SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Weekly Discovery

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29 Dec 2025 - 2 Jan 2026

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AI

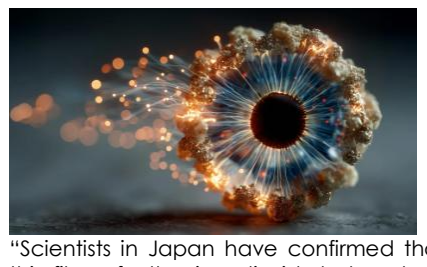
AI supercharges scientific output while quality slips

"AI writing tools are supercharging scientific productivity, with researchers posting up to 50% more papers after adopting them. The biggest beneficiaries are scientists who don't speak English as a first language, potentially shifting global centers of research power. But there's a downside: many AI-polished papers fail to deliver real scientific value. This growing gap between slick writing and meaningful results is complicating peer review, funding decisions, and research oversight."

Source: Cornell (24 Dec 2025)

AI

This strange magnetism could power tomorrow's AI

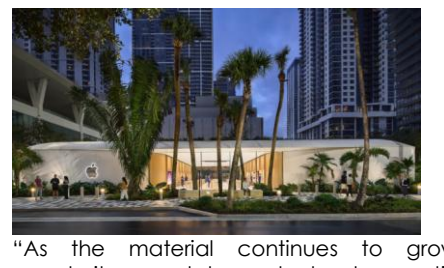


"Scientists in Japan have confirmed that ultra-thin films of ruthenium dioxide belong to a newly recognized and powerful class of magnetic materials called altermagnets. These materials combine the best of two magnetic worlds: they're stable against interference yet still allow fast, electrical readout—an ideal mix for future memory technology."

Source: NIMS (26 Dec 2025)

ARCHTECTURE

The top 10 mass-timber buildings of 2025



"As the material continues to grow in popularity, we take a look at mass-timber apartments, academic buildings and even an Apple Store made with cross-laminated timber and glulam, for our 2025 Review."

Source: Dezeen (28 Dec 2025)

ARCHTECTURE

Olin Petzold nestles self-built treehouse in Swiss valley

"Polycarbonate panels clad the exterior of this triangular treehouse in Switzerland's Locarno district, which was designed by Swiss architect Olin Petzold as a woodland writing studio.

Perched among the trees in the Onsernone Valley, Casetta Tessino was designed for a Swiss artist and climate activist who wanted a refuge surrounded by nature."

Source: Dezeen (29 Dec 2025)

ARCHITECTURE

Choreography of a Cloud, Dancing Shadows Art Pavilion at the Louvre Abu Dhabi

"YOKOMAE et BOUAYAD announce their selected entry, among five others, inside the Louvre Abu Dhabi for the Richard Mille Art Prize. Inaugurated under the Louvre Abu Dhabi's iconic dome on October 10th and running until December 28th for the Art Here 2025, Richard Mille Art Prize launched an international competition that attracted more than 400 projects to design and build five art installations and/or architectural pavilions reflecting on this year's theme of "shadows."

Source: Archdaily (Dec 2025)

HEALTH TECH

New Raman imaging system detects subtle tumor signals

"Researchers have developed a new compact Raman imaging system that is sensitive enough to differentiate between tumor and normal tissue. The system offers a promising route to earlier cancer detection and to making molecular imaging more practical outside the lab.

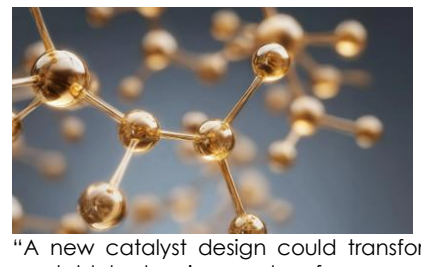
The new Raman system is designed to detect very faint signals from special surface-enhanced Raman scattering (SERS) nanoparticles that bind to tumor markers. After the particles are applied to a sample or the area being examined, the imaging system reads their signal and automatically highlights spots that are likely to contain tumor tissue.

"Traditional methods for cancer-related diagnosis are time-consuming and labor-intensive because they require staining tissue samples and having a pathologist look for any abnormalities," said research team leader Zhen Qiu from the Institute for Quantitative Health Science and Engineering (IQ), Michigan State University. "While our system would not immediately replace pathology, it could serve as a rapid screening tool to accelerate diagnosis."."

