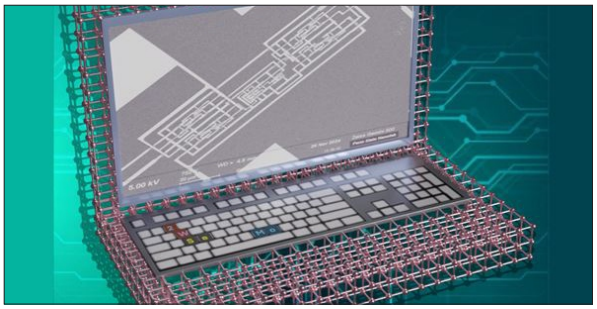
Pakistani astronauts is underway following a cooperation agreement signed between China and Pakistan. The process mirrors China's own astronaut selection, comprising three phases: preliminary screening in Pakistan, followed by secondary and final stages in China. Two Pakistani astronauts will eventually be selected for training in China. One will join a future mission to the Tiangong space station as a payload specialist, conducting both routine crew tasks and scientific experiments on behalf of Pakistan. Meanwhile, China is also in talks with other countries for potential astronaut participation in future missions. This announcement coincides with the Shenzhou-20 mission, set to launch from Jiuquan Satellite Launch Centre with astronauts Chen Dong, Chen Zhongrui, and Wang Jie. The crew will replace Shenzhou-19 and perform various scientific, technical, and recovery tasks. Life science experiments involving zebrafish, planarians, and streptomyces will also be conducted.

Next-Gen Puffer Jacket Turns Any Spot into a Sleep Zone

Japan frequently ranks among the most sleep-deprived countries, falling behind in global studies on sleep duration and quality. Addressing this issue, design firm Konel and NTT DX Partners' sleep technology division developed the ZZZN, a smart puffer jacket that uses light and sound to promote restful naps based on real-time biometric data collected via a wearable ring. The jacket adjusts its settings depending on heart rate, temperature, and stress levels, aiming to ease users into sleep naturally. A deep hood activates “sleep mode,” enveloping the wearer in red light to encourage sleep or blue light to gently wake them. The light pulses mimic relaxed breathing, accompanied by neuromusic designed to influence brainwaves. The ZZZN blends apparel with bedding. Still a prototype, it will be displayed at Expo 2025 Osaka. Miyata, Konel's creative director, emphasizes that it's not a substitute for full rest but a step toward valuing sleep. The team hopes this concept sparks global interest in smarter, healthier sleep habits.

The World's First Non-Silicon Device Based on 2D Tech

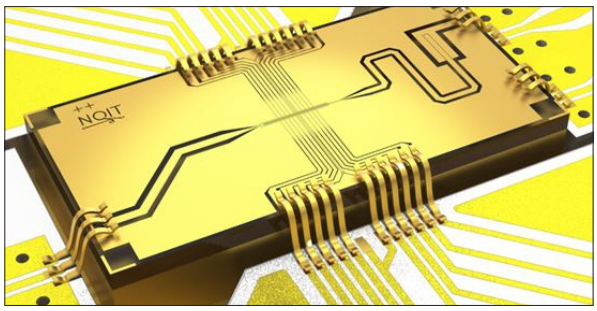
In a major leap forward for electronics, researchers at Penn State have developed the world's first computer built entirely from two-dimensional (2D) materials, atom-thin substances that retain exceptional electronic properties even at such scales. Departing from traditional silicon-based systems, the team used molybdenum disulfide and tungsten diselenide to construct a functional CMOS computer capable of basic logic operations. Unlike silicon, these 2D materials support high performance with low power use. The team fabricated more than 1,000 transistors using a chemical vapor deposition process and successfully combined them into



circuits operating at up to 25 kilohertz. Lead researcher Saptarshi Das emphasized that while performance is modest now, the development mirrors early stages of silicon's evolution. This "one-instruction set" computer also serves as a benchmark for modeling and comparing future devices. The achievement, supported by Penn State's 2D Crystal Consortium, demonstrates the viability of non-silicon platforms and opens the door to next-generation, ultra-thin, energy-efficient computing systems.

