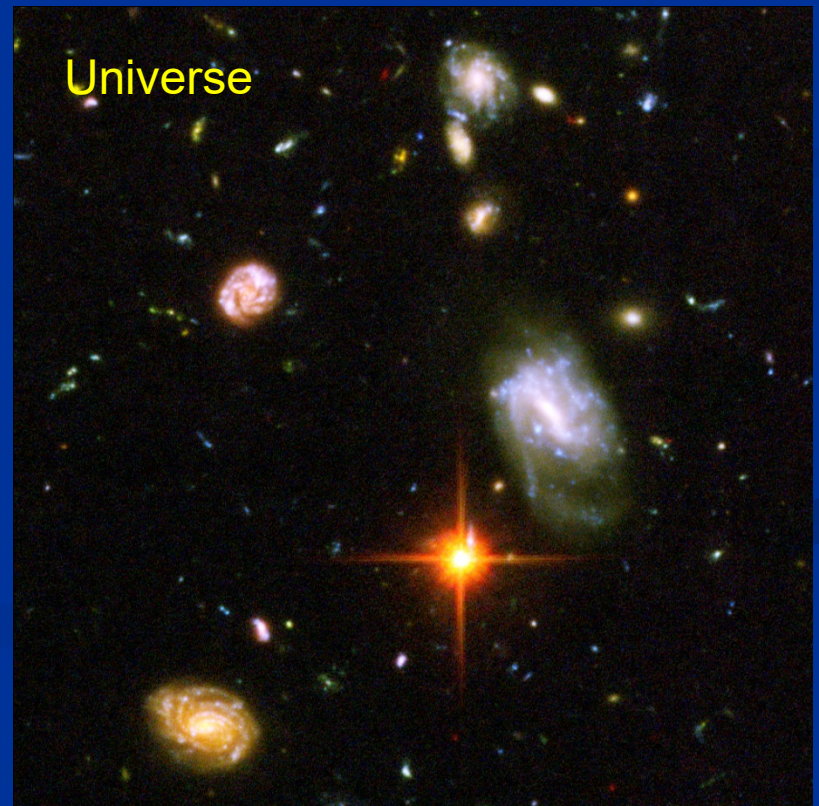
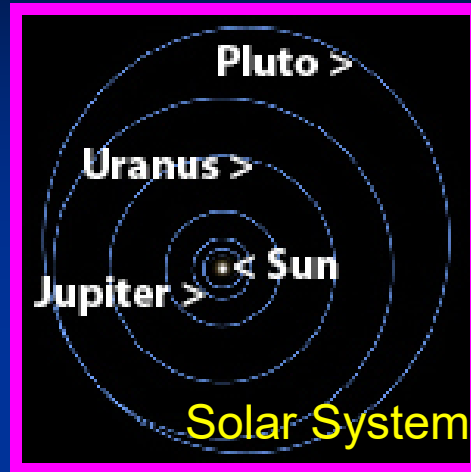


