

Best of Last Week—Alternate theory of gravity, automated restroom cleaning, Martian meteorite mystery solved

October 31 2022, by Bob Yirka

Rough image of cleaning operation. Credit: Tezuka et al.

It was a good week for physics research as an international team of astrophysicists made observations of star clusters that were consistent with the predictions of an alternative theory of gravity—called

"[modified Newtonian dynamics](#)," it challenges Newton's laws. Also, a team at Princeton University discovered [an exotic quantum state](#) in a topological insulator at room temperature.

In technology news, a team at Tokyo Metropolitan University may have solved a sanitation problem—they developed [an automated system to clean restrooms in convenience stores](#). And a team at the Computer Vision and Biometrics Lab of IIT Allahabad working with a group from Vignan University, developed a deep learning model that generates compressed images from text—called [T2CI GAN](#), it used a generative adversarial network to teach a system to generate an image from text-based descriptions of objects. Also, a team with members from UC Berkeley's Hybrid Robotics Group, Simon Fraser University and the Georgia Institute of Technology, designed and built a reinforcement-learning-based, four-legged [robotic goalkeeper](#). And a combined team from the National University of Singapore and Tsinghua University developed [an optical-fiber-sensor-based mouthguard](#) to operate devices by bite force.

In other news, a combined team from the University of California and the University of Southern California found that [an inexpensive, readily available chemical may limit the impact of COVID-19](#)—the amino acid GABA, which is already available over the counter, was found to reduce viral loads. And a team at Queen Mary University of London, working with colleagues from the University of Oulu and the University of Sheffield, found evidence that [bumblebees sometimes engage in play](#)—they do things for no other reason than because they are fun. Also, a team with members from Chan Zuckerberg Biohub, the Chan Zuckerberg Initiative and UC San Francisco developed [a machine-learning system that can provide "almost perfect" diagnosis](#) of an elusive global killer—the infections behind a given instance of sepsis. And finally, a team with members affiliated with institutions in the U.K., the U.S., Australia and Italy solved [the century-old mystery of a Martian](#)

[meteorite discovery](#) near Purdue University.

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