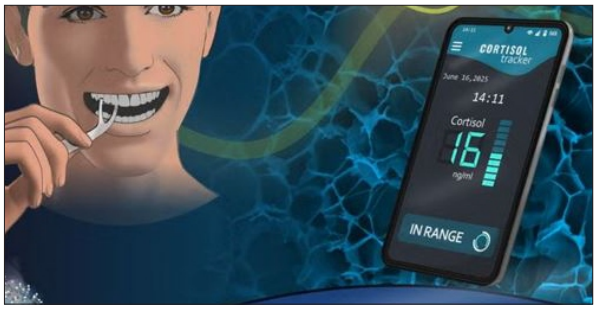
Oxford Physicists Break Record in Qubit Performance

Physicists at the University of Oxford have achieved a new global benchmark in quantum computing by demonstrating the most precise single-qubit operation to date, with an error rate of just 0.000015%, equivalent to one mistake in 6.7 million operations. This breakthrough, nearly ten times better than their own 2014 record, significantly advances the prospects for scalable quantum computers. The team used trapped calcium ions as qubits, employing electronic (microwave) control instead of lasers, resulting in greater stability, lower cost, and simpler integration. The experiment was performed at room temperature without magnetic shielding, further streamlining system requirements. The lead researcher highlighted that such accuracy reduces the need for extensive error correction, potentially lowering the number of qubits and therefore the size and cost required for a quantum processor. While single-qubit performance is nearing perfection, the researchers acknowledged that two-qubit gate errors remain a challenge. The achievement strengthens Oxford's position at the forefront of precision-driven quantum computing research.



A Smart Dental Floss that Detects Stress Levels

Chronic stress is linked to high blood pressure, heart disease, immune dysfunction, anxiety, and depression. Yet, current stress-monitoring tools are often costly or imprecise, relying heavily on self-reports. At Tufts University, researchers have created a smart dental floss that measures cortisol, a key stress hormone, from saliva in real time. This floss looks like a regular pick, but draws saliva via capillary action into the handle, where electrodes detect cortisol using electropolymerized molecularly imprinted polymers (eMIPs). These polymers are molded to recognize specific molecules like cortisol, offering precise, repeatable binding, much like a custom cast. eMIPs allow for the creation of sensors for other biomarkers such as estrogen, glucose, or even cancer indicators, with potential for multi-marker monitoring. The device matches the accuracy of top-tier sensors and could enable routine, non-invasive stress tracking at home. A startup is in development to bring this innovation to market.



China Showcases Autonomous Air Taxi at Paris Air Show

At the 55th Paris Air Show 2025, China unveiled an advanced unmanned air taxi, marking a major step forward in urban air mobility. The electric vertical takeoff and landing (eVTOL) aircraft, designed to carry two passengers, can remain airborne for up to three hours. Its ability to take off and land vertically makes it especially suitable for congested urban areas where

space is scarce. The autonomous air taxi is a centerpiece of China's aviation display at the event, drawing significant attention from international aviation experts and potential investors. With a payload capacity of 600 kilograms, the vehicle highlights China's engineering progress in the electric aviation sector. Fully powered by electricity, the air taxi is designed to operate reliably across diverse weather conditions, eliminating the need for traditional fuels. Its eco-friendly features align with global efforts to cut emissions and tackle urban congestion. Cities around the world are showing interest in such solutions as they seek sustainable alternatives for future transportation.

Technology Aids Tornado Recovery Efforts

A research team at Texas A&M University has created an AI-powered system to rapidly assess tornado damage and estimate community recovery times. Using a combination of remote sensing, deep learning, and restoration modeling, the method delivers building damage evaluations and forecasts within an hour of receiving post-event imagery. Tested on the 2011 EF5 tornado in Joplin, Missouri, the model proved highly accurate in classifying structural damage and even tracing the storm's path. Traditional damage assessments can take weeks, delaying emergency aid and rebuilding. This AI model automates the process using high-resolution satellite images and trained algorithms to classify damage as minor, major, or total. Restoration modeling adds context by factoring in local infrastructure, income, and policy environments to predict how long recovery might take under different conditions. Researchers plan to adapt the system for other disasters like hurricanes and earthquakes. The ultimate goal is to provide decision-makers with timely, reliable insights to speed up recovery and make disaster response more equitable and effective.

