

# Things Which Are Unseen

## Dark Matter and Creation Astronomy

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**NEW CREATION**

<https://newcreation.blog>

**What is Dark Matter?**

# What is Dark Matter?

## The Case of the Missing Mass

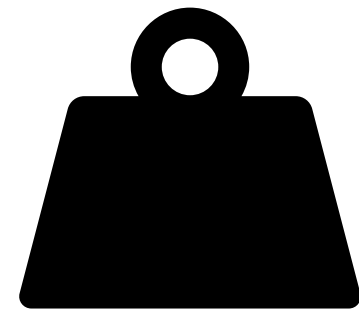
- Dark matter is hypothesized to be an entirely new form of matter that doesn't interact with electromagnetic radiation (light)
- Makes up 85% of the matter in the universe
- First proposed in the 1930s
- “Missing mass”: galaxies act heavier than they look

# The Evidence for Dark Matter

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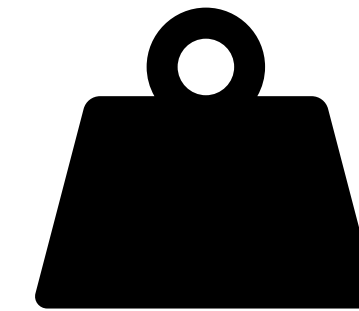
## Lighted Mass vs Dynamic Mass

Two ways of measuring the mass of a galaxy:



Lighted Mass

the amount of mass needed  
to produce the **light**  
**observed** from the galaxy