# The Solar System



# Earth's Moon

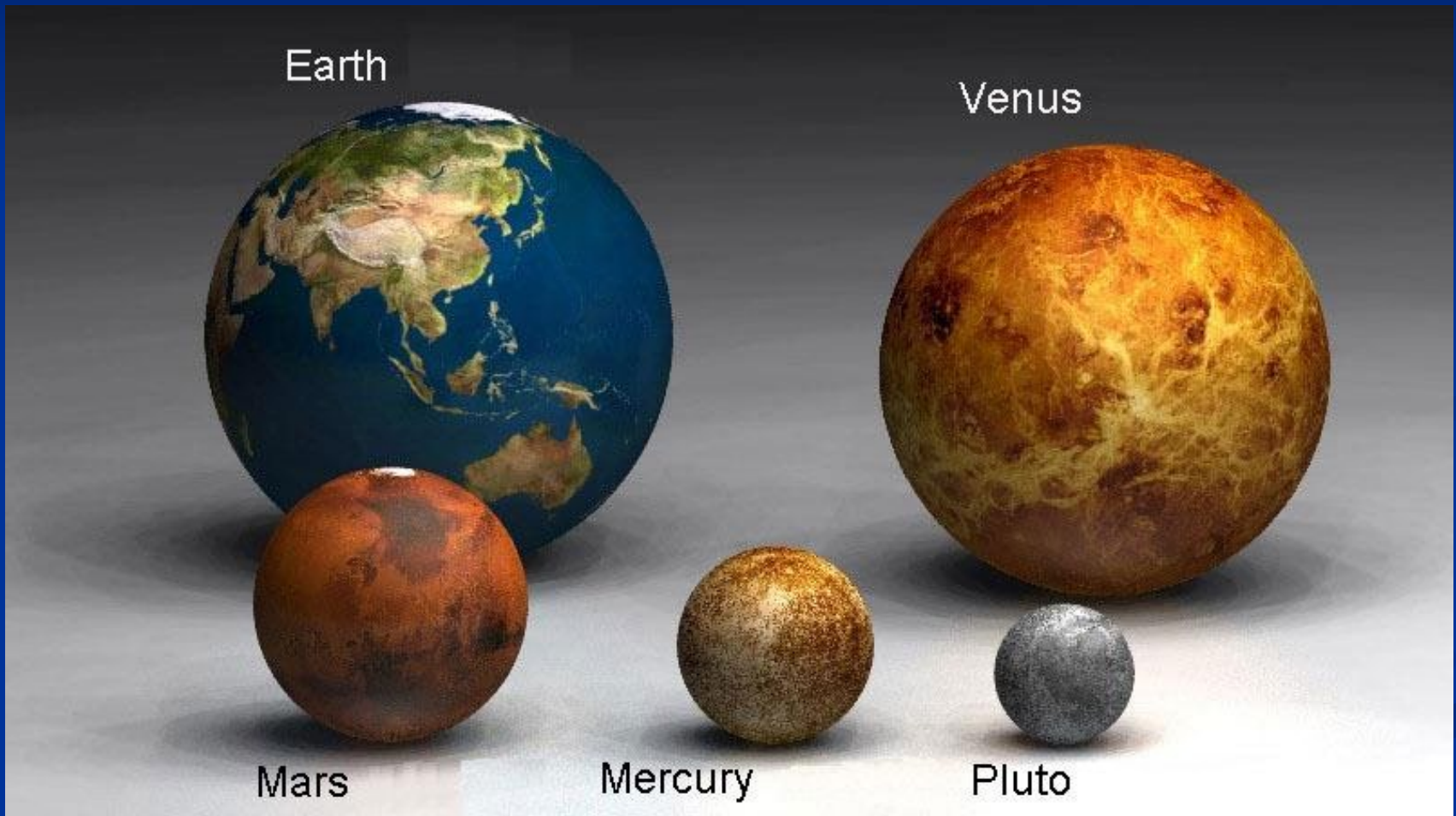




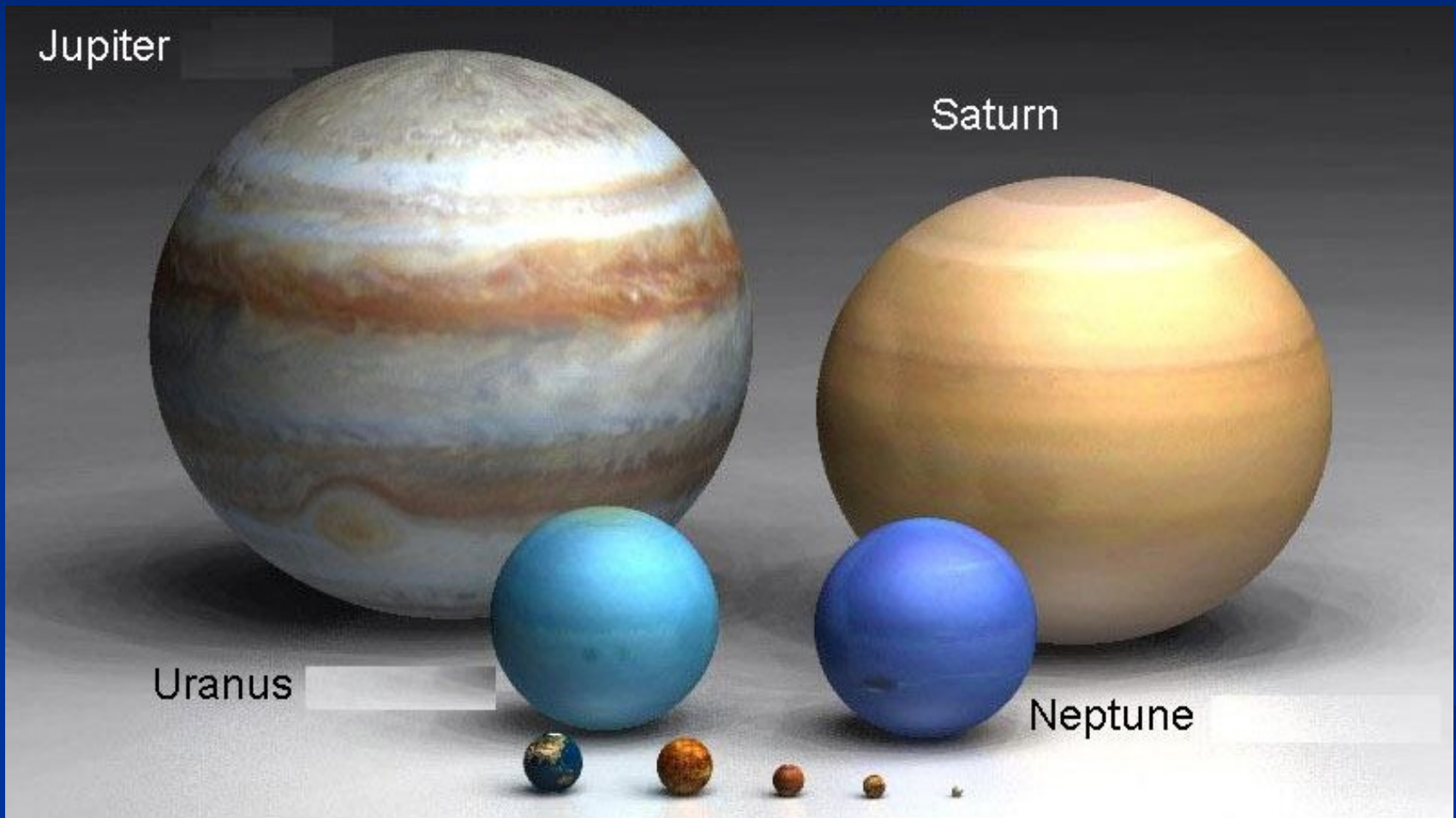




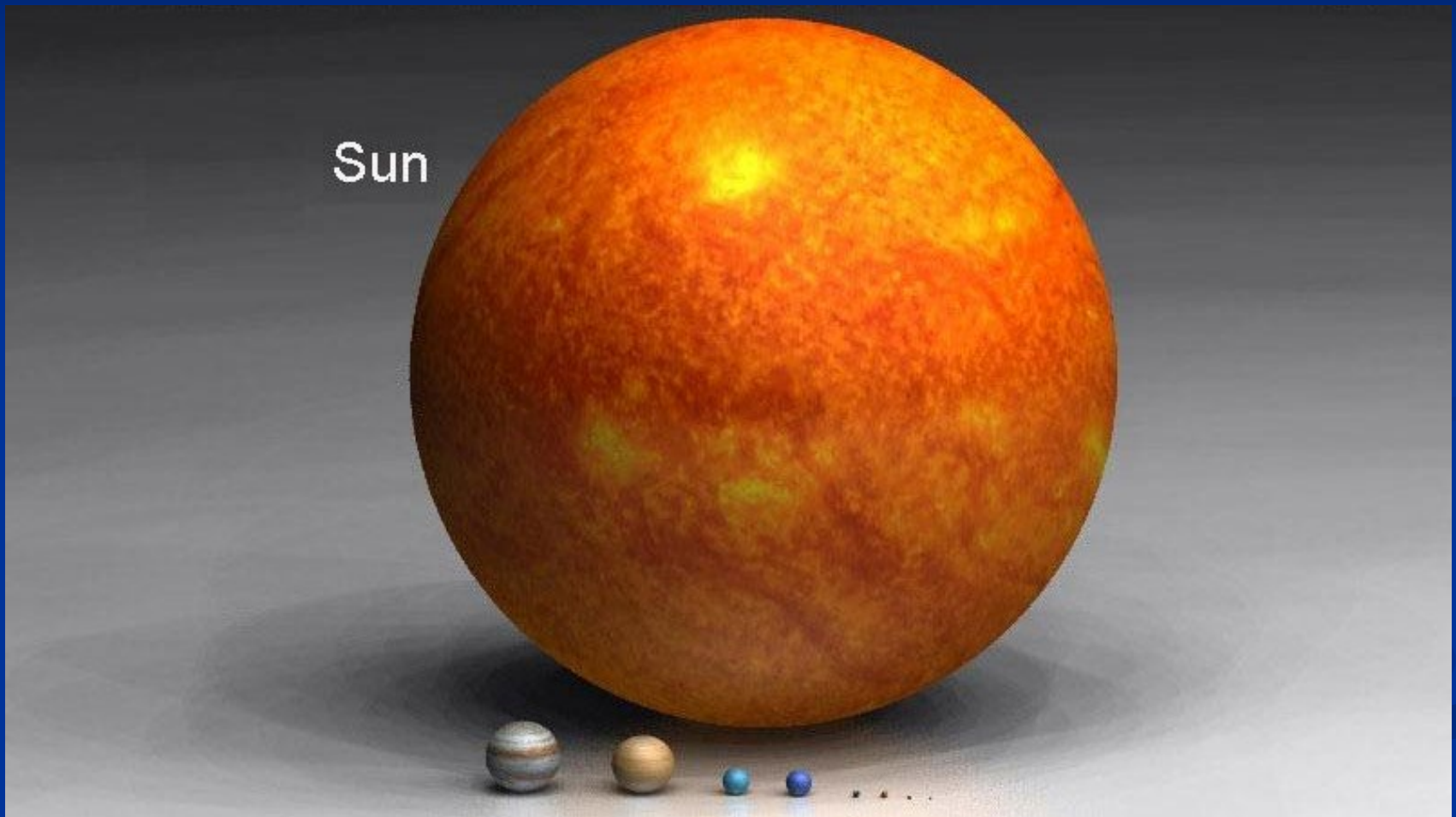
# The Size of the Planets



# The Size of the Planets



# The Size of the Planets







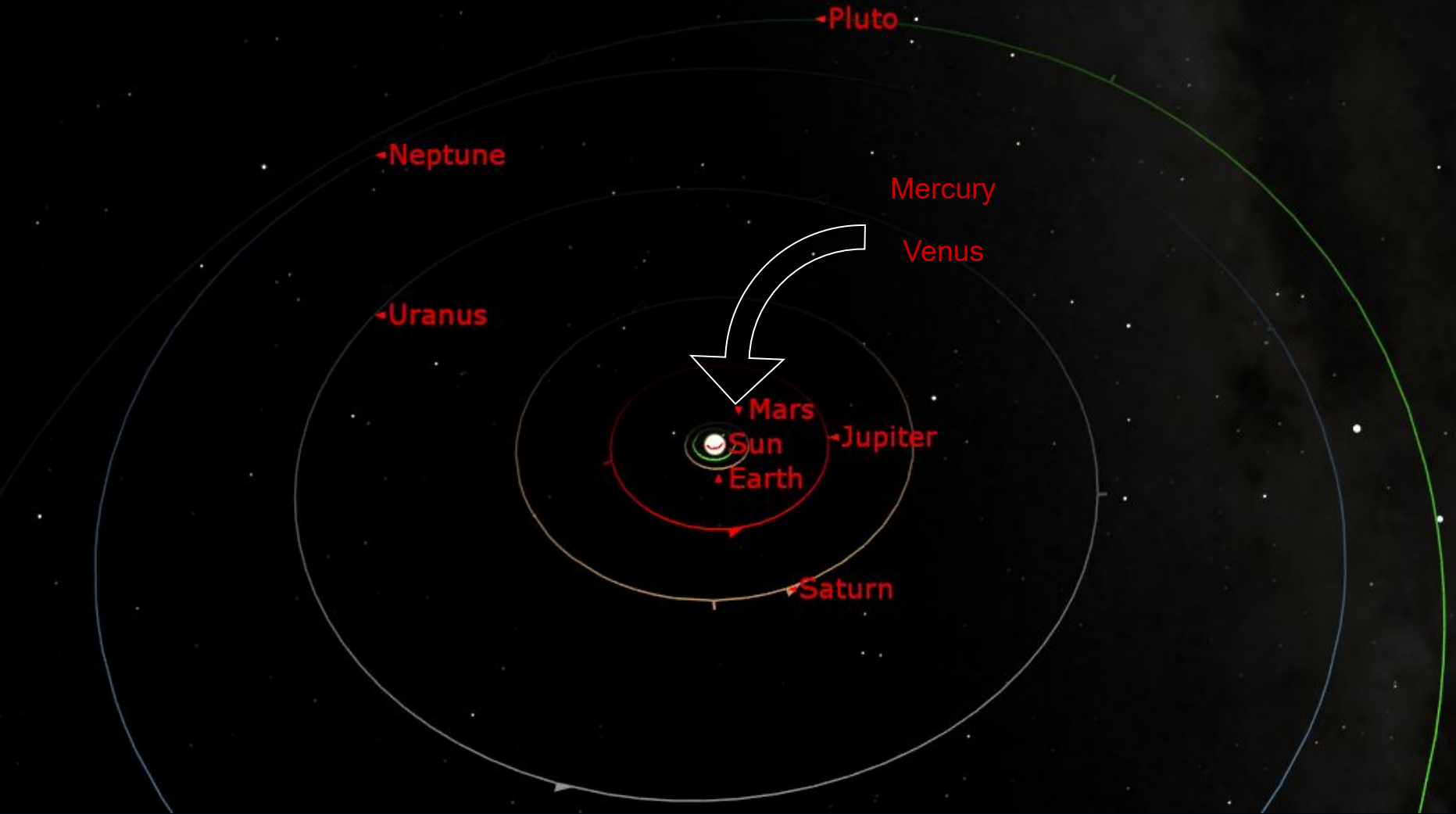


# A Boeing 747 Cruising at 550 MPH.

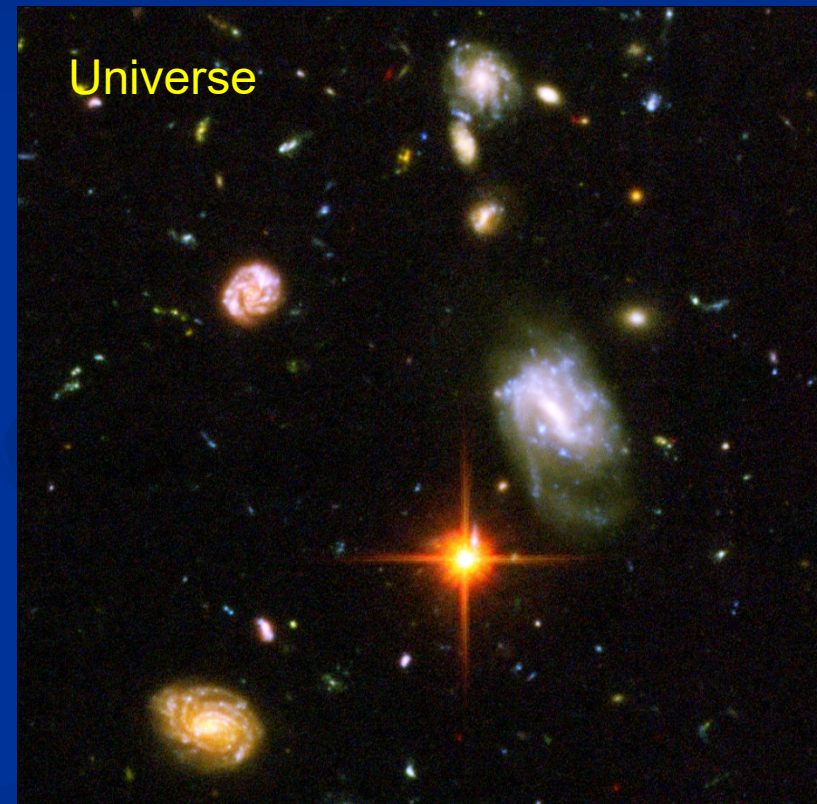
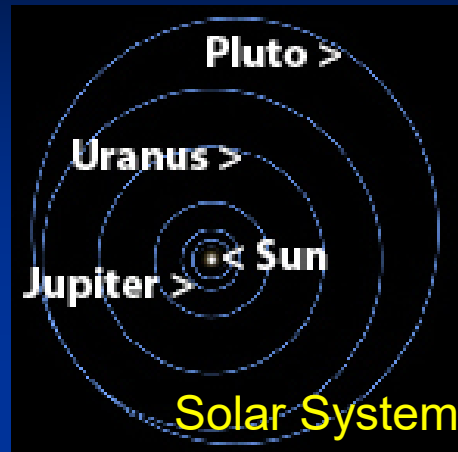
- To travel from San Francisco to New York takes about 6 Hours.
- To travel all of the way around the Earth takes less than 2 days.
- To get from Earth to the Sun would take 18 Years!
- To get from the Sun to Pluto would take 700 Years!
- To get to the nearest star would take 4,718,913 years



