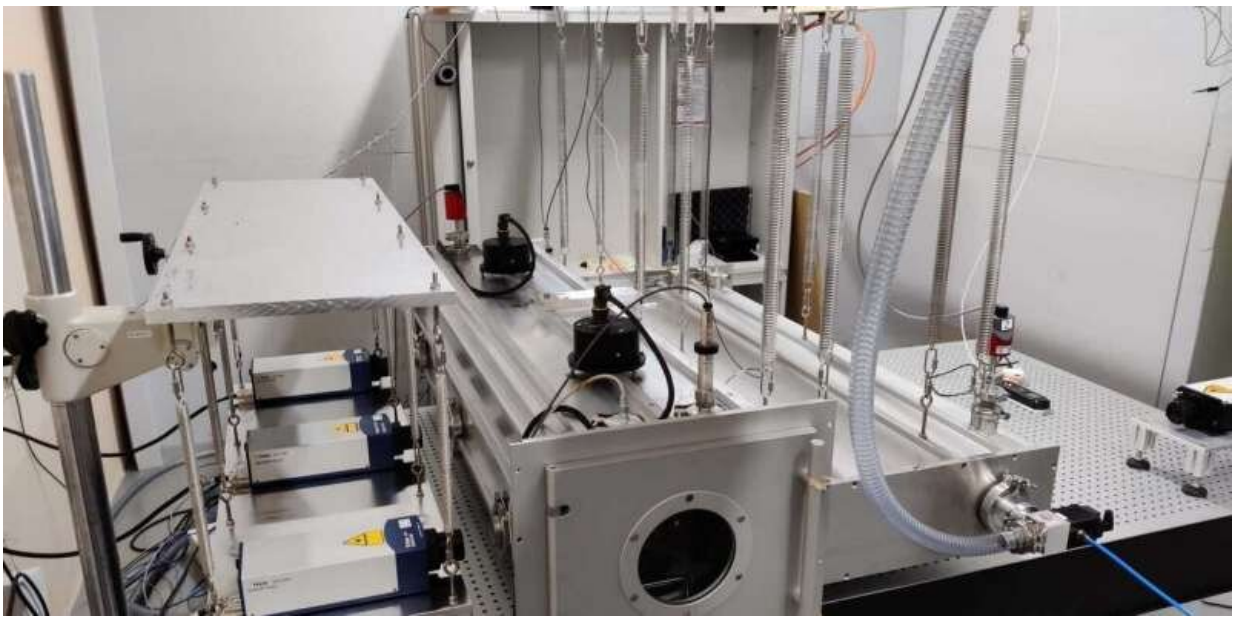
Best of Last Week—Remeasuring the gravitational constant, preventing DNS attacks, impact of long COVID on people

July 18 2022, by Bob Yirka



With this experimental set-up, ETH researchers succeeded in determining the gravitational constant in a new way. Credit: Jürg Dual / IMES / ETH Zurich

It was a good week for physics research as a team at ETH Zurich remeasured the gravitational constant, which was a job long in the making. The work was conducted at the old Furggels fortress using lasers. Also, a team at Simon Fraser University made a major breakthrough in quantum technology. They found the missing photonic

link that will enable an all-silicon internet, which should also allow for building massively scalable quantum computers. And a team at MIT found a way to harness quantum "time reversal" to measure vibrating atoms, which could lead to more precise atomic clocks and quantum sensors, possibly helping us learn more about dark matter.

In technology news, a team at MIT developed an artificial intelligence model that they used to find potential drug molecules a thousand times faster than conventional methods. Also, a team at Yonsei University introduced a new strategy for stabilizing water-splitting photoelectrodes for solar-to-hydron production. It entailed the use of a hydrogel-based, transparent layer that could be used to protect the photocathode. And a team at the Citadel developed a deep neural network for use in generating DNA amplification attacks to test applications intended to prevent denial of service attacks. Also, a team at MIT's Computer Science and Artificial Intelligence Laboratory developed a new program language called "Exo" that can be used to program hardware accelerators, an approach that could aid in building faster computers even as engineers move closer to the day when Moore's Law can no longer be applied.

In other news, a trio of researchers at Isfahan University of Medical Sciences in Iran, looked at what happens in the brain when people consume dark chocolate and found some evidence that it reduces stress related to chronic isolation. Also, officials at NASA announced that the James Webb telescope is now ready to begin hunting for the oldest stars in the observable universe and for habitable worlds. And finally, a team at USC found that long COVID affects 23% of people who test positive for the disease, leading to symptoms that, in some cases, last for months.

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