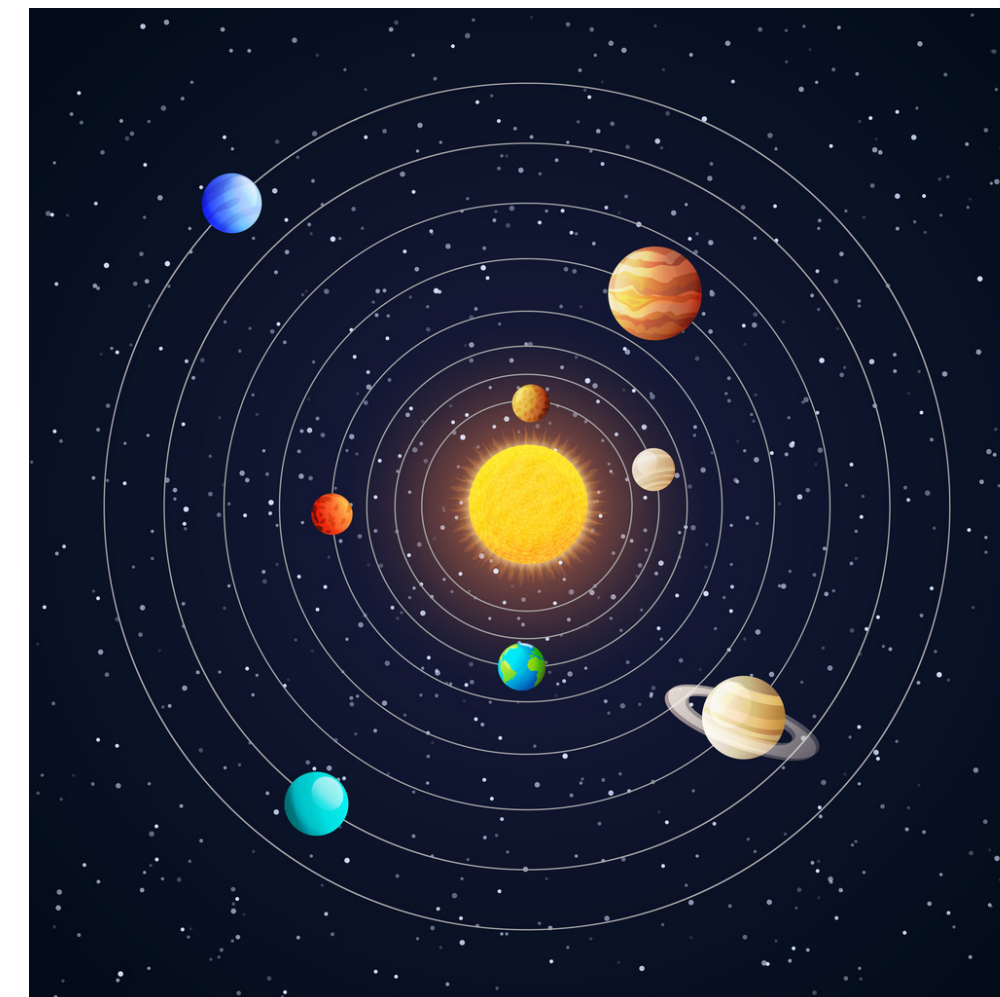
Dynamic Mass

the amount of mass  
needed to account for  
**motion** of galaxies

# The Evidence for Dark Matter

## Rotation Velocities of Spiral Galaxies

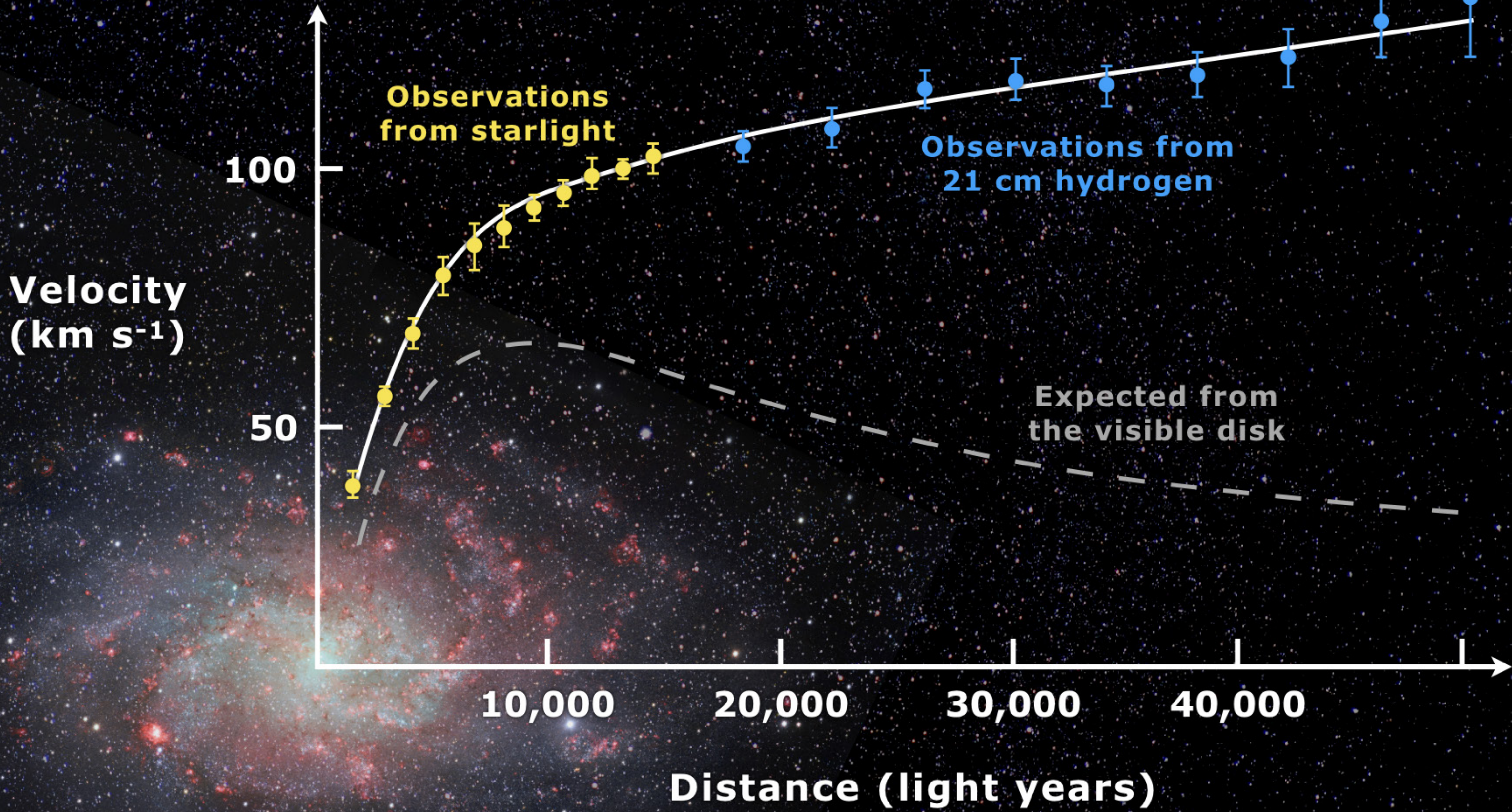
- The orbital speed within spiral galaxies is related to the mass of the galaxy
- Within the center portions of galaxies, there is a linear relationship between rotational velocity and mass
- In the outer regions of the galaxy, rotational velocity was expected to follow Keplerian behavior (like planets in the Solar System)



