

Best of Last Week: New stable form of plutonium, highest throughput 3-D printer, benefits of exercise before breakfast

October 21 2019, by Bob Yirka

High-area rapid printing technology prints vertically, using ultraviolet light to cure liquid resin into hardened plastic. Credit: Northwestern University

It was another good week for physics as an international team of scientists announced that they had discovered [a new stable form of](#)

[plutonium](#)—the compound had an unexpected, pentavalent oxidation state and was solid and stable. Also, another international team developed [a way to study quantum spacetime on a quantum simulator](#)—with experimental fidelity above 95 percent. And a team at MIT announced that they had discovered [fractal patterns in a quantum material](#)—the material, neodymium nickel oxide, resembled a downward slope.

In technology news, a team at the University of Hawai'i at Mānoa found [a glitch that could affect more than 100 scientific studies](#)—it was in a computer program that gave different results depending on the brand of the computer. Also, a patent application for [a plasma compression fusion device ignited curiosity over nuclear fusion](#)—filed by the U.S. Secretary of Navy, and citing someone named Salvatore Pais as the inventor, the filing suggested the new invention could "pump out absolutely incredible amounts of power in a small space." And a team at the University of Washington announced that they had developed [the first smart speaker system that uses white noise to monitor infants' breathing](#)—it records how the noise is bounced back and indicates changes. Also, a team at Northwestern University claimed their [highest throughput 3-D printer is the future of manufacturing](#)—able to print objects the size of an adult human in just three hours.

In other news, an international team of scientists reported that [estuarine waters hold promise in global pain-relief hunt](#)—they found a previously unknown fungus they called Penicillium sp in a Tasmanian valley that mimics endomorphins in the body. And a team at the U.S. Department of Energy's Pacific Northwest National Laboratory [pinpointed the cause of harmful dendrites and whiskers in lithium batteries](#), perhaps leading to making them safer.

And finally, for those who are trying to improve their health by getting more exercise, you might want to check out the results of work by a

combined team of researchers from the Universities of Bath and Birmingham—they found [increased health benefits of exercise from working out before breakfast.](#)

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Citation: Best of Last Week: New stable form of plutonium, highest throughput 3-D printer, benefits of exercise before breakfast (2019, October 21) retrieved 20 April 2024 from <https://sciencex.com/news/2019-10-week-stable-plutonium-highest-throughput.html>

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