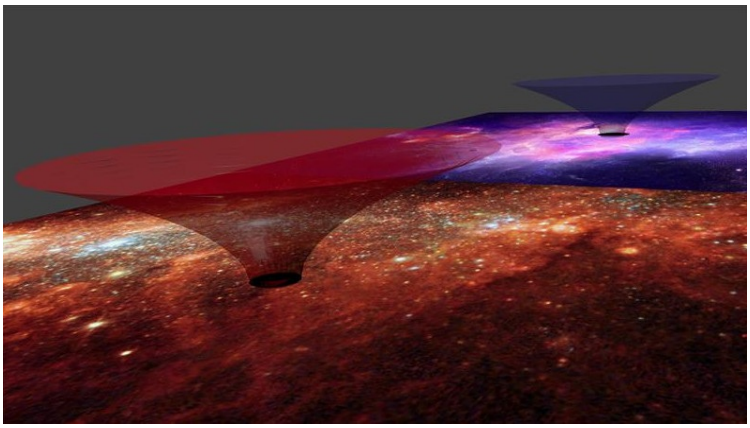
IS OUR MILKY WAY A WORMHOLE?

The Andromeda Galaxy, largest member of the Local Group. Our own Milky Way galaxy is assumed to be much like it, but slightly smaller..

In theory, our home galaxy Milky Way could be a wormhole – a galactic transport system – says a team of astrophysicists. The Milky Way and Andromeda are the two largest members of a cluster of galaxies which astronomers call the Local Group. Both galaxies have a spiral shape and appear to be of similar dimensions.

Scientists, especially astrophysicists, like to know what's possible in our universe. Their theories and complex computer simulations are aimed at showing what might exist. An international group of researchers reiterated that it's possible our Milky Way galaxy is a huge wormhole – a space-time tunnel – a galactic transport system to other parts of space. They made that determination by including dark matter – that mysterious something that makes up the bulk of our universe. According to these researchers, when you consider dark matter along with the regular matter in the Milky Way, our galaxy's density appears great enough to allow for a wormhole at the galaxy's heart. If so, these researchers say, this wormhole is stable and navigable.



Artists concept of a galactic Wormhole

This is the hypothesis put forward in a study published in the Annals of Physics via a collaboration between Indian, Italian and North American researchers, who say their results, "… prompt scientists to re-think dark matter more accurately". **Paolo Salucci,** astrophysicist of the International School for Advanced Studies (SISSA) of Trieste and a dark matter expert, explained:

- If we combine the map of the dark matter in the Milky Way with the most recent Big Bang model to explain the Universe and we hypothesize the existence of space-time tunnels, what we get is that our galaxy could really contain one of these tunnels, and that the tunnel could even be the size of the galaxy itself.
- We could even travel through this tunnel, since, based on our calculations, it could be navigable. Just like the one we've all seen in the recent film 'Interstellar'.

Although space-time tunnels (or wormholes or Einstein-Penrose bridges) have only recently gained great popularity among the public thanks to Christopher Nolan's Interstellar sci-fi film, they have been the focus of astrophysicists' attention for many years. In principle, we could test it by comparing two galaxies — our galaxy and another, very close one like, for example, the Magellanic Cloud, but we are still very far from any actual possibility of making such a comparison.

To reach their conclusions the astrophysicists combined the equations of general relativity with an extremely detailed map of the distribution of dark matter in the Milky Way. Scientists have long tried to explain dark matter by hypothesizing the existence of a particular particle, the neutralino, which, however, has never been identified at CERN or observed in the universe. But alternative theories also exist that don't rely on the particle. Salucci concluded: "… perhaps it's time for scientists to take this issue seriously. Dark matter may be 'another dimension,' perhaps even a major galactic transport system. In any case, we really need to start asking ourselves what it is". A hypothesis put forward in a study paper published in Annals of Physics and conducted with the participation of SISSA in Trieste, the result of a collaboration between Indian, Italian and North American researchers, prompts scientists to re-think dark matter. You can watch wormhole simulation on youtube: http://goo.gl/g9aawX

The main disk of the Milky Way Galaxy is about 80,000 to 100,000 light-years in diameter, about 250,000 to 300,000 light-years in circumference, and outside the Galactic core, about 1,000 light-years in thickness. It is composed of 200 to 400 billion stars. The fact that the Milky Way divides the night sky into two roughly equal hemispheres indicates that the solar system lies close to the galactic plane. AK, from Earth Sky Notes