# Solar System



# The Galaxy

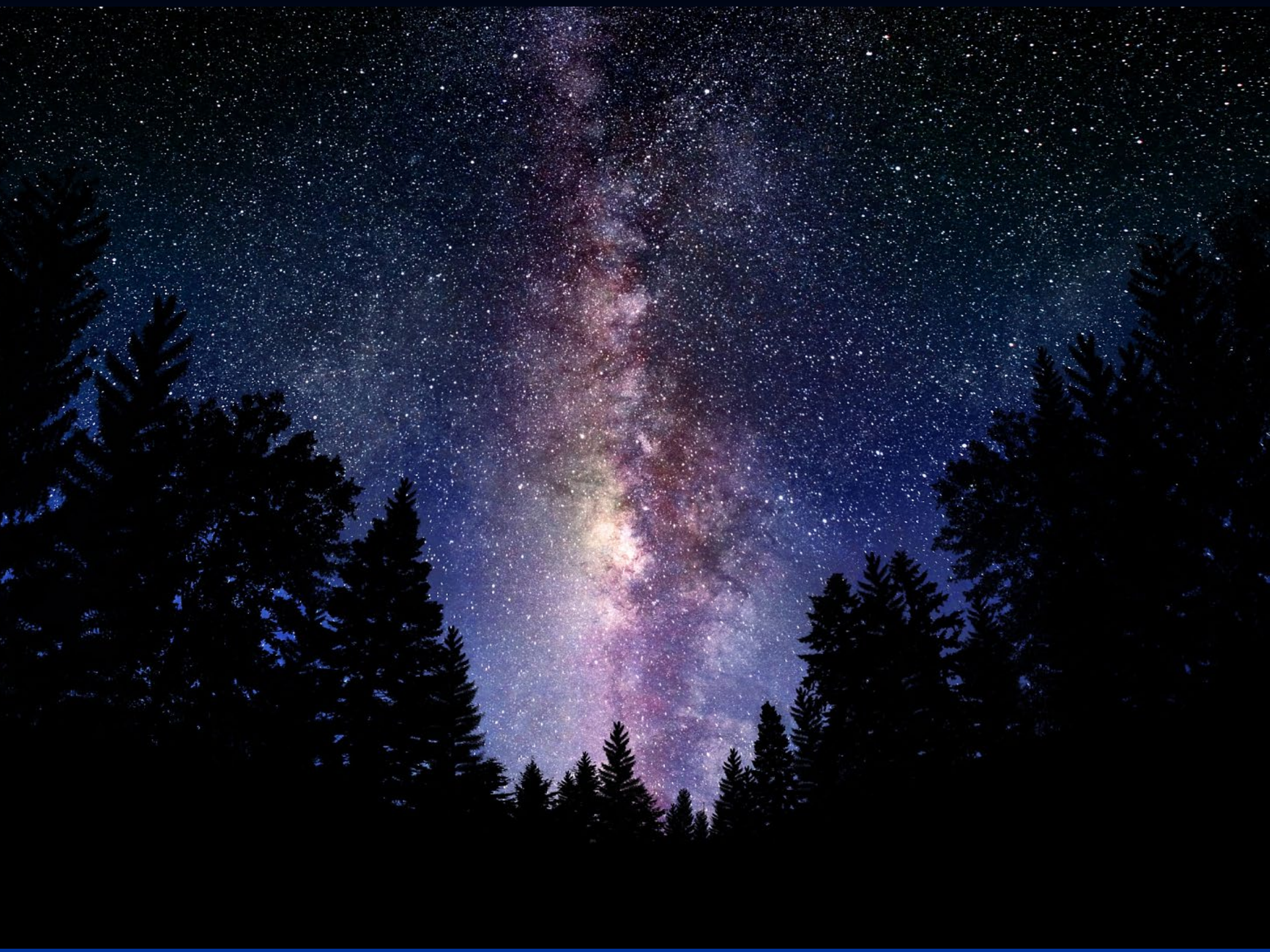




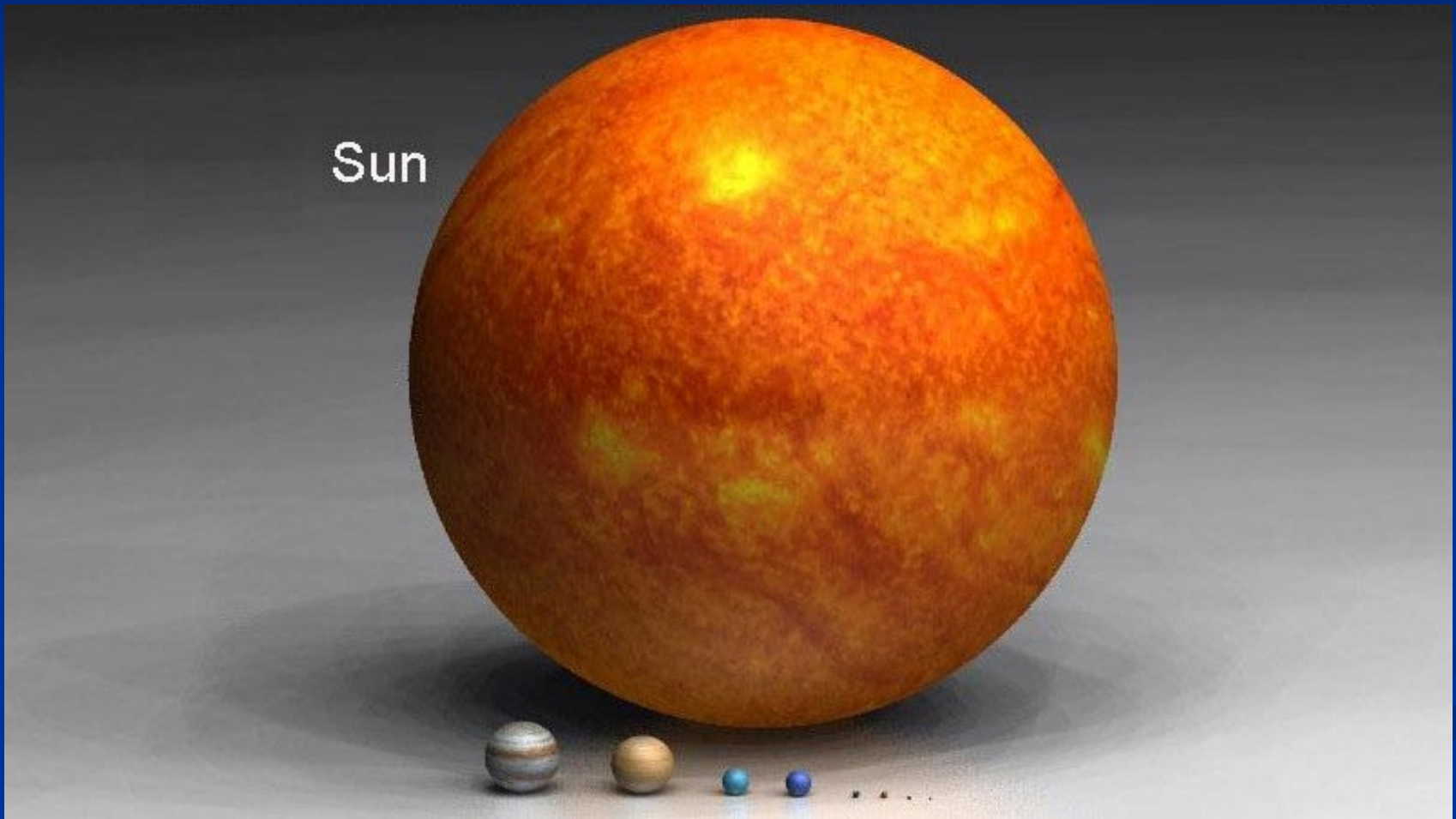
# Milky Way Galaxy





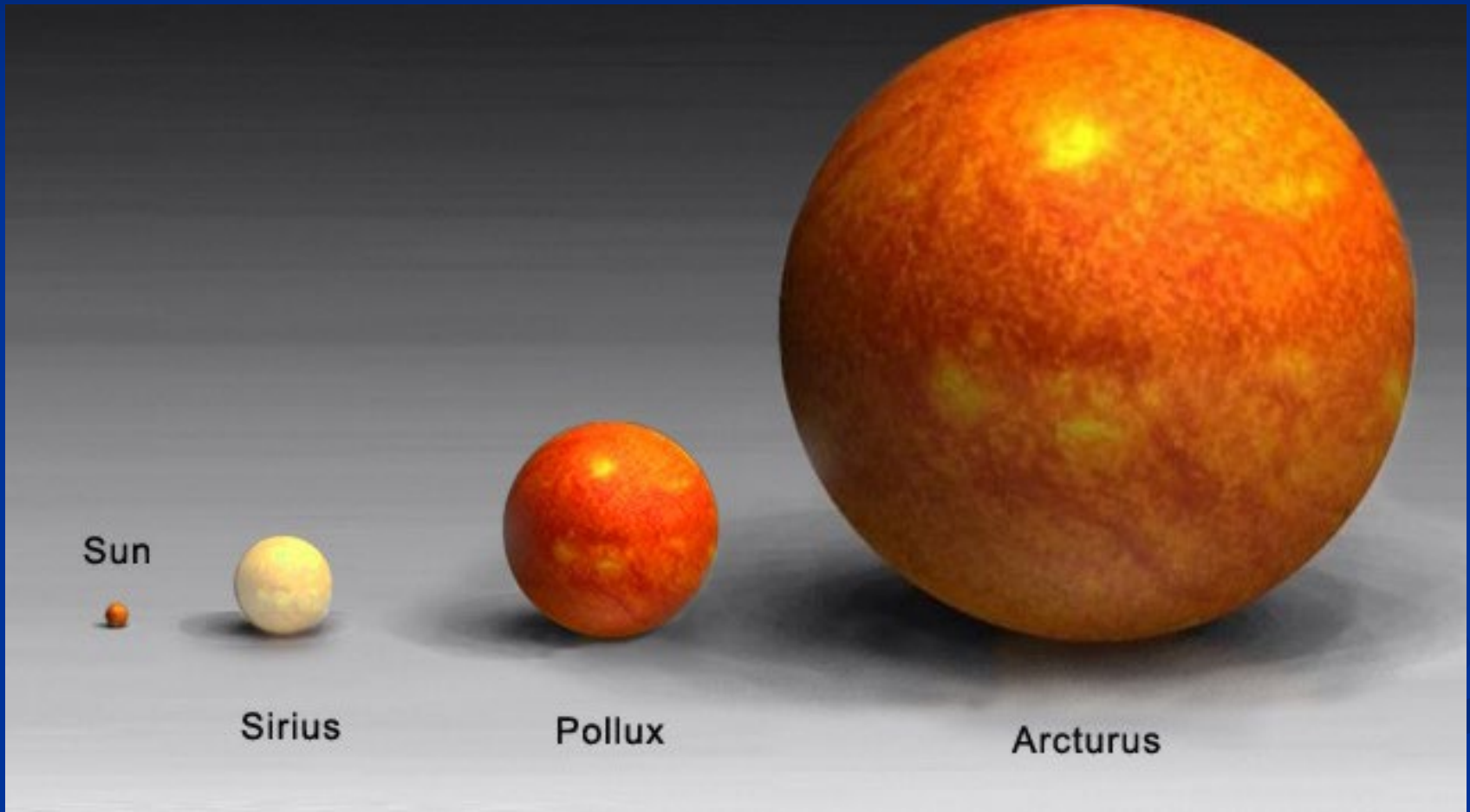


# The Size of the Sun

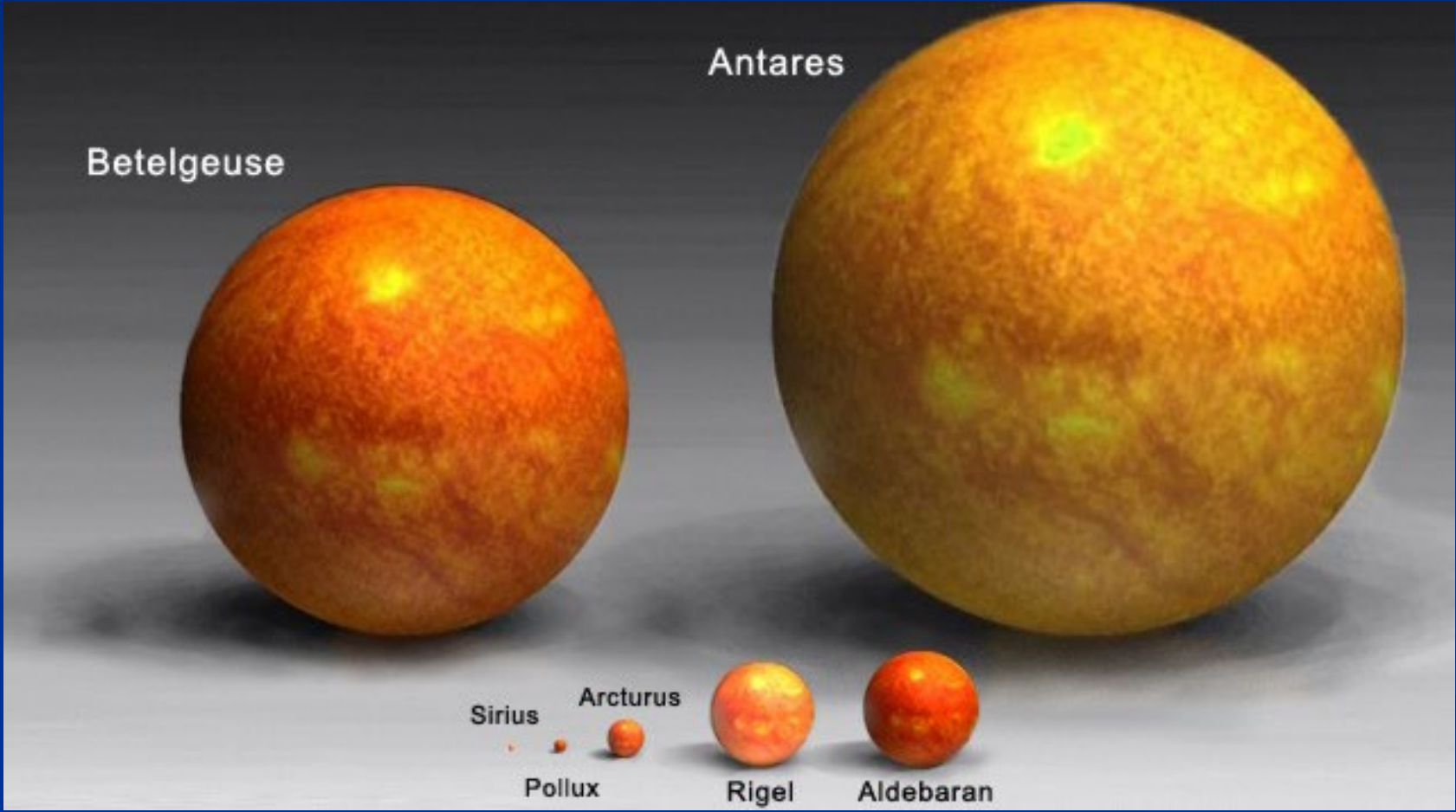




