

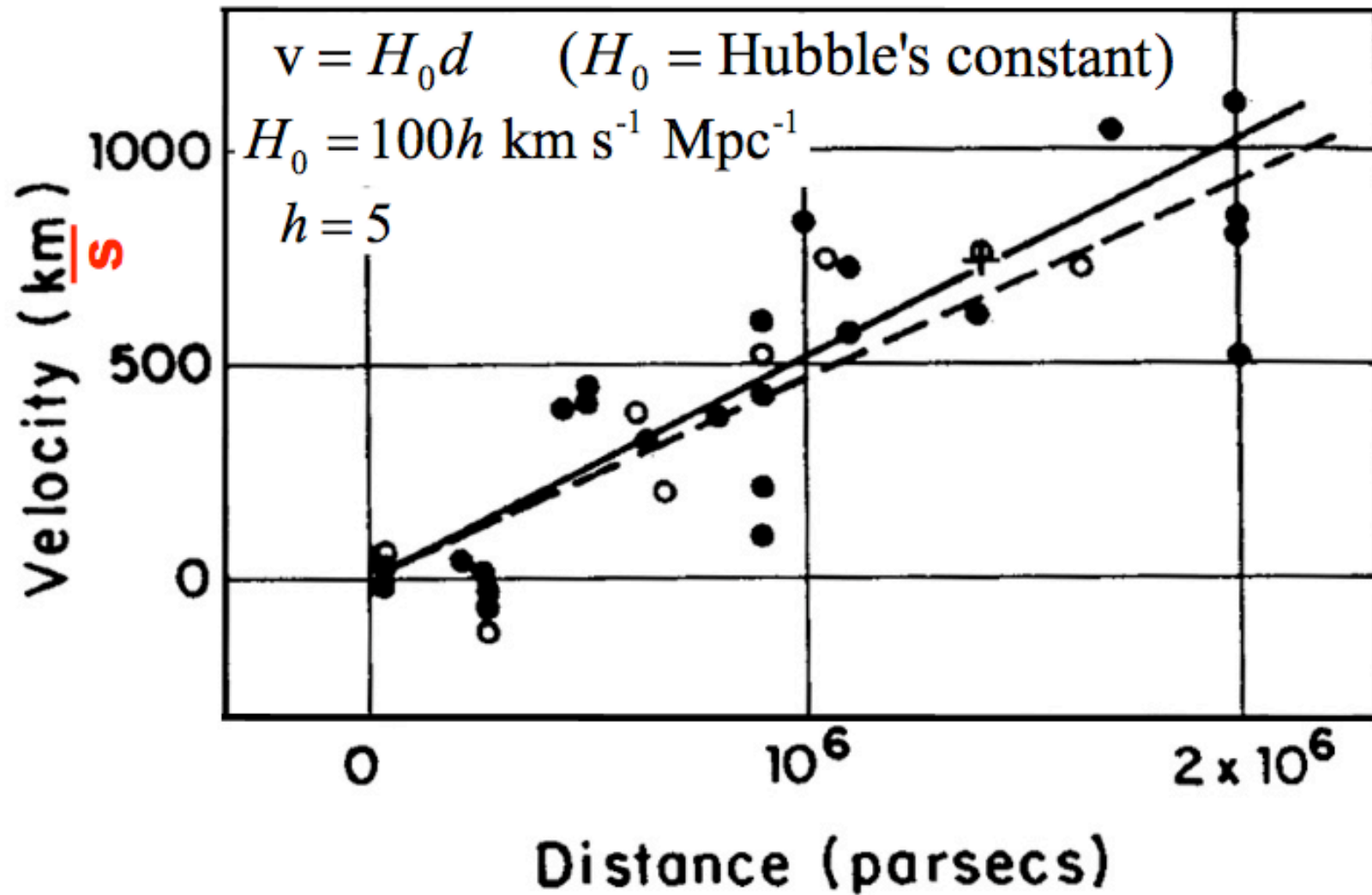
- While Slipher was able to measure the velocities of galaxies, he had no way of measuring the distance to them. In 1929, Edwin Hubble used Cepheid Variable stars, which are very luminous, and vary their luminosity in a distinctive, recognizable way, as standard stars to measure the distance to these galaxies.

