SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

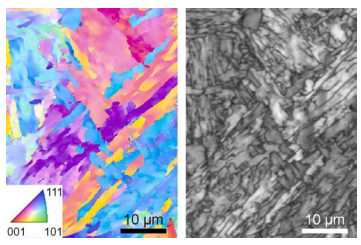
Weekly Discovery

We SHARE to inspire and ignite ideas!

26 - 30 September 2022

3D PRINTING

Researchers Uncover How To 3D-Print One Of The Strongest Stainless Steels

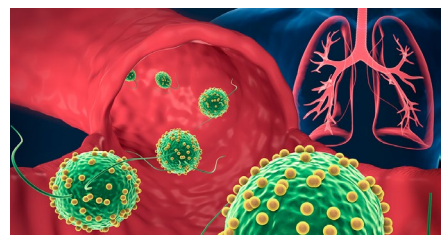


"A team of researchers from the National Institute of Standards and Technology (NIST), the University of Wisconsin-Madison and Argonne National Laboratory has identified particular 17-4 steel compositions that, when printed, match the properties of the conventionally manufactured version. The researchers' strategy, described in the journal Additive Manufacturing, is based on high-speed data about the printing process they obtained using high-energy X-rays from a particle accelerator."

Source: NIST (22 September 2022)

BIOTECHNOLOGY

Tiny Swimming Robots Treat Deadly Pneumonia in Mice



"Nanoengineers at the University of California San Diego have developed microscopic robots, called microrobots, that can swim around in the lungs, deliver medication and be used to clear up life-threatening cases of bacterial pneumonia."

Source: University of California - San Diego (22 September 2022)

DRONES

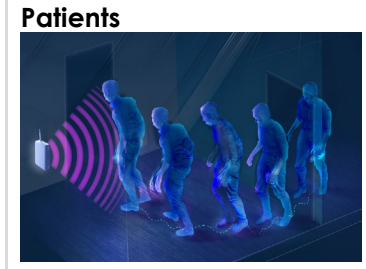
A Swarm Of 3D Printing Drones For Construction And Repair

"An international research team led by drone expert Mirko Kovac of Empa and Imperial College London has taken bees as a model to develop a swarm of cooperative, 3D-printing drones."

Source: EMPA (21 September 2022)

HEALTHCARE

In-home Wireless Device Tracks Disease Progression In Parkinson's Patients



"researchers from MIT and elsewhere demonstrated an in-home device that can monitor a patient's movement and gait speed, which can be used to evaluate Parkinson's severity, the progression of the disease, and the patient's response to medication."

Source: MIT (21 September 2022)

INNOVATION

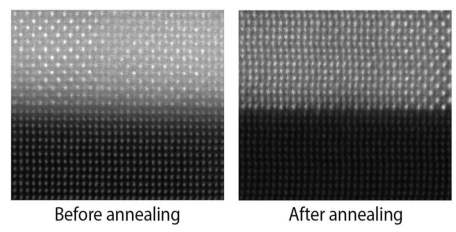
MIT Engineers Build A Battery-Free, Wireless Underwater Camera

"MIT researchers have taken a major step to overcome this problem by developing a battery-free, wireless underwater camera that is about 100,000 times more energy-efficient than other undersea cameras. The device takes color photos, even in dark underwater environments, and transmits image data wirelessly through the water."

Source: umich (22 September 2022)

MATERIALS

Heat-resistant Nanophotonic Material Could Help Turn Heat Into Electricity



"A new nanophotonic material has broken records for high-temperature stability, potentially ushering in more efficient electricity production and opening a variety of new possibilities in the control and conversion of thermal radiation."

Source: umich (22 September 2022)

MATERIALS

Scientists Use Modified Silk Proteins To Create New Nonstick Surfaces

"Researchers at Tufts University have developed a method to make silk-based materials that refuse to stick to water, or almost anything else containing water for that matter. In fact, the modified silk, which can be molded into forms like plastic, or coated onto surfaces as a film, has non-stick properties that surpass those of nonstick surfaces typically used on cookware, and it could see applications that extend into a wide range of consumer products, as well as medicine."

Source: Tufts University (23 September 2022)

MATERIAL SCIENCE

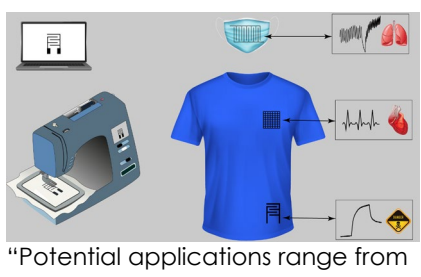
Plastics Of The Future Will Live Many Past Lives, Thanks To Chemical Recycling

"New research from CU Boulder, published in Nature Chemistry, details how a class of durable plastics widely used in the aerospace and microelectronics industries can be chemically broken down into their most basic building blocks and then formed once again into the same material."

Source: University of Colorado at Boulder (26 September 2022)

MEDICAL TECH

Wearable Sensors Styled Into T-Shirts And Face Masks



"Potential applications range from monitoring exercise, sleep, and stress to diagnosing and monitoring disease through breath and vital signs.

Spun from a new Imperial-developed cotton-based conductive thread called PECOTEX, the sensors cost little to manufacture. Just $0.15 produces a metre of thread to seamlessly integrate more than ten sensors into clothing, and PECOTEX is compatible with industry-standard computerised embroidery."

Source: Imperial (23 September 2022)

INNOVATION

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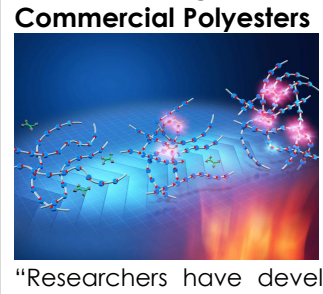
Source: MIT News (26 September 2022)

RECYCLING

Researchers From Japan Develop New Upcycling System For Commercial Polyesters

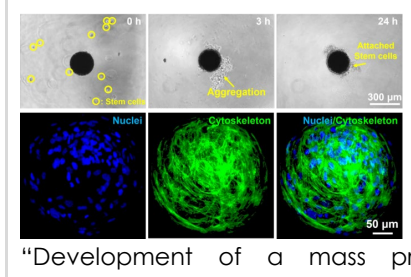


"Researchers have developed a simple method to recycle polyester, a common plastic material, into a cross-linked polymer that retains its strength and properties when recycled. Their method centers around transforming polyesters into vitrimers—a new class of polymers possessing dynamic covalent bonds that can reversibly break and reform to create new cross-links. The dynamic covalent bonds render the vitrimer with desirable properties, such as recyclability, reprocessability, and healing capabilities, which are characteristics of high-value functional materials."

Source: Eurekalert! (26 September 2022)

ROBOTICS

Emergence Of A Game Changer In The Field Of Medical Microrobots.



"Development of a mass production method for biodegradable microrobots that can disappear into the body after delivering cells and drugs."

Source: Eurekalert! (26 September 2022)

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