# The Size of the Sun



# The Size of the Sun



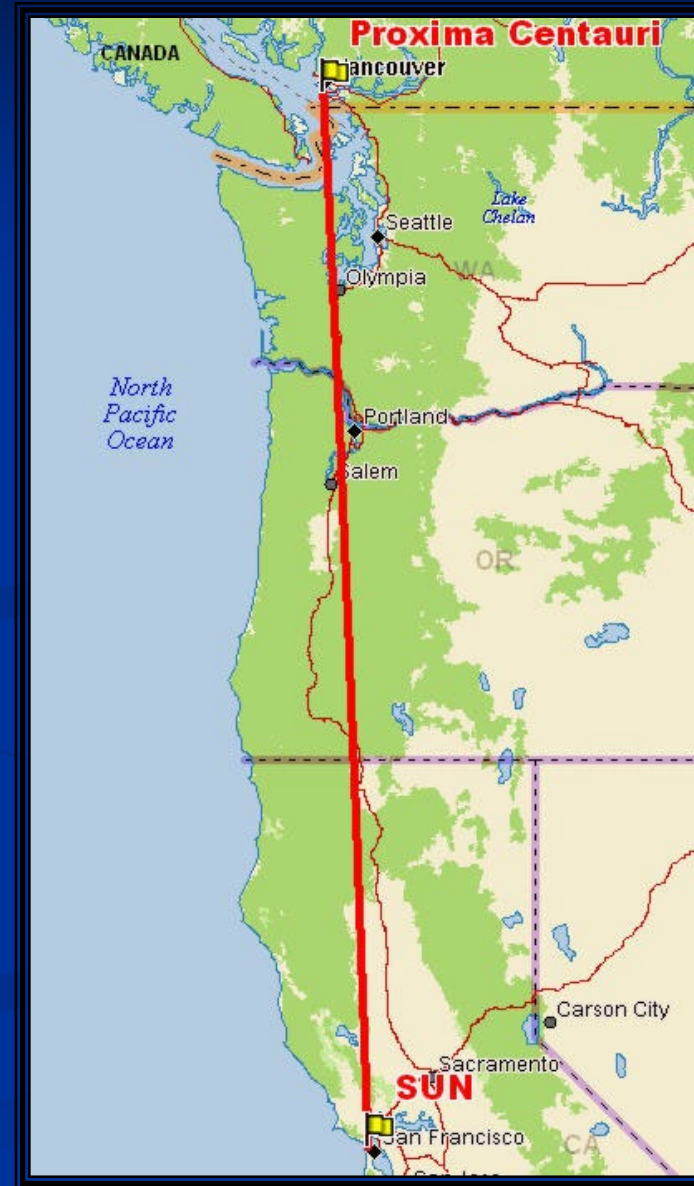


# The Distance Between Suns

Shrinking the sun to the size of a golf ball.



The distance to the nearest star (Proxima Centauri) would be 770 miles.





How Many Stars in our Galaxy?

