

# **Best of last week: A new property of light, nucleation captured in 4-D, and drugs that increase dementia risk**

July 1 2019, by Bob Yirka

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Credit: Petr Kratochvil/public domain

It was a good week for physics research, as a pair of researchers, one with Kyoto University, the other the Instituto Balseiro, Centro Atómico de Bariloche found [an optimal quantum computation linked to gravity](#).

Paweł Caputa and Javier Magan showed that there are groups of quantum systems in which the complexity of certain tasks can be estimated using classical gravity.

And a team with members from several institutions in the U.S. and Spain discovered [a new property of light](#): self-torque.

A team with members from the University of California and MIT developed [a new material with high potential for quantum computing](#). They made the discovery as part of their efforts to prove the existence of the Majorana fermion.

It was also a big week for astrophysics, as a team with members from Johns Hopkins University and Swarthmore College created [a model that suggested how early dark energy could resolve the Hubble tension](#).

And another team at Western University [deciphered the history of supermassive black holes in the early universe](#), and found evidence for the direct formation of black holes that do not emerge from a star's collapse.

An international team of researchers suggested that the [cosmic waves discovery could unlock mysteries of intergalactic space](#) and determined the precise source of a powerful, one-off burst of cosmic radio waves for the first time.

And a team at Cornell University developed an algorithm to map a multifaceted set of probabilities that they believe could lead to [a data visualization that reveals the nature of the universe](#).

In other news, a team at UCLA announced that they had [captured atomic motion in 4-D for the first time](#)—a never-before-seen view of [nucleation](#)

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And a team at Johns Hopkins University School of Medicine made headlines when they announced that they had found that [Parkinson's disease has origins in the gut](#).

And finally, if you are one of the millions of people around the world who have been prescribed [muscle relaxants](#) as a means of treating COPD (or other ailments), you might want to note the results of a study done by a team at the University of Nottingham, which found that [the commonly prescribed drugs could increase the risk of dementia](#).

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