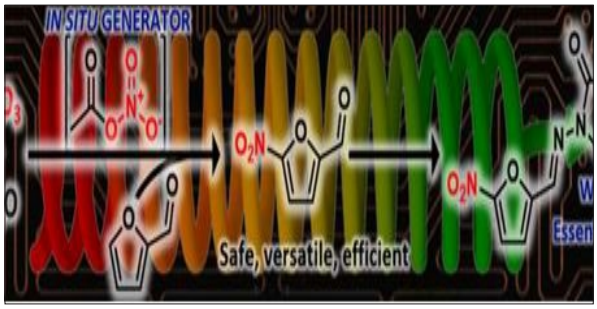
Futuristic Technology Turns Classroom into a Spacecraft Simulation

Researchers at Graz University of Technology's Game Lab have created Project Chimera, an educational game that uses immersive storytelling and advanced technology to teach science and engineering. Set aboard a damaged spaceship, the game challenges players to solve scientific problems to restore systems, merging gameplay with a real STEM concepts. Funded by Epic Games' Mega Grant, it employs Unreal Engine to simulate realistic 3D environments and technical scenarios like electromagnetic induction and motor repair. Project Chimera replaces passive learning with active exploration, integrating deep gameplay mechanics, scalable difficulty, and curriculum-aligned modules. Players learn by overcoming in-game challenges, enhancing both understanding and motivation. Tested with engineering students, the game

showed significant boosts in engagement and comprehension, especially where hands-on practice is limited. The team plans to expand the content to cover logic gates, gravity, and more, aiming for a broad educational impact. As a free pre-alpha release, it invites global feedback, representing a forward-thinking model where gamified technology transforms how science is taught and experienced.

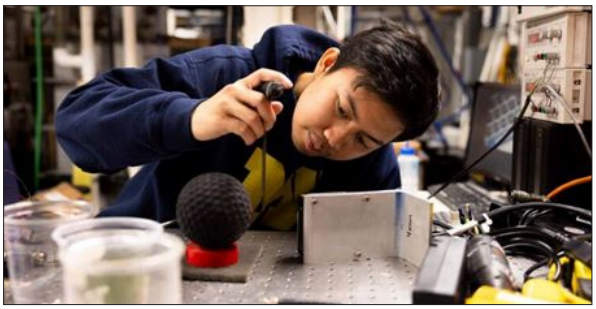
Flow-Based Tech Enhances Safety in Dangerous Chemistry

Researchers at the University of Liège have developed an automated continuous flow system to safely produce antibacterial drugs from bio-based furfural. The innovation addresses long-standing safety challenges in nitration chemistry, a process known for explosive risks and inconsistent yields. Using in situ generation of acetyl nitrate, a milder nitrating agent, the system prevents dangerous reagent buildup and integrates real-time monitoring tools for precision. Designed by the CiTOS lab, the platform enables safe, scalable synthesis of nitrofuran drug precursors with high yield and purity, each in under five minutes. Equipped with automated controls and inline analysis, it also supports remote operation, improving efficiency and safety. Open-access blueprints and data promote global adoption and reproducibility. This breakthrough blends green chemistry with automation, offering a model for sustainable pharmaceutical manufacturing. The technology has potential applications beyond nitrofurans, signaling a transformative step in safer, scalable drug synthesis worldwide.



Golf Ball-Inspired Dimples Boost Underwater Vehicle Agility

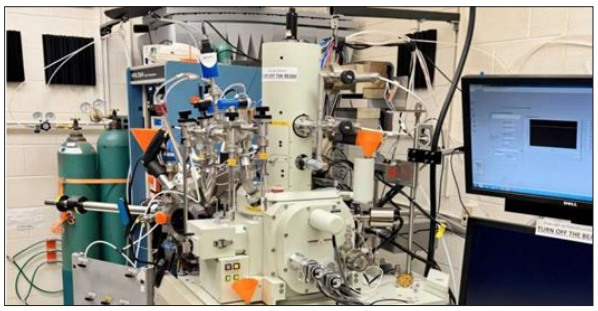
Researchers at the University of Michigan have developed a spherical vehicle prototype with a smart, dimpled surface inspired by golf balls to improve underwater and aerial maneuverability. Just as golf ball dimples reduce drag, the vehicle's programmable outer skin adjusts in real-time to optimize performance. The prototype uses a latex membrane over a perforated sphere; a vacuum system creates dimples on demand. This adaptive skin reduces drag by up to 50% and eliminates the need for external fins or rudders. Tested in a wind tunnel, the system responded to airflow changes by adjusting dimple depth for maximum efficiency. By controlling which side dimples, the sphere can also generate lift, enabling precise steering without rotation, similar to the Magnus effect but achieved with surface texture alone. This innovation could transform compact underwater drones by simplifying control systems and lowering energy use. Future integration with soft robotics and advanced materials could expand the capabilities of this adaptive skin, paving the way for more agile, efficient underwater and aerial vehicles.



