Best of Last Week: Quantum states in everyday electronics, an electric plane and leaky gut breakthrough

December 16 2019, by Bob Yirka

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It was another good week for physics as a team at the University of Chicago's Pritzker School of Molecular Engineering created quantum states in everyday electronics—they found they could create and control

high-performance quantum bits in electronic devices made from silicon carbide. And a team at the University of California, Berkeley, found that heat energy can leap through empty space thanks to quantum weirdness—it involves the Casimir interaction in which heat can leap across several hundred nanometers in a vacuum.

In technology news, a combined team of researchers from Rice University and Amazon reported on a breakthrough in distributed deep learning—using a divide-and-conquer approach, they showed it was possible to improve online searches. And a team of researchers affiliated with several institutions in the Republic of Korea announced that they had developed a contact lens that could show when blood glucose levels are high. Also, a team at Purdue University announced that they had created transistors that could both process and store information by using a semiconductor that had ferroelectric properties. And Canadian engineering company magniX, working with Harbour Air announced that their first commercial electric plane had taken flight.

In other news, an international team with members from 50 international organizations found that Greenland is losing ice seven times faster than in the 1990s due to global warming. They noted also that at its current rate, the melting will lead to 100 million people experiencing flooding by the end of this century. Also, a team at Cold Spring Harbor Laboratory announced that a key mystery about how the brain produces cognition was finally understood—neurons in the orbitofrontal cortex have distinct functional groups that code for variables such as decision confidence. And a team at Ben-Gurion University of the Negev developed a new method to remove dust on solar panels—simply by modifying the surface to resemble a lotus leaf.

And finally, if you are someone who suffers from chronic low-grade inflammation of the gut, you may want to check out a study done by a team at Wake Forest School of Medicine—they found a dead probiotic

strain that showed it could reduce harmful, aging-related inflammation called "leaky gut"—in mice.

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