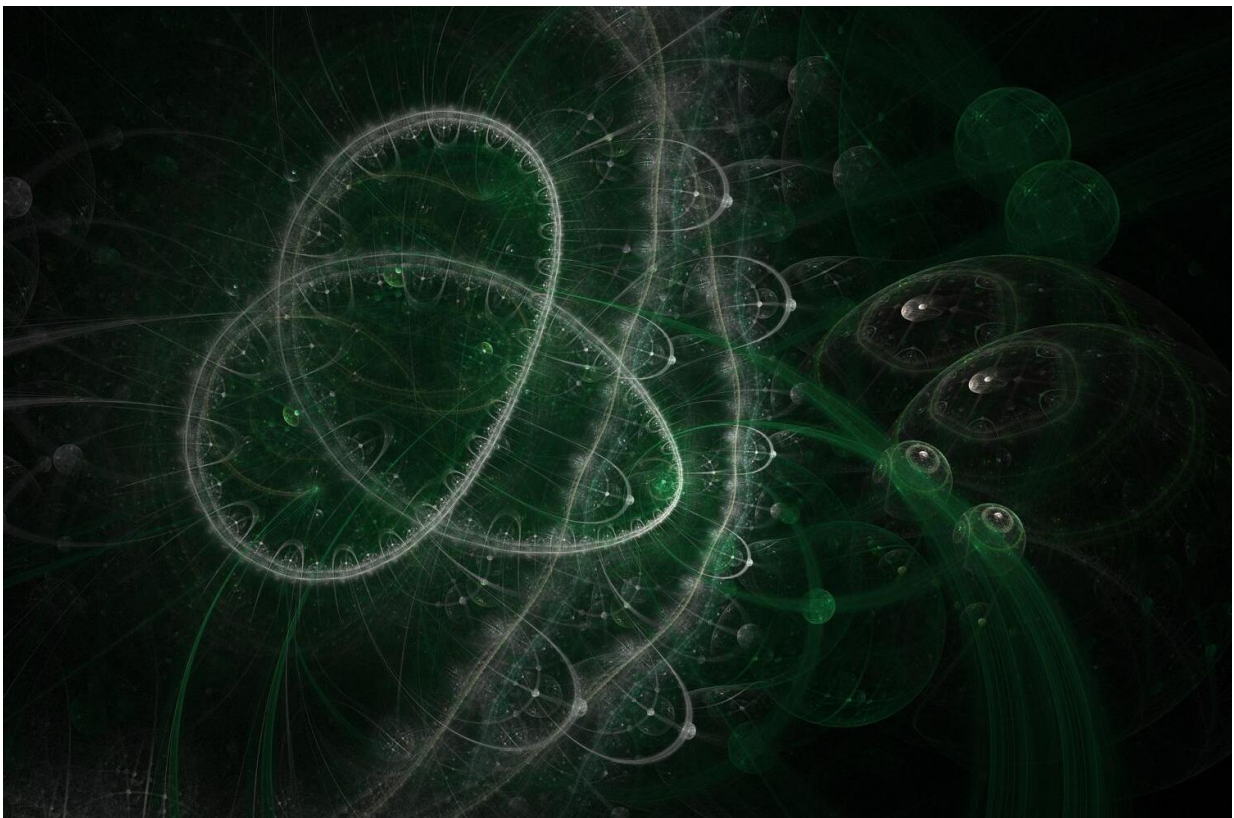


# Best of Last Week: Particle accelerator on a chip, new lidar system and sleep impact on pulmonary fibrosis

January 6 2020, by Bob Yirka

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Credit: CC0 Public Domain

It was another good week for physics as a team with members from the University of Waterloo, Universidade Federal do ABC and Centro

Brasileiro de Pesquisas Físicas, described their [experimental demonstration of a spin quantum heat engine](#)—showing that the theory first introduced by Scovil and Schulz-DuBois back in the 1960s was viable. Also, a combined team of researchers from Stanford University and the SLAC National Accelerator Laboratory [built a particle accelerator that fits on a chip](#)—though not as fast as the large-scale instruments, the researchers hope it will serve as a good research tool. And a combined team of researchers from the University of California, San Diego and Columbia University announced [a quantum breakthrough that brings a technique from astronomy to the nanoscale](#)—a novel "multi-messenger" approach to quantum physics.

In technology news, a team at Monash University developed what they described as [the world's most efficient lithium-sulfur battery](#)—they claim to be on the brink of commercializing a battery that could vastly outperform those on the market today. There were also rumors that Intel was set to [unveil a thermal module solution for laptops that would eliminate the need for a fan](#), at this year's CES. Also, Borsch hinted that it was going to unveil at CES a [new lidar system that they claim will allow automated cars to drive more safely](#). And Samsung announced that it also has big plans for CES, mainly [showing off products being developed by the company's C-Lab](#)—a skunkworks arm for research and development.

In other news, a team of researchers with members from the University of Pittsburgh School of Medicine and the National Institute of Allergy and Infectious Diseases found that [delivering the TB vaccine intravenously could dramatically improve its potency](#). Also, a multinational team of researchers found that [early modern humans cooked starchy food in South Africa approximately 170,000 years ago](#).

And finally, if you are worried that you might be at risk of pulmonary fibrosis, an incurable lung disease, you might want to check out the

results of a study conducted by a team with members from the Universities of Manchester, Oxford, Newcastle, University College London, and Toronto, as well as Manchester University NHS Foundation Trust. They found that [people who sleep less than four hours a night, or more than 11, are two to three times more likely to develop the condition](#)

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