Frozen Ethanol Enables Creation of Tiny Bio Tools

University of Missouri researchers have pioneered a breakthrough method for patterning delicate biological materials using a process called ice lithography. Unlike traditional lithography, which can damage sensitive membranes, their technique uses frozen ethanol to

gently protect and stabilize surfaces during etching. The method allows scientists to draw nanostructures directly onto fragile cells without harming them. Using a scanning electron



microscope cooled below -150°C, ethanol vapor is frozen onto a biological membrane, forming a smooth, protective layer. A focused electron beam then creates nanoscale patterns. Upon gentle warming, unexposed ice sublimates, leaving the etched pattern behind. The team tested this on Halobacterium salinarum, a microbe with light-harvesting purple membranes potential components for bio-solar technologies. Their patterns measured under 100 nanometers wide, 1,000 times thinner than a human hair, with minimal impact on the biological sample. This work, blending physics, chemistry, and biology, opens new doors for bio-nanotech and energy innovation. Importantly, the ethanol-based process avoids damage water ice would cause, offering new precision for working with nature's most fragile materials.

Innovative Shelf-Life Technology Boosts Produce Preservation

Researchers from MIT and SMART have developed a biodegradable microneedle patch that injects melatonin into fresh-cut crops, significantly extending their shelf life. The innovation targets food waste, a global issue with over 30% of food lost post-harvest. Traditional preservation like refrigeration isn't always accessible, especially in low-resource regions. The team used silk-based microneedles to deliver melatonin, a natural plant hormone, into pak choy, delaying aging without harming the crop. Unlike spraying or dipping, this method precisely administers low doses of melatonin into the plant's vascular system. Tests showed treated vegetables stayed fresher up to 8 days at room temperature and 25 days when refrigerated. Chlorophyll levels, weight loss, and visual freshness all improved in treated samples. Gene and antioxidant analysis confirmed the melatonin triggered a stress-reducing effect that slowed senescence. Though applied manually in the study, researchers envision scalable use via drones or farm machinery. Future research will explore other hormones and crop types, aiming to enhance freshness, nutrition, and sustainability across global food systems.

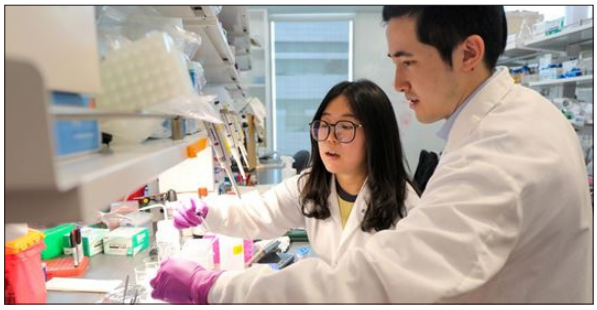
Infrared-enabled Lenses Work with Closed Eyes

Scientists have developed contact lenses that grant infrared vision to humans and mice by converting invisible infrared light into visible wavelengths. Unlike traditional night vision devices, these lenses require no external power and allow users to see both visible and near-infrared light simultaneously. Interestingly, vision improves with eyes closed, as near-infrared light penetrates eyelids more effectively. Created using non-toxic polymers and infrared-converting nanoparticles, the lenses were shown to be safe and effective in lab

tests. Mice wearing the lenses demonstrated behavioral and neurological responses to infrared light, while humans could detect infrared-coded signals and directional light sources. The lenses also differentiate between infrared wavelengths by converting them into distinct visible colors offering potential to help color-blind individuals. A wearable glasses version was also developed to provide higher-resolution infrared detail. Though current models detect only LED-sourced infrared, researchers aim to enhance their sensitivity and resolution. This innovation may lead to future noninvasive devices that enhance vision for security, rescue, medical, or accessibility applications.

