

April 6, 2021  
MSE 2103 topics

- Test #2 date: Thursday, Apr 22, 2021
- Questions on the math homework?
- The period-luminosity relationship of Cepheids revisited
- Implications on measuring cosmic distances
- Crucial missing ingredient: calibration of the PLR
- Hertzsprung and Shapley to the rescue!
- Alas, *two* types of Cepheids, but the order of magnitude right!
- The Great Debate!
  - The Plot: William Parsons' observation of M51 (1842)
  - Local star-forming clouds or Island Universes?
  - Exhibit #1: Scheiner's 7.5-hr exposure of M31
  - Exhibit #2: Slipher's 21-hr exposure of the Merope nebula
  - Exhibit #3: Slipher's radial velocity measurement of M31
  - Exhibit #4: Slipher's RVs of 11 "spiral nebulae"
  - Exhibit #5: Shapley's measurement of the Cepheids
  - Exhibit #6: Shapley's measurements of globular clusters
  - Exhibit #7: van Maanen's proper motion measurements
  - Exhibit #8: the observations of novae/supernovae in M31
  - The Shapley-Curtis Debate on Apr 26, 1920
  - Resolution: Edwin Hubble's discovery of Cepheids in M33
  - Affirmation: Cepheids in M31 and Barnard's galaxy