

# Weekly Update

## 1 . Engineered MgO nanoparticles for cartilage-bone synergistic therapy

*Using MgO, or engineered magnesium oxide, nanoparticles to treat osteoarthritis, the painful inflammation in the joints. This new approach uses magnesium ions to identify issues related to OA, Where there are strong white tissues that are important in supporting and connecting parts, especially joints.*

**Source: Researchgate**

[https://www.researchgate.net/publication/378829315\\_Engineered\\_MgO\\_nanoparticles\\_for\\_cartilage-bone\\_synergistic\\_therapy](https://www.researchgate.net/publication/378829315_Engineered_MgO_nanoparticles_for_cartilage-bone_synergistic_therapy)

## 2. Printed Polymer Allows Researchers to Explore Chirality and Spin Interactions at Room Temperature

*Not only less expensive, but also generally environmentally-friendly for realizing spatial characterization of non-supercharged ions and spin dynamics. Assembling a printable natural macromolecule allows researchers to measure the amount of charge produced in the spin-to-transmutation within a spintronic material at room temperature.*

**Source: North Carolina State University**

<https://news.ncsu.edu/2024/03/printed-polymer-allows-researchers-to-explore-chirality-and-spin-interactions-at-room-temperature/>

## 3. Giant 'sand battery' holds a week's heat for a whole town

*The world's first sand battery, developed by Finnish startup Polar night Energy. The product is a tower filled with 100 tons of sand and is designed to be intensely heated with renewable electricity and then store the heat for months. The aspiring aim of this design is to harness solar and wind energy.*

**Source: New Atlas**

<https://newatlas.com/energy/sand-battery-finland/>

## 4. A bird with six wings

*Oceanbird concluded the blueprint of the world's first wind-powered sailing ship, marking a leap in viable ship designs. The ocean bird uses its wing sail to move forward. The air beneath the wing slows down and is deflected downward, creating pressure on the wing. The Oceanbird wing sail consists of a mainsail and one flap. They create an asymmetric shape where the outer part of the wing is accelerating and the inner part of the wing is slowing down.*

**Source: OCEAN BIRD**

<https://www.theoceanbird.com/blog/a-bird-with-six-wings/>

**5. SwRI receives \$2 million NASA grant to develop lunar-regolith-measuring instrument**

*(SPARCI, pronounced "sparky"), SPARCI has two large transmitting antennas designed to be deployed by astronauts. Stillman said, "SPARCI uses a much wider bandwidth and electronics that is 50 years more advanced than SEP. SPARCI will determine the thickness and density of the overall regolith, measure the composition of the upper megaregolith and the depth of the lower regolith.*

*Source:* **Bioengineer.org**

<https://bioengineer.org/swri-receives-2-million-nasa-grant-to-develop-lunar-regolith-measuring-instrument/>

**6. The next step towards industrial production using metal 3D printing: Meltio M600**

*To solve the problems of long lead times, expensive stock-keeping and increasingly fragile supply chains, wire-laser metal deposition system manufacturer Meltio M600 has introduced a new industrial metal 3D printer.*

*Source:* **meltio3d**

<https://meltio3d.com/next-step-towards-industrial-production-using-metal-3d-printing-meltio-m600/>

**7. Fossil of Giant Freshwater Turtle Discovered in Brazilian Amazon**

*An international research team has discovered a previously unknown, extinct species of freshwater turtle, one of the largest freshwater species in the world. Peltoccephalus maturini originates from the Brazilian Amazon region and is said to be between 9,000 and 40,000 years old. It was reported in the journal "Biology Letters" by a group led by Gabriel Ferreira of the Senckenberg Center for Human Evolution and Paleoenvironment at the University of Tübingen.*

*Source:* **SCI News**

<https://www.sci.news/paleontology/peltocephalus-maturin-12766.html>

**8. NASA's Voyager 1 sends readable message to Earth after 4 nail-biting months of gibberish**

*In the vast stillness of space, Voyager 1 has broken its months of cryptic silence to whisper to us with a hint that this just might be the lifeline it needs. This pioneer floating in the interstellar ocean, this breakthrough signal is more than a testament to human ingenuity.*

*Source:* **LiveScience**

<https://www.livescience.com/space/space-exploration/nasas-voyager-1-sends-readable-message-to-earth-after-4-nail-biting-months-of-gibberish>

## **9. UTA PREPS GIANT PARTICLE DETECTORS FOR NEUTRINO PROJECT**

*According to discoveries made by Albert Einstein and other physicists, the Big Bang would have produced equal amounts of matter and antimatter. Could neutrinos be the reason the universe is made of matter? But DUNE may discover even more. If a star in our Milky Way galaxy explodes, the DUNE detectors on Earth will be able to see neutrinos from that explosion.*

**Source:** [UTA.edu](https://www.uta.edu/news/news-releases/2024/03/14/uta-preps-giant-particle-detectors-for-neutrino-project)

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## **10. SpaceX is reportedly building a network of spy satellites for US intelligence**

*SpaceX is building a network of hundreds of spy satellites under a secret contract with US intelligence, five sources familiar with the program said, a sign of deep ties between billionaire Elon Musk's space company and national security agencies. If successful, the program will significantly expand the ability of the US government and military to quickly detect potential targets virtually anywhere in the world.*

**Source:** [The Verge](https://www.theverge.com/2024/3/16/24103172/spacex-starshield-spy-satellite-network-us-intelligence-classified-contract)

<https://www.theverge.com/2024/3/16/24103172/spacex-starshield-spy-satellite-network-us-intelligence-classified-contract>