Best of Last Week—Trying to detect dark photon dark matter, testing GPT detectors, identifying narcissism

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The dark photon dark matter has a small probability converts into visible radio wave at the dish of Five-hundred-meter Aperture Spherical radio Telescope (FAST), but may be detected at the feed of the telescope. Credit: Xinhua

It was a good week for physics research as a combined team of space scientists from Tsinghua University, the Purple Mountain Observatory

and Peking University reported that dark photon dark matter could be directly detected using radio telescopes—to find out, they have been using dished telescopes to search for dark photon-related electromagnetic signals. Also, a team at quantum computing company D-Wave Inc. demonstrated quantum advantage on optimization problems with a 5,000-qubit programmable spin glass. And a team of physicists at Nanjing University testing reports of superconductivity at room temperature by another team announced that they had failed in their attempt.

In technology news, a team at Stanford University tested GPT detectors, programs created to discern whether a given sample of text was written by an AI app such as ChatGPT, and reported that they are generally unreliable, especially when comparing with a non-native English speaker. And a team at the University of Cambridge developed a solar-powered technology that can convert carbon dioxide and water into a liquid fuel that can be added directly to a car's engine as a drop-in fuel. Also, a team at Jiangnan University announced that they had developed what they described as a breakthrough in ceramic 3D printing, a new type of ink that turns solid nearly instantly when exposed to near-infrared light. And a team at Donghua University developed a self-healable, crack-resistant hydrogel microfiber inspired by spider silk.

In other news, a team of medical researchers at Harvard Medical School may have found the long-missing piece in the puzzle of breast cancer—the molecular trigger that kicks off its development. A sociologist and a zoologist with the University of Copenhagen and Linacre College found evidence that suggested the advent of humans kissing on the lips was 1,000 years earlier than others have claimed, pushing it back to 4,500 years ago. And finally, a team of psychologists at the University of Helsinki, working with a colleague from Millsaps College, discovered via experimentation a clever new way to detect narcissism in a person by giving them negative feedback and watching their facial response.

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