

# The Case Against Dark Matter

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**Abstract:** Stars in galaxies form huge spiral arms that encompass the entire galaxy. Also, stars outside of the galactic bulge all orbit at basically the same speed. Neither of those has a complete explanation.

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## Logarithmic spiral

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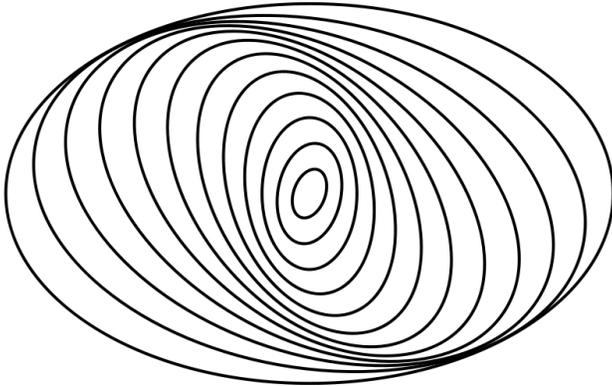
A logarithmic spiral, equiangular spiral, or growth spiral is a self-similar spiral curve that often appears in nature. The logarithmic spiral was first described by Descartes and later extensively investigated by Jacob Bernoulli, who called it *Spira mirabilis*, "the marvelous spiral".



Galaxy M101, 25 million light years away.  
Has a beautiful mathematical curve known as a logarithmic spiral.

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**How are galactic spiral arms created?**  
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Stars orbit around the galactic center in elliptical orbits. The central bulge is also revolving and stars further away from center lag behind in their orbital position.



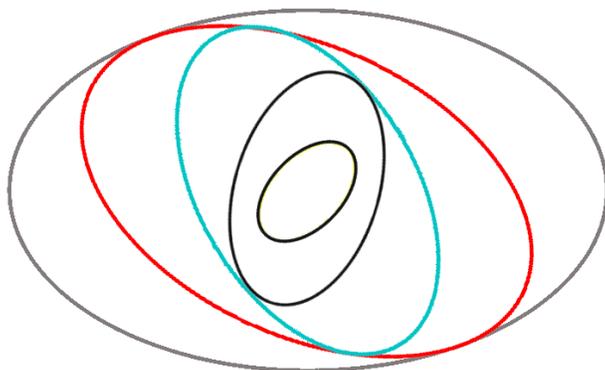
The result is concentric ellipses that are rotated in relation to each other. It is easy to see the orbits of nearby stars within a certain distance from center will intersect, that creates an higher density region of stars - the spiral arm

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**Why are the stars orbiting at the same speed?**  
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Although the spiral arm looks like a group of stars that are headed for the center - that is NOT what is happening.

If a star in the blue orbit below is orbiting clockwise: it will enter and exit the spiral arm at different spots. The entry point is when it first touches the red orbit and the exit is when it traveled all the way to the smaller black orbit.

Notice the red and blue orbits are completely different and independent of each other. But during the intersection the orbits overlap and they affect each other



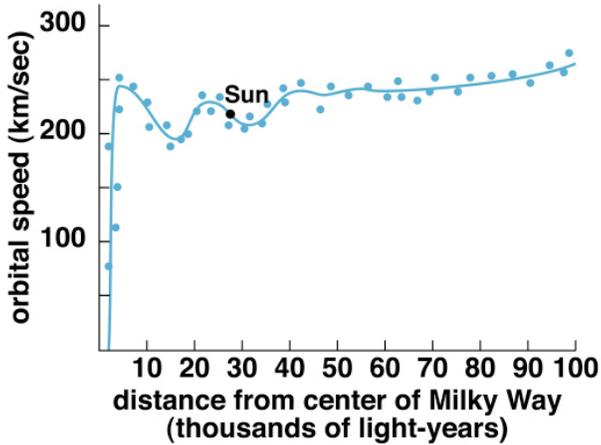
Stars are NOT slowed down as they enter the dense star region "like a traffic jam" from density wave theory.

Any star that enters the density wave will be sped up to the speed of the other stars in the wave. It is something like a river with all of the water flowing at the same speed, anything that enters the river will assume the same speed as the river.