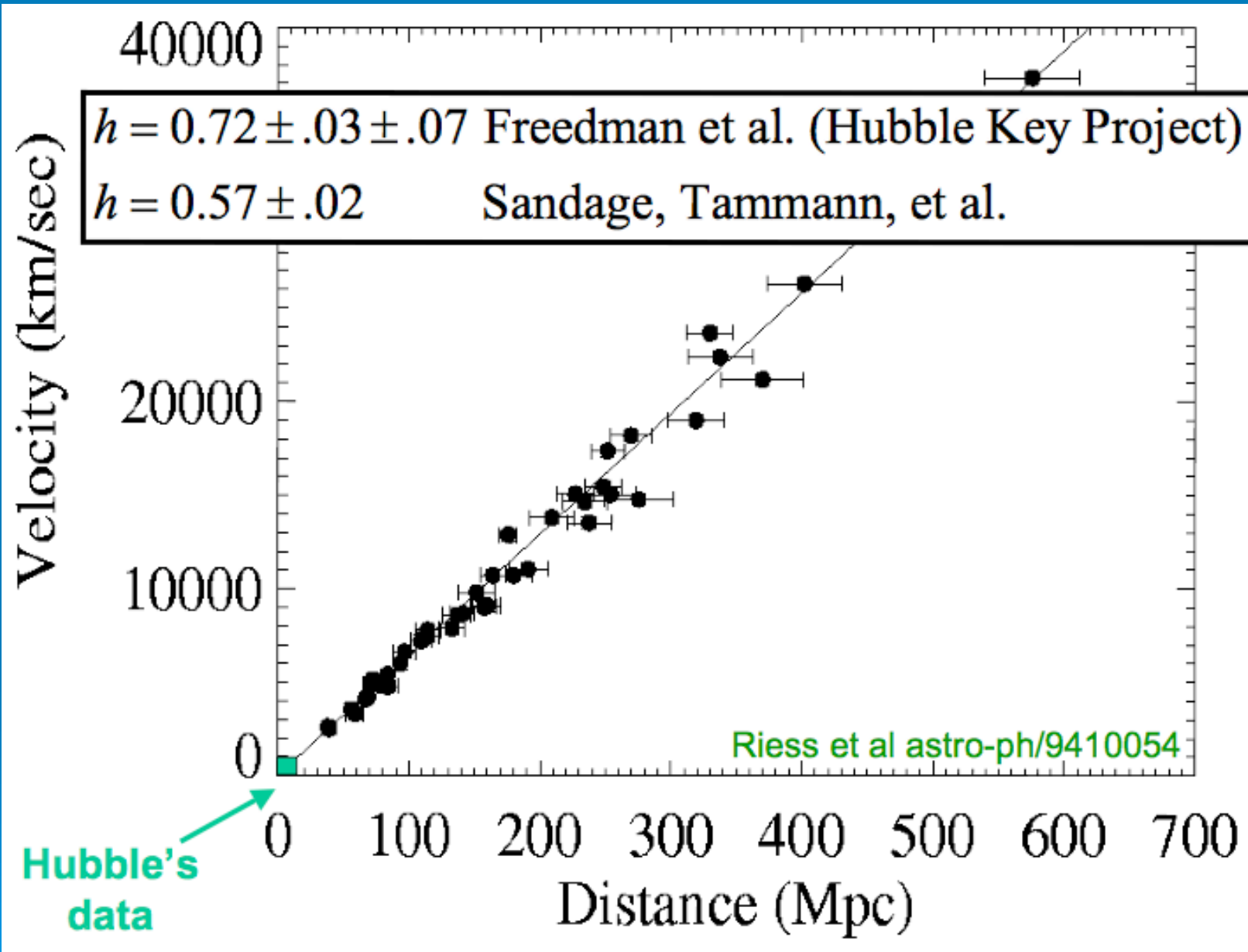
The Standard Candle



University of Chicago 1909 National Champions

Hubble's Discovery Paper - 1929





Hubble's Law

$$V_{\text{rec}} = H r$$

➤ Hubble's constant has dimensions of inverse time

- Implies an age for the universe
- A dense universe
 - We also know that it was hot.

$$T_{\text{universe}} \approx H^{-1}$$

The Cosmological Principle

- At first glance it may seem that since everything appears to be moving away from us, we must be at a special location. This is not the case. No matter where we go in the universe, it will always appear that everything is moving away.

The Universe is Homogeneous & Isotropic

- More like an assumption
 - This is something to be tested
 - Galaxy counts and so forth
 - The dark night sky
- Implied by Hubble Law

Looking Out is Looking Back

- What is the dark night sky?
 - As far way as possible?
 - As early as possible?
- A glowing body at 2.73 degrees Kelvin