SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

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22 - 26 August 2022

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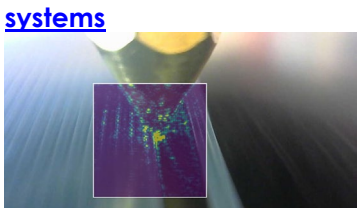
3D PRINTING

Algorithm learns to correct 3D printing errors for different parts, materials and systems

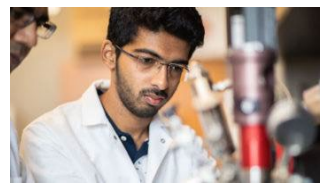


"Engineers have created intelligent 3D printers that can quickly detect and correct errors, even in previously unseen designs, or unfamiliar materials like ketchup and mayonnaise, by learning from the experiences of other machines."

Source: University of Cambridge (16 August 2022)

3D PRINTING

Researchers Design New Inks For 3D-Printable Wearable Bioelectronics

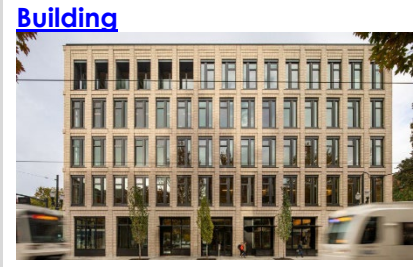


"A team of researchers at Texas A&M University has developed a new class of biomaterial inks that mimic native characteristics of highly conductive human tissue, much like skin, which are essential for the ink to be used in 3D printing."

Source: Texas A&M University (17 August 2022)

ARCHITECTURE

Mass-timber office in Portland is world's largest commercial Living Building

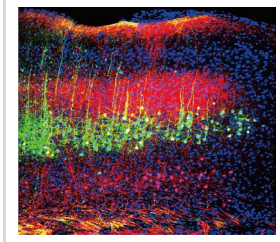


"Mass-timber framing, compostable toilets and a rooftop photovoltaic array are among the sustainable features in PAE Living Building, an Oregon office building that was designed and partly funded by US studio ZGF Architects."

Source: Dezeen (22 August 2022)

HEALTHCARE

Researchers discover how sound reduces pain in mice



"An international team of scientists has identified the neural mechanisms through which sound blunts pain in mice. The findings, which could inform development of safer methods to treat pain, were published in Science."

Source: NIH (7 July 2022)

MATERIALS

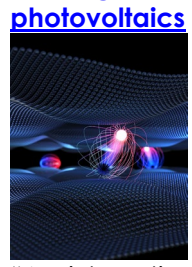
By design: from waste to next-gen carbon fiber

"Research from Washington University in St. Louis may soon lead to lighter, stronger carbon fiber materials and stronger plastics with a gentler environmental impact. The main ingredient necessary for these improvements is lignin, a compound that is essential for most plants but considered a waste product by industry.."

Source: WUSTL (18 August 2022)

PHOTOVOLTAICS

Building blocks of the future for photovoltaics

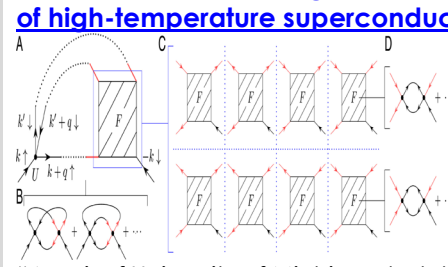


"An international research team led by the University of Göttingen has, for the first time, observed the build-up of a physical phenomenon that plays a role in the conversion of sunlight into electrical energy in 2D materials."

Source: UNIVERSITY OF GÖTTINGEN (18 August 2022)

PHYSICS

U-M researchers untangle the physics of high-temperature superconductors



"A pair of University of Michigan-led studies examined how superconductivity works, and found, in the first paper, that about 50% of superconductivity can be attributed to the 1966 theory—but the reality, examined in the second paper, is a bit more complicated. The studies, led by recent U-M doctoral graduate Xinyang Dong and U-M physicist Emanuel Gull, are published in Nature Physics and the Proceedings of the National Academy of Science."

Source: UMICH (18 August 2022)

ROBOTS

Resilient robots

"…have developed a new control mechanism for robotic teams that allow them to automatically calculate the tradeoffs of maintaining a resilient communication network and achieving their primary goal of moving through an environment."

Source: Harvard School of Engineering (12 August 2022)

ROBOTS

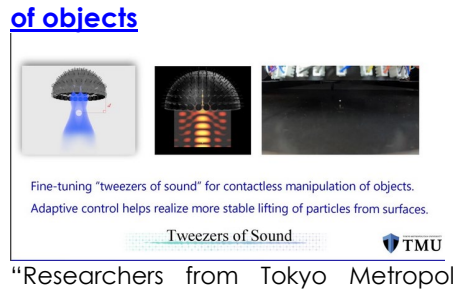
Swarms of microrobots could be solution to unblocking medical devices in body

"Swarms of microrobots injected into the human body could unblock internal medical devices and avoid the need for further surgery, according to new research from the University of Essex."

Source: Eurekalert! (18 August 2022)

SOUND

Scientists fine-tune "tweezers of sound" for contactless manipulation of objects



"Researchers from Tokyo Metropolitan University have successfully enhanced technology to lift small particles using sound waves. Their "acoustic tweezers" could already lift things from reflective surfaces without physical contact, but stability remained an issue. Now, using an adaptive algorithm to fine-tune how the tweezers are controlled, they have drastically improved how stably the particles can be lifted. With further miniaturization, this technology could be deployed in a vast range of environments, including space."

Source: Eurekalert! (18 August 2022)

UPCYCLING

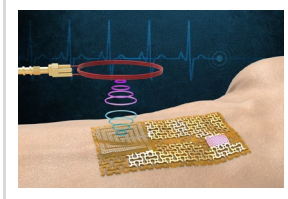
Plastic upcycling: From waste to fuel for less

"The new method more efficiently converts plastics to valuable commodity chemicals—a process termed "upcycling." In addition, it produces much less methane, an undesirable greenhouse gas, as a byproduct, compared with other reported methods."

Source: PACIFIC NORTHWEST NATIONAL LABORATORY (22 August 2022)

WEARABLE SENSORS

Engineers fabricate a chip-free, wireless electronic "skin"



"The device senses and wirelessly transmits signals related to pulse, sweat, and ultraviolet exposure, without bulky chips or batteries."

Source: MIT (18 August 2022)

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