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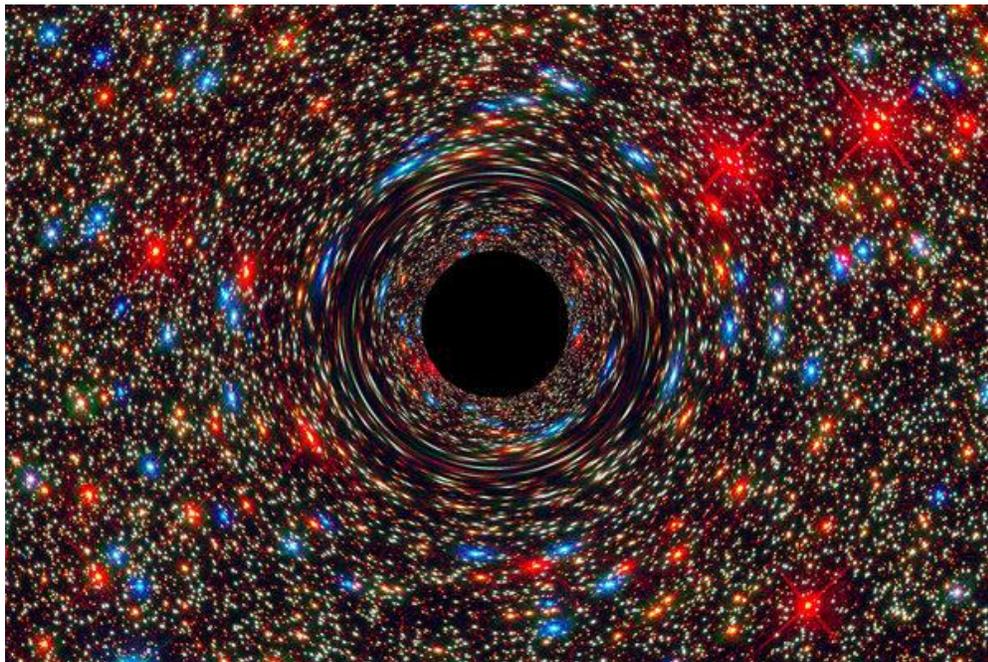
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This computer-simulated image shows a supermassive black hole at the core of a galaxy. The cosmic monster's powerful gravity distorts space around it like the mirror in a fun house, smearing the light from nearby stars. **NASA/ESA/D. Coe, J. Anderson and R. van der Marel (Space Telescope Science Institute) hide caption**

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Scientists have discovered a supermassive black hole that may be the biggest ever spotted — and its location in a ho-hum group of galaxies suggests that cosmic monsters like this one might be more common than astronomers previously thought.

The newly discovered black hole is about 17 billion times more massive than our sun. Another black hole is currently listed in the [Guinness World Records](#) as the heaviest, because it may be as much as 21 billion solar masses. But the measurement of that black hole was not very precise and it might actually be less massive than the new one, which is described in this week's issue of the journal [Nature](#).

"It has highest confidence of anything I've seen of being the largest black hole," says [Karl Gebhardt](#), an astrophysicist at the University of Texas, Austin and expert on black holes. He was not involved in the study.

Astronomers know only of a few black holes that have reached this mind-boggling size. Garden-variety black holes that form at the end of a star's life are much, much smaller. The recent [observation](#) of gravitational waves, for example, detected ripples from the merger of two black holes that were each roughly 30 times the mass of the sun.

And then there are the so-called supermassive black holes that can be found at the center of galaxies, like the one in our own Milky Way. "I hate to call that one puny, but it has only 4 million solar masses, and we found one that is 17 billion solar masses," says [Chung-Pei Ma](#), an astronomer at the University of California, Berkeley who led the research in the *Nature* study.

What strikes her is that this beast lives in what she called "a cosmic backwater," an average-looking group of galaxies. The only other known black holes that are about this size were found in dense clusters of very large galaxies.

"It's sort of like, you would expect to find skyscrapers at the center of Manhattan, but this one is more like finding a very, very tall building somewhere in a small town in the U.S. where you would not expect to see something so big," Ma says. "It gives the possibility that these monster black holes are much more common than previously thought."

What's more, the center of this black hole's galaxy is strangely empty, says team member [Jens Thomas](#), a research scientist at the Max Planck Institute for Extraterrestrial Physics in Garching, Germany.

Thomas says it looks like an astonishing number of stars were ejected as two galaxies merged and their central black holes came together.

"Because the black hole is so large, and the progenitor black holes also were so large, the amount of stars that have been ejected from the center is as much as the Milky Way disc," Thomas says. "And I think this is pretty fascinating."

That scoured core of the galaxy also struck Gebhardt. "It's kind of like it's evacuating the center part of the galaxy," he says. "This is probably the most extreme example of that configuration."

And astronomers like to study the most extreme examples, Gebhardt notes, because those are the best tests of whether their theories actually can explain how to make a galaxy.

"And that's how you understand effectively where we come from — where the sun comes from, where the Earth comes from," Gebhardt points out. "What we're beginning to piece together is a model of the merger history of black holes throughout the universe."