Source: OPTICA (18 Dec 2025)

CHEMISTRY

A gold catalyst just broke a decade old green chemistry record

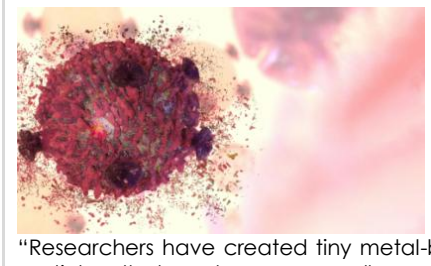


"A new catalyst design could transform how acetaldehyde is made from renewable bioethanol. Researchers found that a carefully balanced mix of gold, manganese, and copper creates a powerful synergy that boosts efficiency while lowering operating temperatures. Their best catalyst achieved a 95% yield at just 225°C and stayed stable for hours. The discovery points to a cleaner, more sustainable path for producing key industrial chemicals."

Source: Chinese Academy Sciences (29 Dec 2025)

HEALTH TECH

These nanoparticles kill cancer cells while sparing healthy ones

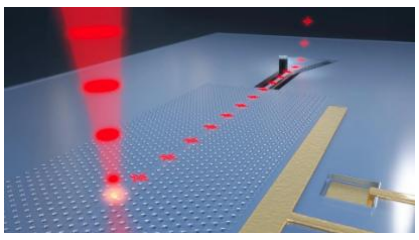


"Researchers have created tiny metal-based particles that push cancer cells over the edge while leaving healthy cells mostly unharmed. The particles work by increasing internal stress in cancer cells until they trigger their own shutdown process. In lab tests, they killed cancer cells far more effectively than healthy ones. The technology is still early-stage, but it opens the door to more precise and gentler cancer treatments."

Source: RMIT (24 Dec 2025)

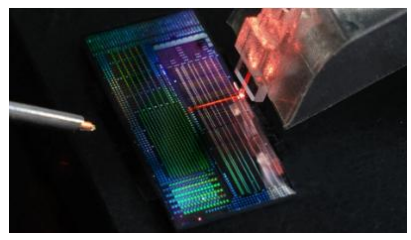
QUANTUM

"Purifying" photons: Scientists found a way to clean light itself



QUANTUM

This tiny chip could change the future of quantum computing

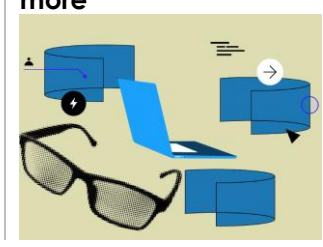


SUSTAINBILITY

New technology eliminates "forever chemicals" with record-breaking speed and efficiency

CONSUMER ELECTRONICS

The Top 7 Consumer Electronics Stories of 2025 E-ink displays, vapor-cooled iPhones, smart glasses, and more



"A new discovery shows that messy, stray light can be used to clean up quantum systems instead of disrupting them. University of Iowa researchers found that unwanted photons produced by lasers can be canceled out by carefully tuning the light itself. The result is a much purer stream of single photons, a key requirement for quantum computing and secure communication. The work could help push photonic quantum technology closer to real-world use." Source: UOI (23 Dec 2025)	"*A new eco-friendly technology can capture and destroy PFAS, the dangerous "forever chemicals" found worldwide in water. The material works hundreds to thousands of times faster and more efficiently than current filters, even in river water, tap water, and wastewater. After trapping the chemicals, the system safely breaks them down and refreshes itself for reuse. It's a rare one-two punch against pollution: fast cleanup and sustainable destruction...*" Source: University of Colorado (26 Dec 2025)	"A new eco-friendly technology can capture and destroy PFAS, the dangerous "forever chemicals" found worldwide in water. The material works hundreds to thousands of times faster and more efficiently than current filters, even in river water, tap water, and wastewater. After trapping the chemicals, the system safely breaks them down and refreshes itself for reuse. It's a rare one-two punch against pollution: fast cleanup and sustainable destruction." Source: RICE (23 Dec 2025)	"In 2025, many of IEEE Spectrum's top consumer electronics stories were about about creating the experience you want with technology. Open-source software offered more customization for laptops and displays, devices with less distracting design received recognition with a new certification, and smart glasses manufacturers forged paths to figure out what users really want in the wearable tech. Other stories highlighted the fascinating fundamental tech in our smartphones, like how your new iPhone stays cool and the potential for its camera to gather information beyond what the human eye can see. And we considered the effects of U.S. tariffs from the Trump administration. We're gearing up for a 2026 filled with many more exciting developments. In the meantime, read on for IEEE Spectrum's most popular consumer electronic stories of the year." Source: IEEE Spectruml (27 Dec 2025)