Why are some galaxies shaped liked spirals?

By EarthSky in Space | **September 11, 2008**

Astronomers believe that galaxies have spiral arms – in part – because galaxies rotate, or spin around, a central axis.

About a third of known galaxies are flat spirals with bulging centers. Astronomers believe that galaxies have spiral arms because galaxies rotate – or spin around a central axis – and because of something called “density waves.”

Galactic density waves are like water waves. Water itself doesn’t move across a pond – instead, wave energy moves and affects the water as it passes. A spiral galaxy’s rotation, or spin, bends the waves into spirals. Stars pass through the wave as they orbit the galaxy center. The wave causes the stars to slow slightly and temporarily clump together.

Astronomers have long wondered why the spiral arms of a galaxy don’t wind up and vanish after a few rotations. Many galaxies have satellites – smaller neighboring galaxies. One theory is that a satellite can keep a larger galaxy’s density waves moving indefinitely.

Other processes may help shape galaxy spiral arms. For example, galaxy rotation might smear exploding and forming stars into a bunchy spiral arm. Many astronomers think that there are multiple processes that contribute to creating the different kinds of spiral galaxies we see.

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Actually because of the black holes it sucks it in

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so your saying that since in the middle of the milkyway is a black hole that our galaxy could be slowly sucking itself in? please contact me at brendonglunk@yahoo.com so we could chat more on this manner thank you

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ALonelyLittleTurtle > galaticastonomer • 2 months ago

Ah no, actually. That's a nice theory. However, it is not correct. While black holes tend to be the centerpiece holding our galaxy together, it is not sucking the gas, dust, and stars in. If it where to, a galaxy would not have formed to begin with. It would just be a large black hole. The nebulae do rotate around the black hole and are affected, but are not in close enough proximity with the black hole to be sucked in.