

Offered Title: We're Riding on A Carousel

Every star in the sky we see with our naked eyes is part of the ride, part of the carousel we call our Milky Way. All the constellations, star clusters, nebulae, everything. They're all in the Milky Way. The only things we might see without optical aid that lie outside our galaxy are a few nearby galaxies. Under dark skies M31, the Andromeda galaxy, can be spotted... it's 2.5 million light years away. Under southern hemisphere skies the Magellanic dwarf galaxies are naked eye visible due to their proximity (160,000 – 200,000 light years away).

Where am I going with this? Just saying our home galaxy is so large we cannot reliably see beyond it without optical magnification. Our immense sky is just a window showing our immediate neighborhood. Even then our closest neighbors beyond Neptune are light years away. There's just so much...space!

Our home, the Milky Way galaxy is one of at least 200 billion galaxies, with recent research indicating 2 trillion. My head hurts just thinking about it.

The Milky way contains as many as 400 billion stars and likely more than 100 billion planets. Still hurts but I'll carry on.

When you look up at night and see the Milky Way beyond our immediate neighborhood, the haze you see is mostly stars with some nebulae thrown in. Our location, about 26,000 light years from the Milky Way's center is like living in a suburb. With the Milky Way's radius at around 50,000 light years we are a little past half way out. In the summertime we can look toward our home's center by looking at the constellation Sagittarius, but we cannot see the center. There is so much dust in between it obscures our view. Infrared imaging helps cut through the dust, and when the James Web Space Telescope is operational it will be able to image our galaxies central objects.

Our Milky Way is a barred spiral galaxy. If we could see it face on, the Milky Way would look like a pinwheel with arms spiraling around its center. The pinwheel in our case has a bar shaped formation bisecting its central area. The bar is composed of stars, herded together by density waves and is considered a temporary phenomenon...lasting only a billion years or so! Other structures in our Milky Way include a surrounding halo of stars and globular star clusters, a small central bulge due to the bar, a supermassive black hole (Sagittarius A*), and two gigantic bubbles of high energy gamma rays.

Our solar system is riding on the Orion – Cygnus spiral arm but not in line with the rest of the galaxy. We are tilted about 60 degrees on this wild ride and should make one revolution in about 240 million years.

What's in the Sky?

The full Moon on December 3rd is at perigee, and is the biggest full Moon of 2017