

Best of Last Week – A novel phase of matter, carcinogenic meat and how the brain erases unimportant stuff

November 2 2015, by Bob Yirka

Artist's rendition of spatially segregated domains of multipolar order in the Sr_2IrO_4 crystal. The orientation of the multipolar order in each domain is depicted by the multi-lobed object. Credit: Liuyan Zhao

(Phys.org)—It was an interesting week for physics, as one team in the U.S. [uncovered a novel phase of matter](#)—it was characterized by an

unusual ordering of electrons and wasn't based on any theoretical predictions. Another team at Purdue University [observed a phase transition that was thought impossible](#)—electrons transitioning from a topologically ordered phase to one with broken symmetry under certain conditions. And in a bit of applied physics, a collaborative effort in Britain has led to [the invention of a sonic tractor beam](#)—they used it to lift and move objects.

In news from space, a team of researchers affiliated with several institutions in the U.S. announced that they had solved [the mysteries of Voyager 1's journey into interstellar space](#)—specifically, why it observed a magnetic field that was inconsistent with other spacecraft observations. Also, the team studying data received from the Rosetta probe sent to study the comet 67P [reported that it had found molecular oxygen](#)—a major surprise.

In global warming news, a team of marine and environmental researchers from several organizations in the U.S. reported on the results of a study they conducted that suggests that [warming waters are a major factor in the collapse of New England cod](#) in the Gulf of Maine. And a study by NASA showed that [mass gains of Antarctic Ice Sheet are greater than losses](#)—the amount of snowfall is more than making up for losses due to melting glaciers.

In other news, a report by a UN agency made headlines around the world when it announced the results of reviewing approximately 800 studies that together showed that [sausages and ham cause cancer and that red meat 'probably' does too](#). More optimistically, a team working at the University of Cambridge announced that their [new design points a path to the 'ultimate' battery](#)—a lithium-oxygen battery that testing has shown is more than 90 percent efficient—it can also be charged/recharged over 2,000 times.

And finally, if you have ever suspected that your brain sometimes gets rid of stuff you don't need, you may be right, as a team at Lund University in Sweden has found that sometimes [the brain forgets in order to conserve energy](#)—their study showed that the brain sometimes simply erases something that has been learned, which is been deemed unnecessary, in order to make the best use of energy.

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