

Great Attractor

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Something mysterious is pulling on the Milky Way, the rest of the Local Group, the Virgo Cluster and even nearby galaxy clusters. They're all streaming, like they're going down a river in space, but at a velocity of 600 km/second. The source of this mysterious gravity is known as the Great Attractor. What it is, exactly, is still unknown.

The reason the source of the Great Attractor is unknown is because it sits behind the center of the Milky Way. The thick gas and dust obscures our view to the center of the galaxy, and it blocks everything behind it. You don't need to come up with any kind of new physics, though. The Great Attractor is mostly likely a supercluster of galaxies, which are pulling our Local Cluster of galaxies towards it.

Astronomers have calculated that there would need to be a galaxy supercluster with 10^{16} solar masses located approximately 200 million light-years away in the constellation Centaurus to match the force that's pulling on us. And so far, this supercluster hasn't been observed yet.

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Do we have any candidates for the Great Attractor? In 2005, researchers studied the X-ray glow of massive galaxy clusters that lie in the plane of the Milky Way, right where that gas and dust obscures our view behind the center of the Milky Way. About a third of the sky is blocked in this way.

The researchers found that the Great Attractor might not be much at all. Instead, the Milky Way is part of a group of galaxies moving towards the even larger Shapely supercluster located about 490 million light-years away. The Shapely supercluster is the most massive known structure in the observable Universe.

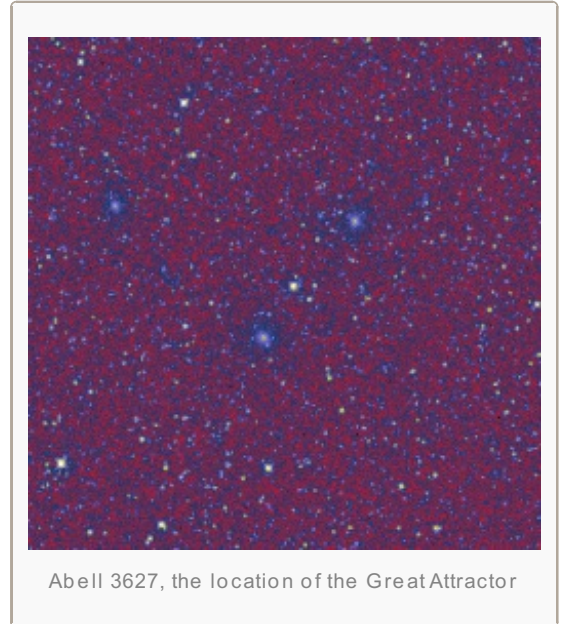
It's even possible that something even larger and more massive is behind the Shapely supercluster, and that's what the Great Attractor is. But until we get better instruments that let astronomers peer through the disk of the Milky Way, we can only speculate on what the Great Attractor really is.

We have written many articles about galaxies for Universe Today. Here's an article about how the nearby [cosmos was mapped in 3 dimensions](#).

If you'd like more info on galaxies, check out [Hubblesite's News Releases on Galaxies](#), and here's [NASA's Science Page on Galaxies](#).

We have also recorded an episode of Astronomy Cast about galaxies – [Episode 97: Galaxies](#).

References:



Abell 3627, the location of the Great Attractor

<http://csep10.phys.utk.edu/astr162/lect/gclusters/attractor.html>
http://imagine.gsfc.nasa.gov/docs/ask_astro/answers/990924a2.html

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About

[Fraser Cain](#) is the publisher of [Universe Today](#). He's also the co-host of [Astronomy Cast](#) with Dr. Pamela Gay.