# The Evidence for Dark Matter

## Rotation Velocities of Spiral Galaxies

- In the 1930s, astronomers began taking measurements of radial velocity at the extreme edges of galaxies
- They found that orbital velocities much *higher* than expected by the distribution of lighted mass





# The Evidence for Dark Matter

## Rotation Velocities of Spiral Galaxies

- In the 1930s, astronomers began taking measurements of radial velocity at the extreme edges of galaxies
- They found that orbital velocities much *higher* than expected by the distribution of lighted mass
- “The distribution of mass in the system appears to bear almost no relation to that of light” (Oort, 1940)

# The Evidence for Dark Matter

## Gravitational Lensing

- Gravitational lensing - when a massive object in space bends light from more distant objects in our line of sight

# Gravitational Lensing



# The Evidence for Dark Matter

## Gravitational Lensing

- Gravitational lensing - when a massive object in space bends light from more distant objects in our line of sight
- The amount of distortion produced by an object allows us to calculate its mass
- Measurements of galaxy clusters have shown a consistent discrepancy between mass inferred from gravitational lensing and lighted mass

# Gravitational Lensing



# Gravitational Lensing



# Creationist Responses to Dark Matter

# Dark Matter and Creation Astronomy

## Is Dark Matter a Crutch for the Big Bang?

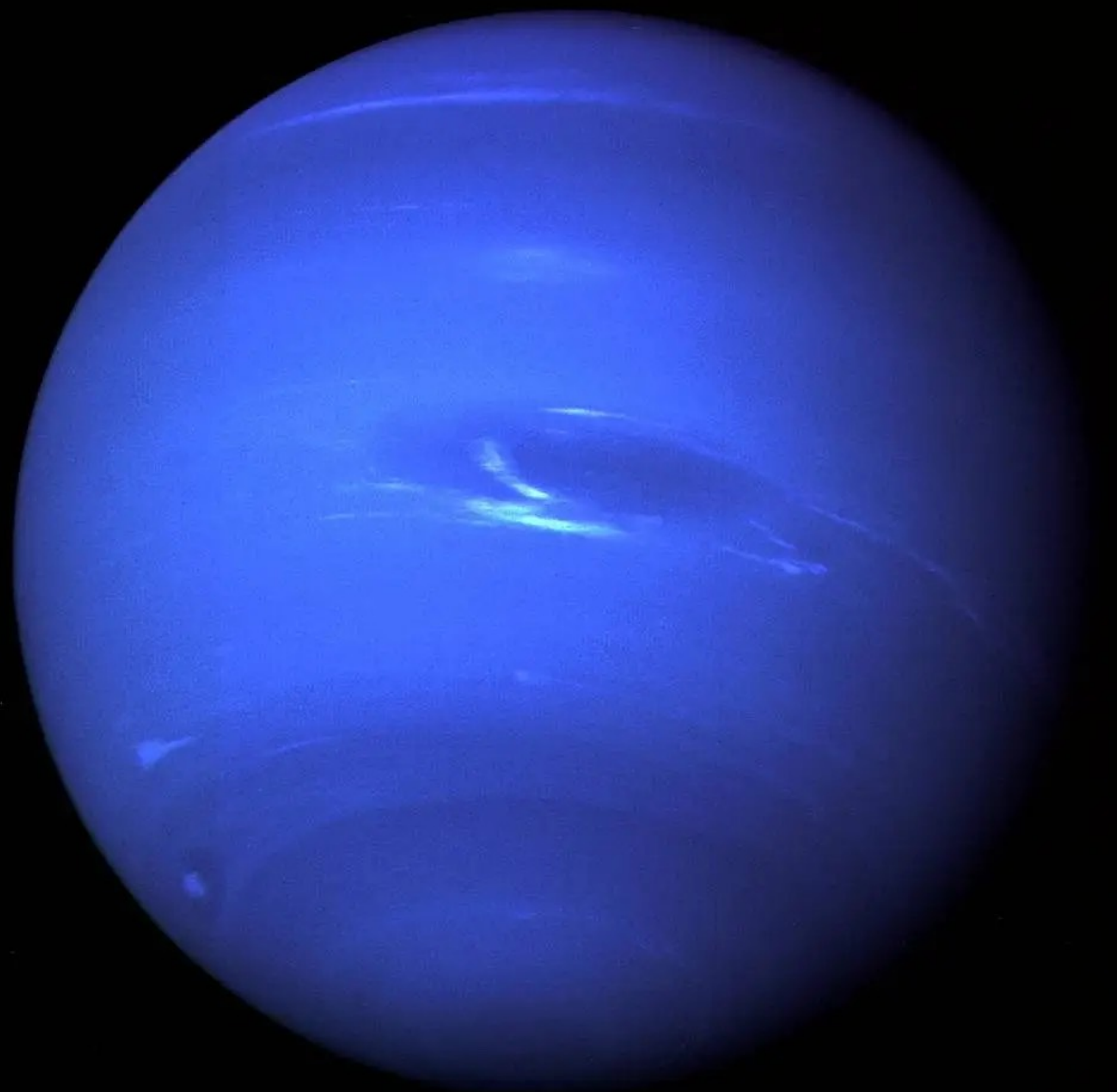
- “...we need to understand that dark matter, dark energy, and other ‘unknowns’ ...were only proposed in the standard big bang cosmology to resolve some conflicts between the standard paradigm and astrophysical observations.” – John Hartnett
- Evidence for dark matter was known before the Big Bang became the dominant cosmology
  - Dark matter was first proposed in the 1930s
  - The Big Bang theory became widely accepted in the 1960s
- The evidence for dark matter is independent of the Big Bang



# Dark Matter and Creation Astronomy

## Does modern physics need an overhaul?

- Some creationists favor using a modified form of Newtonian dynamics (MOND) to explain the evidence for dark matter
  - Claim: The unexpected data we observe is not due to a new form of matter, but rather to glitches in our understanding of physics
  - If MOND is correct, we should see a **consistent** discrepancy between dynamic and lighted mass
  - Reality: Not all galaxies have the same amount of dark matter; some don't have any
- Problems involving missing mass have a precedent in astronomy



**How should we think about  
Dark Matter?**

# Dark Matter and Creation Astronomy

## How should we think about dark matter?

- Dark matter has nothing to do with the Big Bang
- The evidence for dark matter is based on observational science
- We need to incorporate these observations in our models of creation astronomy
- This is an exciting new frontier in astronomy!

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