

Best of Last Week—Electron placed in dual state, a plastic eating enzyme and non-addicting alternatives for dental pain

April 23 2018, by Bob Yirka

Schematic illustration of the Kramers Henneberger potential formed by a mixture of the atomic potential and a strong laser field. Credit: UNIGE - Xavier Ravinet

It was a good week for physics, as a team from the University of Geneva and the Max Born Institute [placed an electron, for the first time, in a](#)

[dual state—neither freed nor bound](#), using a laser with a controlled shape. And a team of quantum physicists from Austria and Germany reported that they achieved [an entanglement record](#) with 20 quantum bits. Also, a team from the National Institute of Standards and Technology and the University of Maryland found that [atoms may hum a tune from a grand cosmic symphony](#)—when rapidly expanding a doughnut shaped cloud of atoms, they found it hummed in a way similar to the early universe. And CfA astronomer Qirong Zhu led a team that asked: [Is dark matter made of primordial black holes?](#)

In technology news, a team with the University of Portsmouth and the U.S. Department of Energy's National Renewable Energy Laboratory announced that they had engineered [a plastic-eating enzyme](#)—possibly offering a much-needed recycling solution. And a team at the University of California, Berkeley, created [a thin film that converts heat from electronics into energy](#)—offering a possible reduction in energy costs for many electrical devices.

In biology news, a team at Cambridge University announced that they had found [genetic adaptations to diving in humans for the first time](#)—divers in Southeast Asia have enlarged spleens, they found, conferring an oxygen boost during long, deep dives. And a team at Cincinnati Children's Hospital Medical Center found that [the Epstein-Barr virus can be linked to seven serious diseases](#), which together affect almost 8 million people in the U.S. Also, a team with members from the University of Akron, the Field Museum and the University of Fairbanks announced that [a giant group of octopus moms had been discovered in the deep sea](#) nearly two miles down; each was guarding a clutch of eggs.

And finally, if you are one of the millions who will be visiting your dentist soon, and are worried about becoming part of the [opioid epidemic](#), a team at Case Western Reserve University found that [Ibuprofen and acetaminophen are more effective than opioids in treating](#)

[dental pain.](#)

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