**400 BILLION Stars!!!**

**400,000,000,000**

# How Many Stars in our Galaxy?

- ❖ Take a Football Field
- ❖ Build a 8 foot wall all around it
- ❖ Fill the field with birdseed





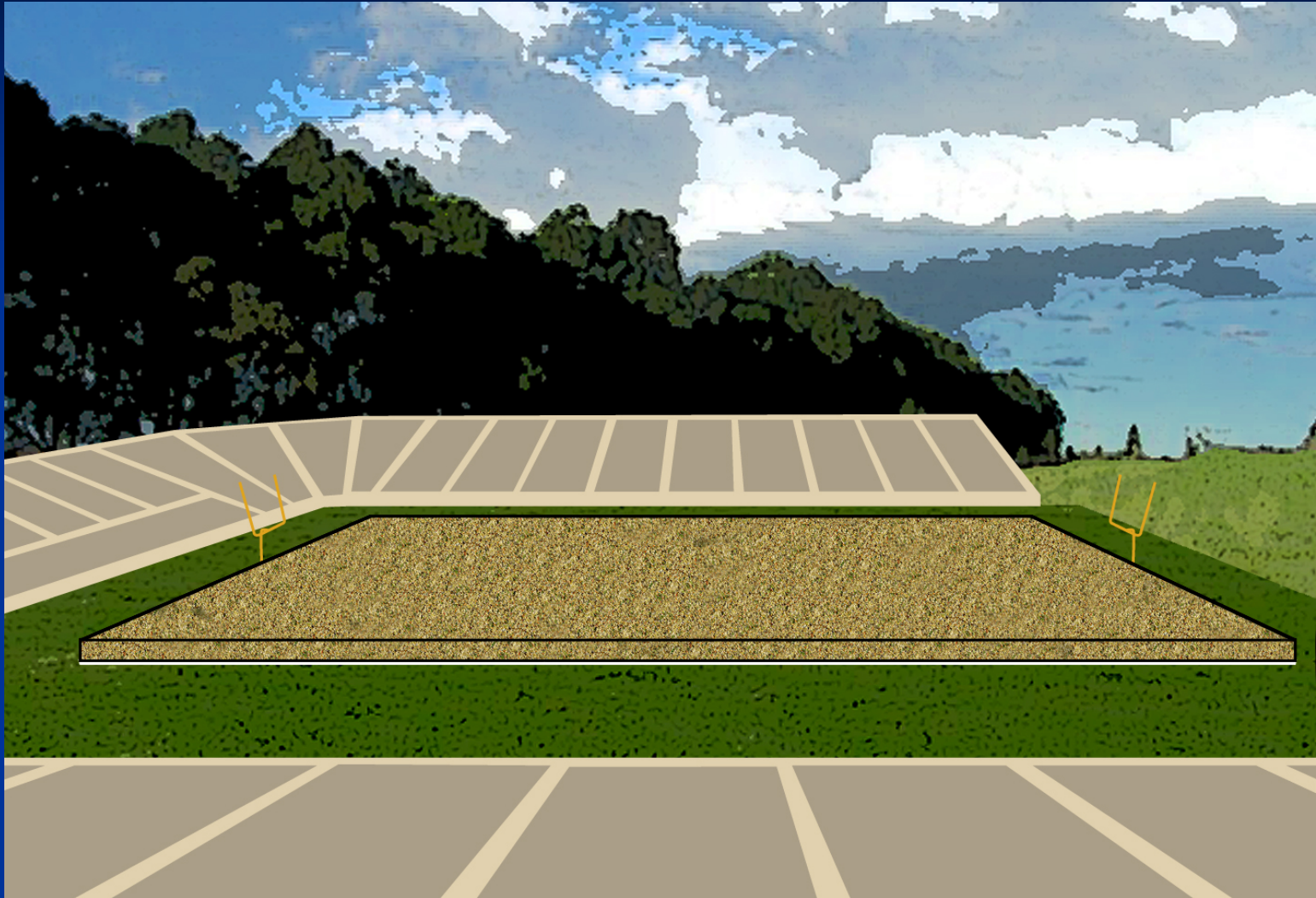
# How Many Stars in our Galaxy?

