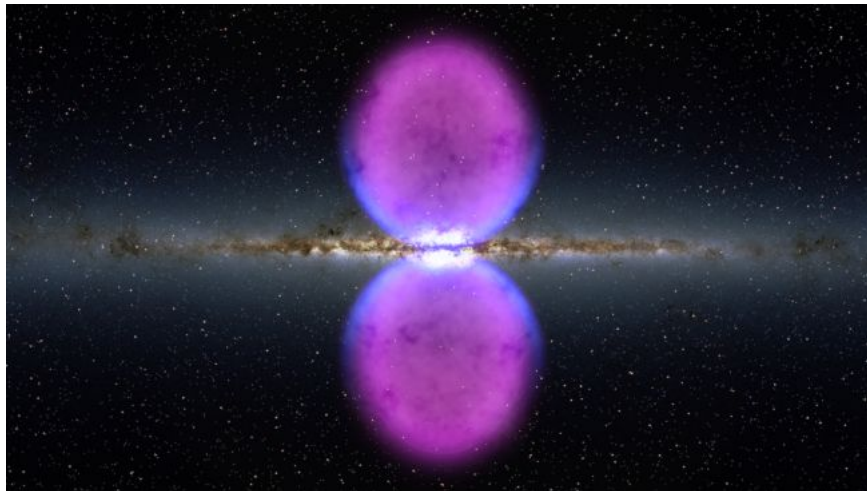


# The mysterious bubble that appears in the center of the Milky Way galaxy is finally 'decoded'.

Since its first discovery to date, the Fermi Bubble has caused astronomers around the world to have a 'headache' for not being able to find the origin of this giant gamma-ray structure.

In 2010, the Space Agency's Fermi Space Telescope (NASA) discovered two mysterious bubbles located in the central region of the Milky Way. They were named "Fermi Bubbles" by scientists, shaped like the wings of a giant caterpillar, or hourglass shaped. Stretching across the North and South planes of the Milky Way's center, these two giant bubbles of gas, dust and gamma rays are up to 50,000 light-years across, about half the diameter of the Milky Way galaxy.



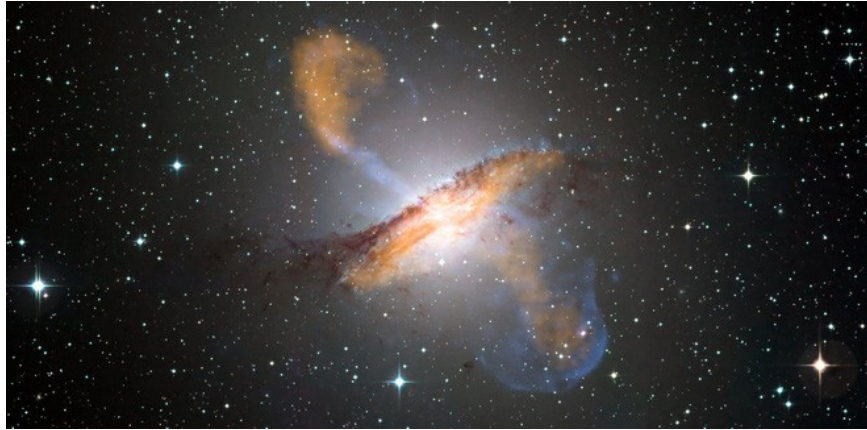
Fermi bubble

Notably, since the first discovery to date, Fermi Bubbles has caused astronomers around the world to 'headache' due to not finding the origin of this giant gamma ray structure. However, a study just published in the *Astrophysical Journal* on May 14 showed that there is a link between Fermi Bubble and the activities of supermassive black holes in the center of the band. The Milky Way 6 million years ago.

Through 3D simulation models processed on supercomputers, scientists believe that the Fermi Bubble could be born after a shock wave burst from the supermassive black hole in the middle. center, known as Sagittarius A \* (or Sgr A \*).

Accordingly, 6 million years ago, when the Sagittarius A black hole sucked matter into the event horizon, it spewed out two streams of high-energy radiation, which flew in the opposite direction from the galactic center

with The speed is close to the speed of light.



Supermassive black holes at the center of the galaxy when 'devouring' matter often emit high-energy rays in two directions.

Immediately after these intense streams of radiation were emitted, a shockwave was also created simultaneously, sweeping across the gas clouds in the central region of the galaxy. These clouds of gas, after being compressed and burned by the shockwave, will continually expand into the intergalactic space in both directions, forming the Fermi Bubble. The entire process takes about a million years, the team said.

"A shockwave was immediately created when high-energy radiation 'penetrated' the cloud of gas. After about a million years, Sagittarius A \* black hole stopped emitting energy rays. After about In 5 million years, the Fermi Bubble expanded to its present size, "the scientists said.

According to the researchers, the shockwave hypothesis explains several characteristics of the central region of the galaxy, including the extremely high temperature of the Fermi Bubble. At the same time, it also explains why the lower edges of the Fermi Bubble coincide perfectly with the X-ray structures.

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