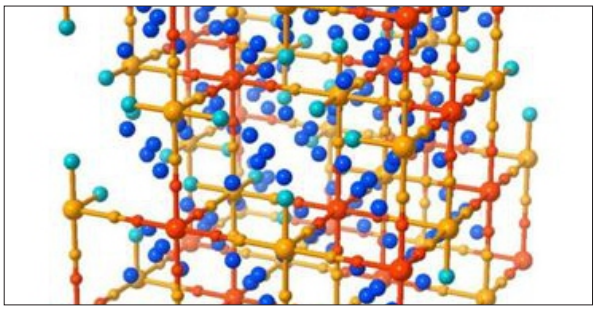
Engineered Nanoparticle Boosts Cancer Treatment Safety

Scientists at Oregon Health & Science University (OHSU) have developed a novel nanoparticle that enhances the safety and effectiveness of ultrasound-based cancer treatments. These particles, about a thousand times smaller than a sheet of paper, are designed with bubble-coated surfaces. When exposed to focused ultrasound, the bubbles burst, helping break down tumors more precisely and with less heat damage to healthy tissue. The nanoparticles are also equipped with peptides that guide them to tumor cells, and carry chemotherapy drugs that deliver a secondary blow to residual cancer. In preclinical tests on melanoma, this approach significantly improved drug delivery and tumor elimination compared to either method alone. This innovation reduces the energy needed for ultrasound by up to 100 times, minimizing side effects. The research may eventually apply to other diseases such as infections or heart conditions. The team sees this as a step toward more powerful, targeted therapies combining ultrasound with smart drug delivery and, potentially, immunotherapy.



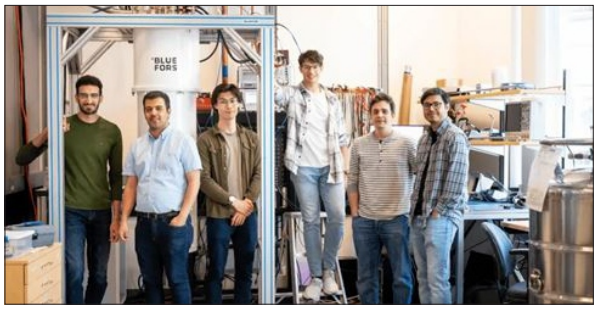
Smart Material Converts Pressure into Water

Researchers have developed a novel method for extracting water by applying pressure to copper-chromium Prussian blue analog crystalline materials with porous structures. Unlike conventional systems that rely on changes in temperature or humidity, this technique works independently of environmental conditions, offering faster, more consistent results. By applying just 1 gigapascal (GPa) of pressure, the team successfully released water stored within the material's pores, visibly forming droplets. Their tests showed that one kilogram of the crystal could yield up to 240 grams of water. Advanced techniques like infrared spectroscopy, X-ray absorption, and fluorescence spectroscopy confirmed that the pressure not only expelled the water but also altered the internal chemistry of the pores. The water molecules and copper ions within the crystal changed electronic states, transforming the material's pores from hydrophilic to hydrophobic. This shift explains the water release mechanism and opens new possibilities for pressure-induced water harvesting. The discovery offers promising applications for water production in dry or extreme environments and advances the field of water recycling technologies.



Researchers Design Universal Translator for Quantum Tech

UBC researchers have proposed a device that could solve a major challenge in quantum networking, reliably converting signals between microwave and optical formats. This "universal translator" would allow quantum computers to communicate across long distances using existing fibre-optic networks. The chip, made from silicon, can convert up to 95% of a signal with near-zero noise while preserving fragile quantum entanglement. Microwave signals used by quantum computers must be converted into optical signals to travel long distances. But these conversions are delicate as any disruption can break quantum connections. The UBC solution uses silicon embedded with engineered magnetic defects, allowing signal translation without energy loss. Though still theoretical, the team's chip design is efficient, low-power, and compatible with today's manufacturing technologies. If developed further, it could lay the foundation for practical and scalable quantum communication systems worldwide.



SOURCES AND IMAGE CREDITS

https://www.pta.gov.pk/category/pta-celebrates-landmark-achievement:-pakistan-surpasses-200-million-telecom-subscribers-1561058794-2025-06-20

https://www.techjuice.pk/pakistan-based-allia-health-grabs-2m-for-better-mental-healthcare/

hhttps://nust.edu.pk/news/nust-hosts-atis-2025/

https://nust.edu.pk/news/advancing-green-technologies-to-address-pakistans-air-quality-crisis/

https://www.techjuice.pk/pak-american-entrepreneur-raises-600m-for-ai-vehicle-startup-applied-intuition/