There would be about as many seeds on the field as stars in our galaxy





400 BILLION Seeds



400 BILLION Stars

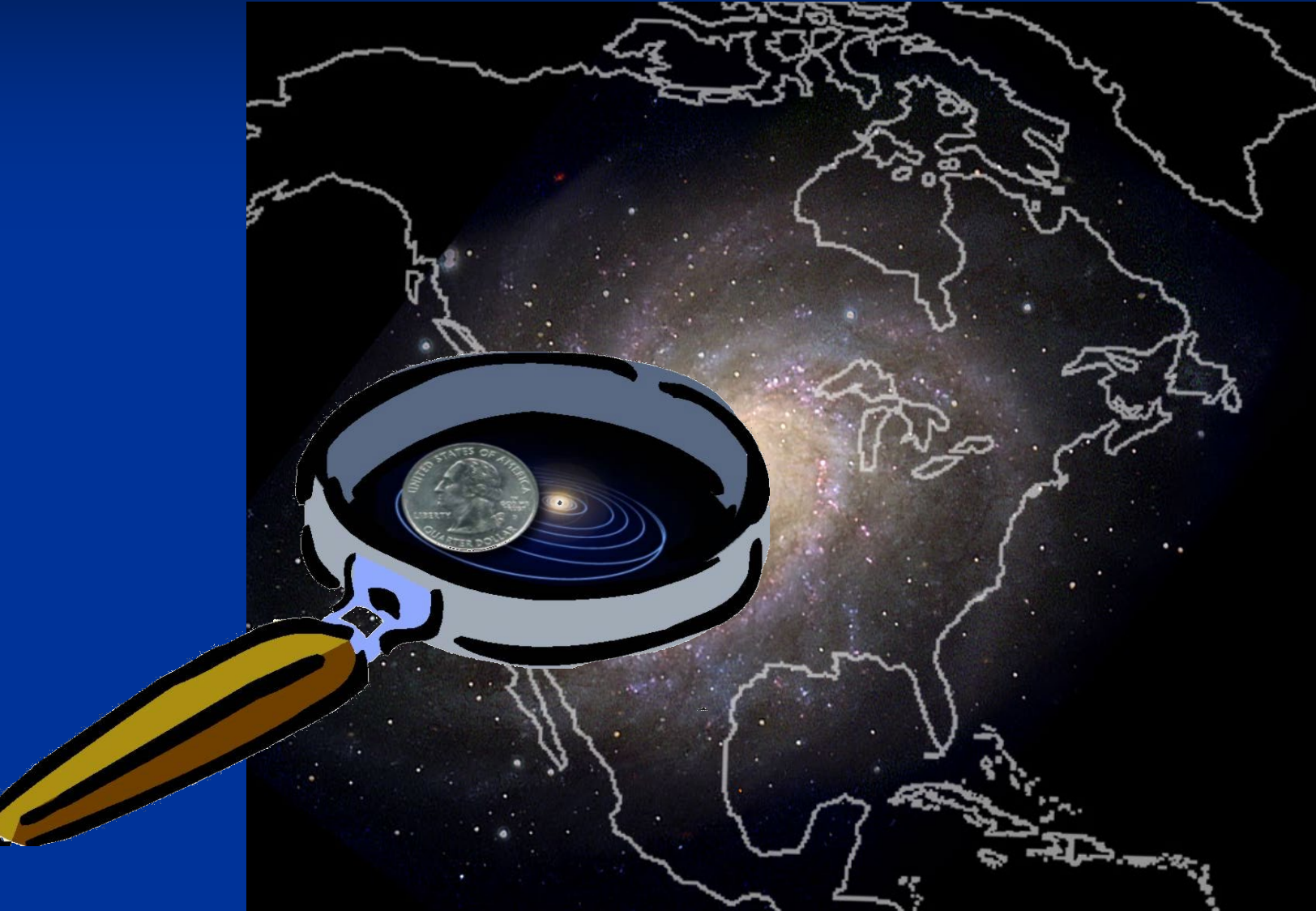
# The Size of the Galaxy

Imagine the Solar System so small that that distance from the sun to Pluto is the diameter of a quarter.



