Best of Last Week - Zero friction quantum engine, twisted radio beams and Ebola outbreak update

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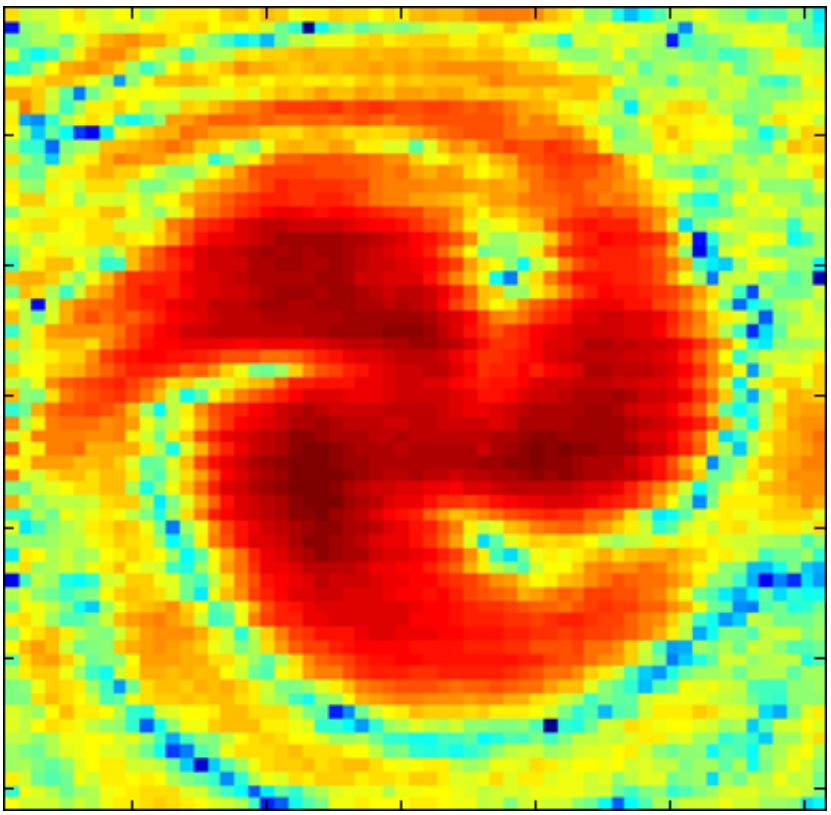

A graphic showing the intensity of the radio beams after twisting Credit: Alan Willner / USC Viterbi

(Phys.org) —It was another interesting week as a team of physicists from the U.S., Italy and the U.K. designed a zero-friction quantum

engine, showing an example of a quantum engine that if built would be "super-adiabatic"—an engine that can be reversed without energy dissipation. Meanwhile another team of physicists working in Canada found that neutrino trident production may offer a powerful probe of new physics—part of an effort to figure out if the "Z" boson, aka the "dark photon" actually exists. If so, it would mean creating an extension to the Standard Model.

In the realm of applied physics a team of scientists twisted radio beams to send data—they report that they achieved transmission speeds of 32 gigabits per second. Twisted streams were created by passing beams through what they call a "spiral phase plate." Another team, this one of astronomers, released the most detailed catalogue ever made of the visible Milky Way, an effort ten years in the making using data from the Isaac Newton Telescope.

Last week also brought us news from researchers at MIT who are making progress with spacesuits of the future that may resemble a streamlined second skin—getting rid of the bulk would make moving around ever so much easier. And the search for new lighting technology continued unabated as LG Chemical announced that their new super-efficient OLED lighting has a lifespan of 40,000 hours. Also, there were new developments by a team of forensic sleuths sketching Richard III's brutal end—they describe in excruciating detail the horrific injuries that took the King's life. Even more horrific was news from Africa where researchers announced that the Ebola outbreak is "out of all proportion" and it's severity cannot be predicated. Despite the efforts of officials in impacted nations and assistance from other countries, it appears the fight is not going well—the impacted area is spreading, more people are getting sick and most of them are still dying.

And finally, if you've been worrying if you might one day develop Alzheimer's disease, a team of scientists has developed a simple test that

can help detect Alzheimer's before dementia signs show. The only question then is, if people would really want to know.