https://www.arabnews.com/node/2596158/pakistan

https://www.ft.com/content/2b4c598e-a4b3-4c6e-9c38-97e46357f819?utm

https://arynews.tv/national-big-data-portal-launched-in-pakistan/

https://arynews.tv/ai-banking-industry-pakistan/

https://www.techjuice.pk/pakistan-crypto-chief-sparks-u-s-collaboration-with-white-house-meeting/

https://www.geo.tv/latest/601378-pakistani-astronaut-to-join-chinas-space-station-on-future-mission

https://edition.cnn.com/style/japan-konel-sleep-smart-puffer-jacket-hnk-spc

https://www.psu.edu/news/research/story/worlds-first-2d-non-silicon-computer-developed

https://www.ox.ac.uk/news/2025-06-10-oxford-physicists-set-new-world-record-qubit-operation-accuracy

https://now.tufts.edu/2025/05/23/dental-floss-can-measure-stress

https://arynews.tv/china-air-taxi-introduced-at-paris-air-show-2025/

https://engineering.tamu.edu/news/2025/05/tech-meets-tornado-recovery.html

https://scienmag.com/embark-on-a-journey-the-lecture-theatre-transformed-into-a-spaceship-adventure/

https://bioengineer.org/making-hazardous-reactions-safer-with-advanced-flow-technology/

https://news.umich.edu/nimble-dimples-agile-underwater-vehicles-inspired-by-golf-balls/

https://phys.org/news/2025-05-cool-science-craft-tiny-biological.html#:~:text=Researchers%20at%20the%20U

FORTHCOMING TECH EVENTS

PAKISTAN

- Third Refresher Course for Physics Teachers - Problem Solving and Concept Development (2nd Module) July 14 – August 01, 2025, National Centre for Physics, Islamabad
  https://www.ncp.edu.pk/trcpt-2025.php

- AI & Robotics Summer Camp'25 July 14 – 18, 2025, Institute of Space Technology, Islamabad
  https://www.ist.edu.pk/events-2025-summercamp-2025

- Workshop on Materials Characterization July 21 – 25, 2025, LUMS, Lahore
  https://sbasse.lums.edu.pk/offering-a-hands-on-workshop-in-materials-characterization?utm_source=chatgpt.com

- Workshop on Data-Driven Decision Making July 30 – 31, 2025, Institute of Space Technology, Islamabad
  https://www.ist.edu.pk/events-2025-midtier-2025

- 1st International Conference on Climate Resilient Mountain Agriculture (CRMA-25) August 05 – 07, 2025, The University of Agriculture, Swat
  https://uoas.edu.pk/crma-25/

- 2-Days Hands-On Training Workshop on Next Generation Sequencing: From Library Preparation to Data Analysis August 26 – 27, 2025, University of the Punjab, Lahore
  https://www.cemb.edu.pk/?page_id=8127&utm

- 4th International Conference on Innovation in Teaching and Learning (ICITL-2025) September 10 – 11, 2025, International Islamic University, Islamabad
  https://www.iiu.edu.pk/seminars-conferences/4th-international-conference-on-innovation-in-teaching-and-learning-icitl-2025/

- 4th International Conference on Communication, Computing and Digital Systems (C-CODE) October 01 – 02, 2025, Bahria University, Islamabad
  https://ccode.bahria.edu.pk/

- International Additive Manufacturing & Vacuum Technology Conference - 2025 (IAMVT Conference) October 21 – 23, 2025, National Centre for Physics, Islamabad
  https://www.ncp.edu.pk/iamvt-2025.php

- International Conference on Engineering & Computing Technologies (ICECT) November 13 – 14, 2025, National University of Modern Languages (NUML), Islamabad
  https://numl.edu.pk/icect/

- International Conference on Applications of Space Science and Technology (ICAST) November 18 – 20, 2025, Institute of Space Technology, Islamabad
  https://icast.pk/

- 22nd International Conference on Frontiers of Information Technology (FIT'25) December 15 – 16, 2025, COMSATS, Islamabad
  https://fit.edu.pk/