Every star in a galaxy will interact with neighboring stars from outer and inner orbits during the journey. The intersection wave forms a continuous spiral but it is made from millions of individual and overlapping orbit intersections.

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**The Rotation Curve**  
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The overall speed of rotation is determined by the rotation speed of the central bulge. There are so many stars in the bulge; they orbit as if they were a solid object. Notice the rotation curve for galaxy center is linear. That is exactly what would happen

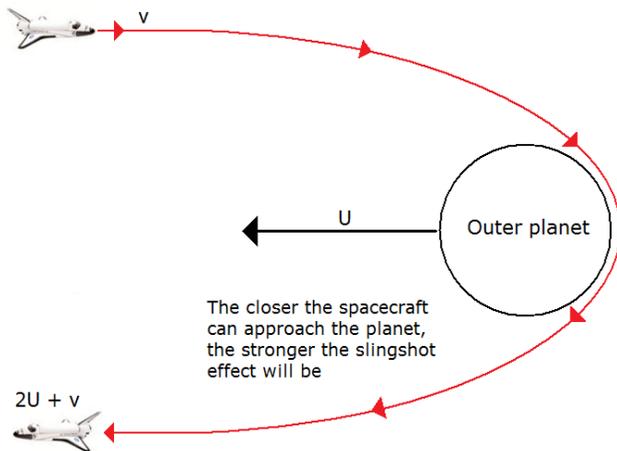


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So the outer edge of the bulge is the determining factor of speed for most outer stars. Notice this is also a way for a galaxy to form and keep building into larger size? The orbital intersections force all stars into the same speed and create the spiral arms.

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**The Slingshot Effect**  
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Can the rotational curve speed keep increasing with distance? Meaning orbits keep getting faster with further distance from center?



Yes, that is a regular slingshot effect. As a star approaches the spiral arm wave, its speed can be increased by gravitational pull from the wave - and it does NOT lose the entire increase upon exit. Same as a slingshot speed increase by doing a planetary fly-by.

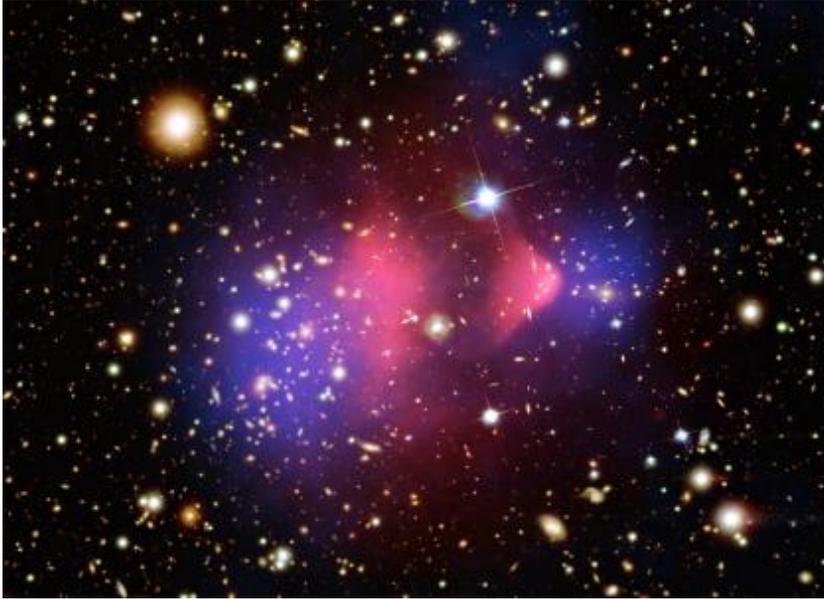
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**The Case Against Dark Matter**  
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Does this rule out dark matter?

No, nothing can rule out dark matter. It is the fabric of space.

So, of course there are excesses of differing amounts, doing different things.

Also the "bullet cluster" is a supposed proof of dark matter.



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**References**

[3] Quantum Thread Theory & Why the Speed of Light is "C"

<http://vixra.org/abs/1612.0363>

Authors: [Seamus McCelt](#)

Category: [Quantum Gravity and String Theory](#)

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