

Best of Last Week—Milky Way black hole imaged, using AI to stop traffic jams, a bacteriophage to treat infection

May 16 2022, by Bob Yirka

First image of the black hole at the center of the Milky Way. This is the first image of Sagittarius A* (or Sgr A* for short), the supermassive black hole at the centre of our galaxy. It's the first direct visual evidence of the presence of this black hole. It was captured by the Event Horizon Telescope (EHT), an array which linked together eight existing radio observatories across the planet to form a single "Earth-sized" virtual telescope. The telescope is named after the "event horizon", the boundary of the black hole beyond which no light can escape. Although we cannot see the event horizon itself, because it cannot emit light,

glowing gas orbiting around the black hole reveals a telltale signature: a dark central region (called a “shadow”) surrounded by a bright ring-like structure. The new view captures light bent by the powerful gravity of the black hole, which is four million times more massive than our Sun. The image of the Sgr A* black hole is an average of the different images the EHT Collaboration has extracted from its 2017 observations. Credit: EHT Collaboration

It was a good week for space science as a team with the Event Horizon Telescope Collaboration made headlines around the world by revealing [the first image of Sagittarius A*, the black hole at the heart of our galaxy](#). The image provided overwhelming evidence that Sagittarius A* is truly a black hole. Also, a team of researchers at the Chinese Academy of Sciences, working with a colleague from the University of Copenhagen, found evidence that [water was present on Mars more recently than previously thought](#). And a pair of researchers, Michael Wong and Stuart Bartlett, suggested a solution to the Fermi paradox, explaining why aliens have never visited Earth: [Superlinear scaling leading to a singularity](#).

In technology news, a team of engineers at Aston University developed [an AI traffic light system that could make traffic jams a distant memory](#)—to reduce congestion, it reads live camera data and adapts to compensate for changes in flow. And an international team of researchers designed and built [a reliable and renewable biological photovoltaic cell](#) about the size of the AA battery. The blue-green algae-based cell has been powering a microprocessor continuously for a year. A team at Hong Kong University of Science and Technology developed [a thin sensor for computer vision based on a micro lens array](#). The 5-millimeter-thin array can be used to track movements and changes in real-world environments. And a team with members from Nanyang Technological University, Peking University, Tsinghua University and

the Beijing Academy of Quantum Information Sciences developed [new transistors that integrate high-k perovskite oxides and 2D semiconductors](#).

In other news, a team with members from Canada, the U.S., Italy and the Netherlands found that [blocking inflammation may lead to chronic pain](#). Patients experiencing pain who were treated with anti-inflammatory drugs are more likely to develop chronic pain than patients who received other types of pain-relieving drugs. Also, an international team of researchers found that the massive eruption of the Tongan volcano, Hunga, provided [an explosion of data on atmospheric waves](#). And finally, a team of researchers from Brigham and Women's Hospital, the University of Pittsburgh and the University of California San Diego used [a single bacteriophage to treat an immunocompromised patient with an antibiotic resistant infection](#).

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