INTERNATIONAL

- 25th International Conference on Transparent Optical Networks (ICTON 2025) July 06 – 10, 2025, Barcelona, Spain https://icton2025.upc.edu/
- International Symposium on Metallic Multilayers July 13 – 18, 2025, UK https://iop.eventsair.com/mml2025
- 7th International Artificial Intelligence Technology Conference July 15 – 17, 2025, Hohhot, China https://aitc.org/
- 10th International Conference on Automation, Control and Robotics Engineering (CACRE 2025) July 16 – 19, 2025, Wuxi, China https://www.cacre.org/
- International Conference on Chemical Thermodynamics July 20 – 24, 2025, Porto, Portugal https://icct2025.events.chemistry.pt/
- 14th IEEE/CIC International Conference on Communications in China (ICCC 2025) August 10 – 13, 2025, Shanghai, China https://iccc2025.ieee-iccc.org/
- 9th International Symposium for Geotechnical Safety and Risk (ISGSR) August 25 – 28, 2025, Oslo, Norway https://www.isgsr2025.com/
- The Middle East Oil, Gas and Geosciences Show (MEOS GEO) September 16 – 18, Behrain https://www.meos-geo.com/en/home.html
- 5th International Training Course on Industrial Synthetic Biotechnology, CCIB, Tianjin, China October 01 – 15, Tianjin, China https://comsats.org/event/fifth-international-training-course-on-industrial-synthetic-biotechnology-ccib-tianjin-china/
- The Global Conference on Sustainable Energy and Net-Zero Emissions October 28 – 29, 2025, Hail City, Saudi Arabia https://conferences.uoh.edu.sa/Conference/SENZE'25
- The International Conference on Engineering Advancements, Science and Technology (ICEAST) November 03 – 06, 2025, Muscat, Oman https://iceast.mtc.edu.om/
- 7th International Conference on Frontier Technologies of Information and Computer (ICFTIC 2025) November 07 – 09, 2025, Qingdao, China https://www.icftic.org/
- 7th EAGE Rock Physics Workshop November 10 – 12, 2025, Cape Town, South Africa https://eage.eventsair.com/seventh-eage-rock-physics-workshop/
- 4th International Conference on Computational Intelligence and Knowledge Economy November 27 –28, 2025, Dubai, UAE https://amityuniversity.ae/ICCIKE2025/

TECH AND TRADE OFFERS

PAK GREEN SOLAR SOLUTION

About PAK GREEN SOLAR SOLUTION

Pak Green Solar Solutions stands as a prominent name in the renewable energy sector, pioneering sustainable energy solutions across Pakistan. With a strong commitment to driving the nation towards energy independence, we specialize in the design, engineering, procurement, and installation of megawatt scale solar power systems. Our expertise and unwavering focus on quality have earned us a reputation for excellence in delivering high-performance solar energy projects tailored to the unique needs of large-scale industries, businesses, and organizations.

PAK GREEN
Solar Solutions

Our Services

- Medium Voltage Grid Integration Expertise
- Central and String Inverter Solutions
- Supervisory Control and Data Acquisition (SCADA)
- Industrial services
- Commercial services

Contact Us

Address: Head Office: 7/2 Extension Muslim Cooperative Housing Scheme Wadhu Wah road Qasmabad Hyderabad Pakistan
Phone: +92 300-5872112
Email: contact.pakgreensolar@gmail.com
Web: https://pakgreensolarsolutions.com/

TECH AND TRADE OFFERS

Drupak

About Drupak

Drupak is a company based in Wah Cantt, Pakistan that specializes in web development, web consultancy, and training services. With support from the Drupal community and continuous innovation, clients have made Drupal their preferred choice for digital projects and transformation

Our Services

- Drupal SEO
- E-commerce
- Drupal migration
- Drupal consultancy
- Support and maintenance

Contact Us

Address:
Office 18,19 1st Floor, City Trade Center (CTC),
Block M, New City Phase 2, Wah Cantt Pakistan.
Contact: +92-3139760741
Email: info@drupak.com
Web: https://drupak.com/

About PASTIC

PASTIC serves as a gateway for Scientific & Technological Information for R&D by catering to the information needs of researchers, entrepreneurs, industrialists, educationists, policy makers and planners through anticipatory and responsive information services.

Technology Information Section works exclusively for support and promotion of technological information on trade and industry in the country.

"Technology Roundup" is a news bulletin that provides latest and innovative technology news, and forthcoming events. It also promotes products, technologies and services globally in sectors such as Agro Industry, Bio-Technology, Building Material, Business, Chemicals, Electronics, Energy, Fisheries, Food Processing, Machinery, Packaging, Mining, Pharmaceuticals and Textiles.

Please give us your feedback and address queries to tis.pastic@gmail.com