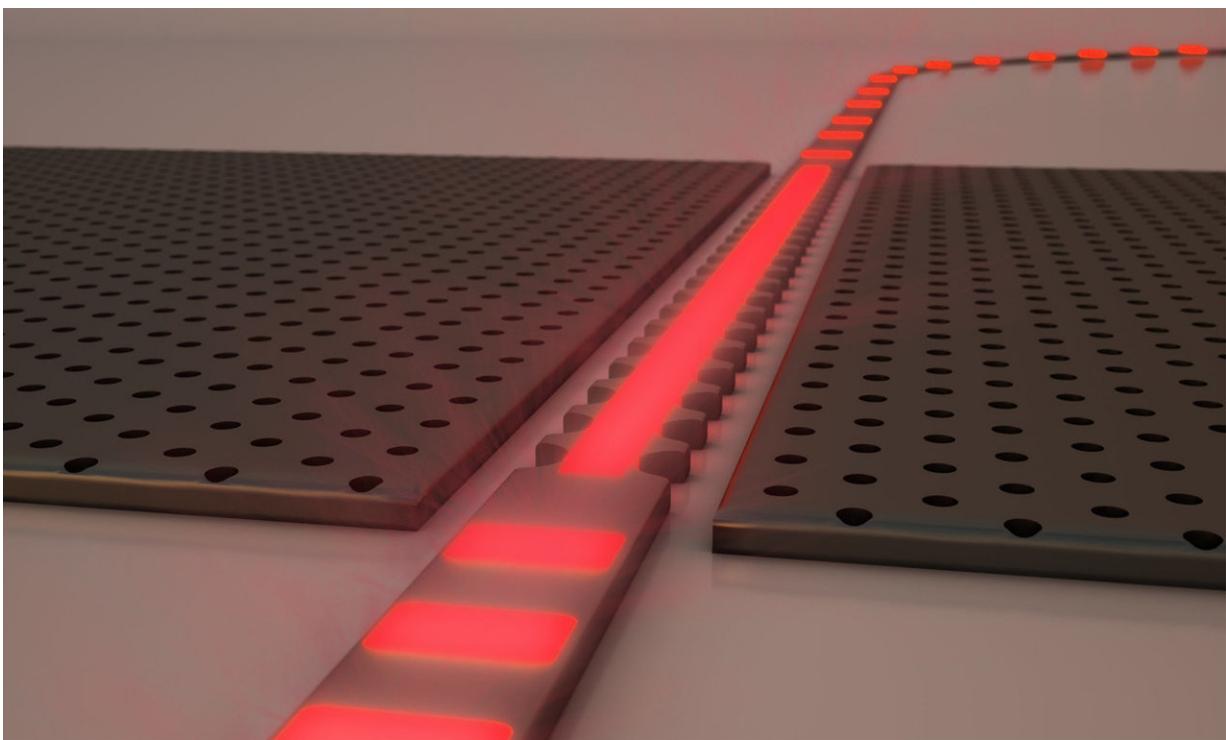


# Best of Last Week—Observing infinitely long wavelengths, finding Baryonic matter and heart burn drugs and liver disease

October 16 2017, by Bob Yirka

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A zero-index waveguide compatible with current silicon photonic technologies.  
Credit: Second Bay Studios/Harvard SEAS

(ScienceX)—It was a good week for physics as a team at the Harvard John A. Paulson School of Engineering and Applied Sciences reported

that they had [directly observed infinitely long wavelengths for the first time](#) using a zero-index waveguide they had developed. Also, a group at the University of Geneva conducting experiments with quantum theory found [a single photon revealed quantum entanglement of 16 million atoms](#) in a one-centimeter crystal. And a team with members from the Max Planck Institute and the BCCMS centre in Bremen [reported reversal of current flow in a quantum](#) system using a quantum observer, which made it more likely that the current would flow in one direction or another.

In space news, [two separate teams of astronomers found evidence of missing Baryonic matter](#). Also, an international team of astronomers using data from the CALIFA survey [discovered unusual spindle-like galaxies](#), showing they are much more common than has been thought.

In other news, a team at Stanford University announced that they had developed [a battery based on sodium that may offer more cost-effective storage than lithium](#). They achieved their results by adding myo-inositol to the sodium-based electrode. And a team at Imperial College London studying psilocybin found that [magic mushrooms may "reset" the brains of depressed patients](#) for weeks following treatment. Also, a team with members from Sweden, the U.S. and China conducted mitochondrial DNA testing and found that [Newfoundland was populated multiple times by distinct groups](#) going back approximately 10,000 years. And a team at the University of Arizona studied data held in global databases and found [that pest resistance to biotech crops is surging](#). The crops were bioengineered to produce insect killing proteins from the *Bacillus thuringiensis* bacteria.

And finally, if you are one of the millions of people around the world suffering from heartburn, you may want to take note of a study conducted by a team at the University of California San Diego School of Medicine—they found that [common acid reflux medications promote](#)

chronic liver disease. Specifically, proton pump inhibitors may alter gut bacteria in harmful ways.

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