



## First Black Hole in Milky Way's Halo Found

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Scientists have discovered what appears to be the first known black hole sitting high above the [Milky Way Galaxy](#), nestled in what's called the galactic halo, a vast sphere of sparsely populated space that is still affiliated with the galaxy.

While [black holes](#) are only theoretical, researchers detect them based on the movement of companion objects, or by noting energetic X-ray emissions from the region surrounding the objects.

"We are intrigued to find such an object in the galactic halo," said R. Mark Wagner of the University of Arizona, who worked with one of two teams that independently and unwittingly made the discovery using the same telescope. "Because this is so far above the galactic plane, there is almost no interstellar medium between us and the object, so we can study it in detail like no other object in its class."

The newly found black hole is estimated to be six to eight times as massive as our [Sun](#), larger than some but smaller than many. It lies approximately 6,000 light-years away, 62 degrees above the galactic plane. It was spotted because of the motion it imparts on a nearby normal star, one smaller than our Sun, which orbits it every 4.1 hours.

The black hole sucks matter from the small star, and will eventually swallow it.

"We expect that in about 2 billion or 3 billion years, the normal star will reach the black hole and be consumed," said Jeffrey McClintock of the Harvard-Smithsonian Center for Astrophysics, who worked with the other team.

The matter falling into the black hole, while it can't be seen, is heated to millions of degrees by friction and gravity, and the heat energy produces strong X-ray emissions, McClintock said in a statement released last week. But the system is now fairly quiet, which allowed researchers to note the orbiting small star.

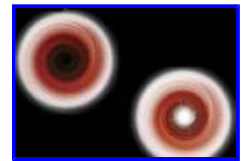
### On and off

Only recently, scientists have begun to understand the mechanisms that seem to turn black holes [on and off](#). But they have yet to actually [see a black hole](#), and there has been only one case, not yet confirmed, of seeing matter [just as it disappears](#) into a black hole. The objects are so massive that they suck all nearby matter inward. Nothing gets out of a black hole -- not even light.

That makes them hard to study.

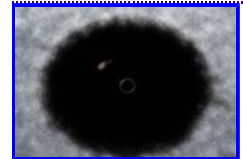
But because scientists have a relatively unobstructed view of this newest object, they expect it to prove fruitful in future studies.

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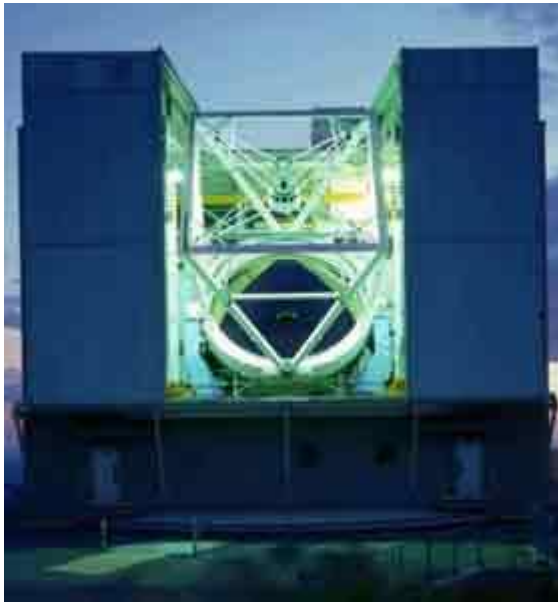
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MMT Observatory in Arizona

Astronomers have previously identified 10 similar objects in the galactic plane, and an additional 20 X-ray sources in the Milky Way are suspected of being black holes. All of these are far smaller than the [colossal black hole](#) thought to inhabit the core of the [galaxy](#). It has a mass equivalent to 2.6 million Suns.

The newly spotted object was first noticed as an X-ray source by a space-based telescope in 2000. The new observations were made using a new 6.5-meter (255-inch) telescope at the MMT Observatory on Mount Hopkins in Arizona. The results from both studies are scheduled to appear in an upcoming issue of *Astrophysical Journal Letters*.