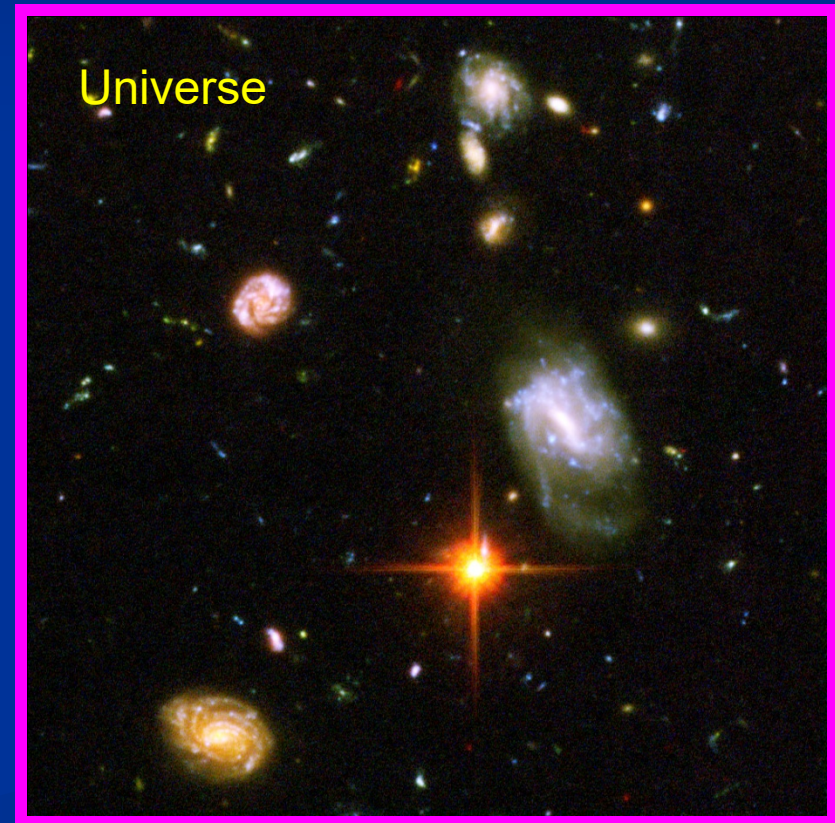
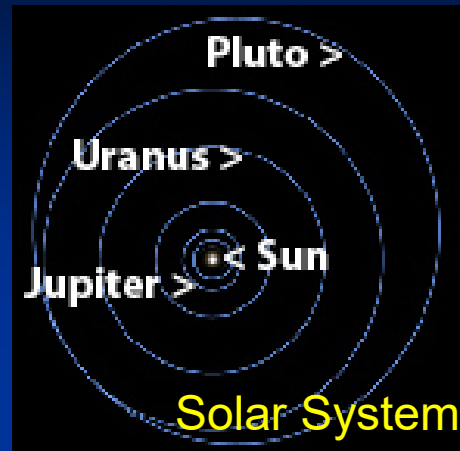
# THEN...

...the Galaxy would be the size of North America





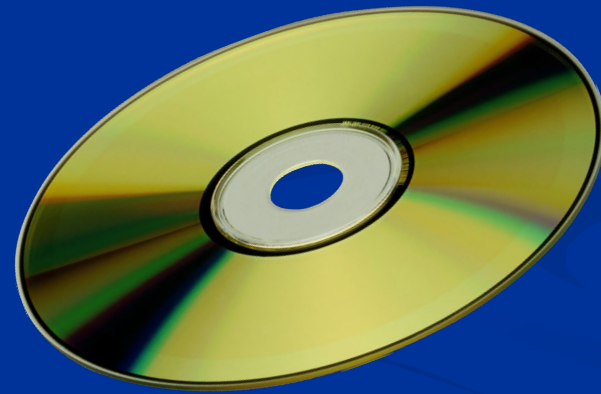
# The Universe





# Milky Way

- Our Galaxy
- Shaped like a CD



- If the Milky were as small as a CD...



# M31 Andromeda Galaxy would be 8 Feet Away





The Nearest Galaxy to the Milky Way  
is the Andromeda Galaxy

2,300,000 Light Years





# Andromeda and Milky Way Galaxies will collide

- Hurtling together at 245,000 MPH
- Will Collide in about 4 Billion Years
- Collision will take billions of years
- Earth will have been burned up by the Sun by then
- Most stars won't collide - there is too much distance between them.

M33 Pinwheel Galaxy  
8 Feet



M81 Bode's Galaxy  
16 Yards



M33 Whirlpool Galaxy  
50 Yards



M104 Sombrero Galaxy  
67 Yards





A visualization of the cosmic web, showing a complex network of blue and purple filaments and nodes against a dark background. The nodes represent galaxy clusters, and the filaments represent the structures where galaxies are distributed.

How Many Galaxies in the Universe?

2 trillion Galaxies!!!

2,000,000,000,000



# How Many Galaxies in the Universe?

The wall would need to be 20 feet high



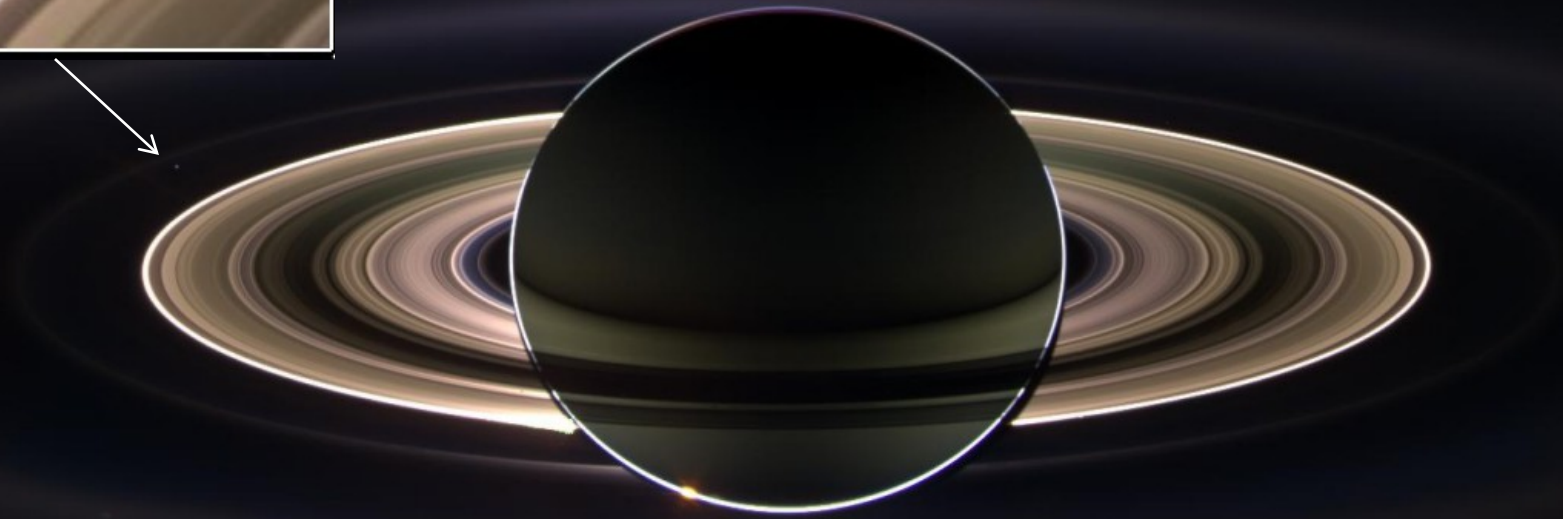


# How Fast Are You Moving When Sitting Still?

- Earth Rotation – 1000mph (that speed could get you from SF to Washington DC in 2.35 hours minutes)
- Earth's orbital motion 66,000mph (SF to DC in in 3 minutes.)
- The Sun orbits the Milky Way at a speed of 483,000mph. (SF to DC in 20 seconds)
- The Milky Way's motion relative to the Universe is 1,300,000 mph. (SF to DC in 5 seconds)









**Questions?**