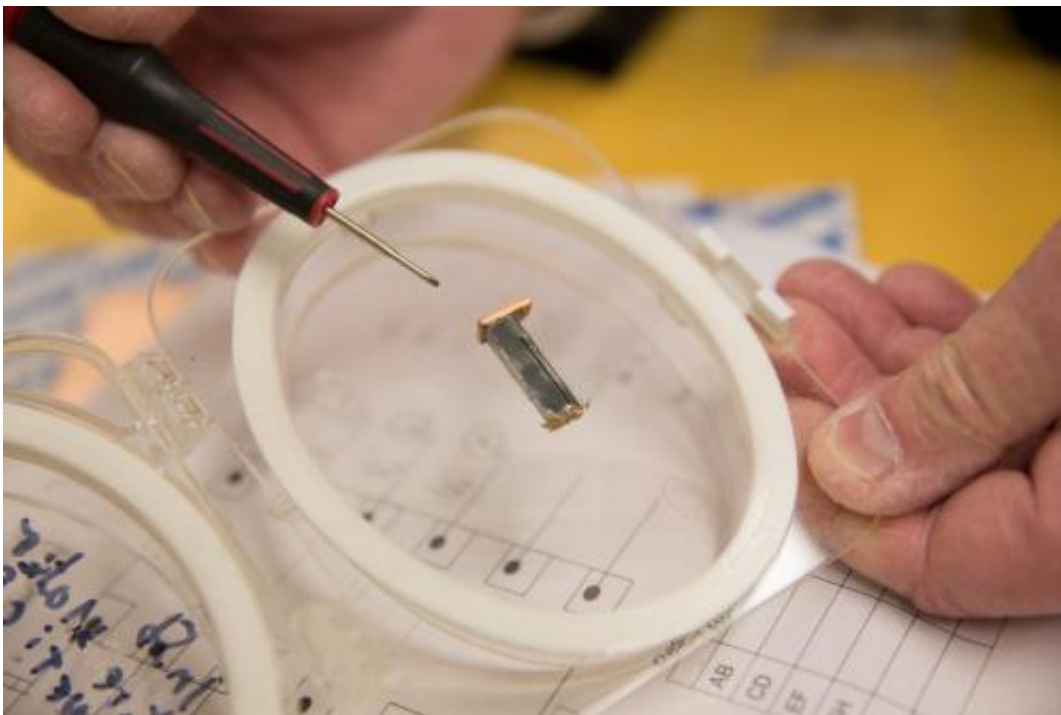


Best of Last Week: Acoustic phonons have magnetic properties, universe to collapse and bioclock disruption problem

March 30 2015, by Bob Yirka



Researchers at The Ohio State University have discovered that heat can be controlled with a magnetic field. Here, study leader Joseph Heremans, Ohio Eminent Scholar in Nanotechnology, holds the material used in the experiment: a piece of indium antimonide semiconductor shaped into a lopsided tuning fork. The wider arm of the fork (left) measures 4 mm wide, and the narrower one (right) measures 1 mm. The researchers were able to slow the movement of heat through the wider arm of the fork using a magnetic field. Credit: Photo by Kevin Fitzsimons, courtesy of The Ohio State University.

It was another good week for physics as researchers at Ohio State University conducted [a landmark study that proved that magnets can control heat and sound](#)—they demonstrated a magnetic field reducing the amount of heat flowing through a semiconductor, proving that acoustic phonons have magnetic properties. In another study, a combined team of researchers from the University of Belgrade and MIT revealed a technique they had developed that allowed for [entangling 3,000 atoms using a single photon](#), representing a new milestone in the number of particles that have been entangled at one time. Also a team of researchers at Griffith University ran an experiment that [demonstrated entanglement of a single particle](#)—showing that the collapse of the wave is a real effect.

In space news, a team of researchers at the University of Nottingham announced that [the universe may be on the brink of collapse](#)—in cosmological terms, of course. Meanwhile, another team suggested that [a wandering Jupiter may account for our unusual solar system](#). They believe the planets' early inward-outward migration might have impacted the way the other planets developed. Also new research suggests [Europa's elusive water plume paints a grim picture for life](#)—that plume spotted two years ago appears to have been caused by a meteorite impact, rather than an emission from the surface, dashing hopes that it might have been a good indicator of life on one of Jupiter's largest moons.

In other news [a team of mathematicians has solved a 60-year-old problem](#)—a neat explanation for the Fermi-Pasta-Ulam problem. Also a team of researchers has found that using high-definition scans can reveal the [effects of pregnant mothers' smoking on unborn babies](#)—in their facial expressions, no less. And a team at Harvard announced that they had taken [another step in bringing back a woolly mammoth](#)—they are not trying to clone it, instead they are replicating parts of its DNA.

And finally, if you have been worried that stress induced insomnia might be hurting your brain, a team of researchers has found that [a disrupted biological clock has a link to Alzheimer's disease](#)—so, you may be right and now you have something else to worry about.

© 2015 Phys.org

Citation: Best of Last Week: Acoustic phonons have magnetic properties, universe to collapse and bioclock disruption problem (2015, March 30) retrieved 15 May 2024 from <https://phys.org/news/2015-03-week-acoustic-phonons-magnetic-properties.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.