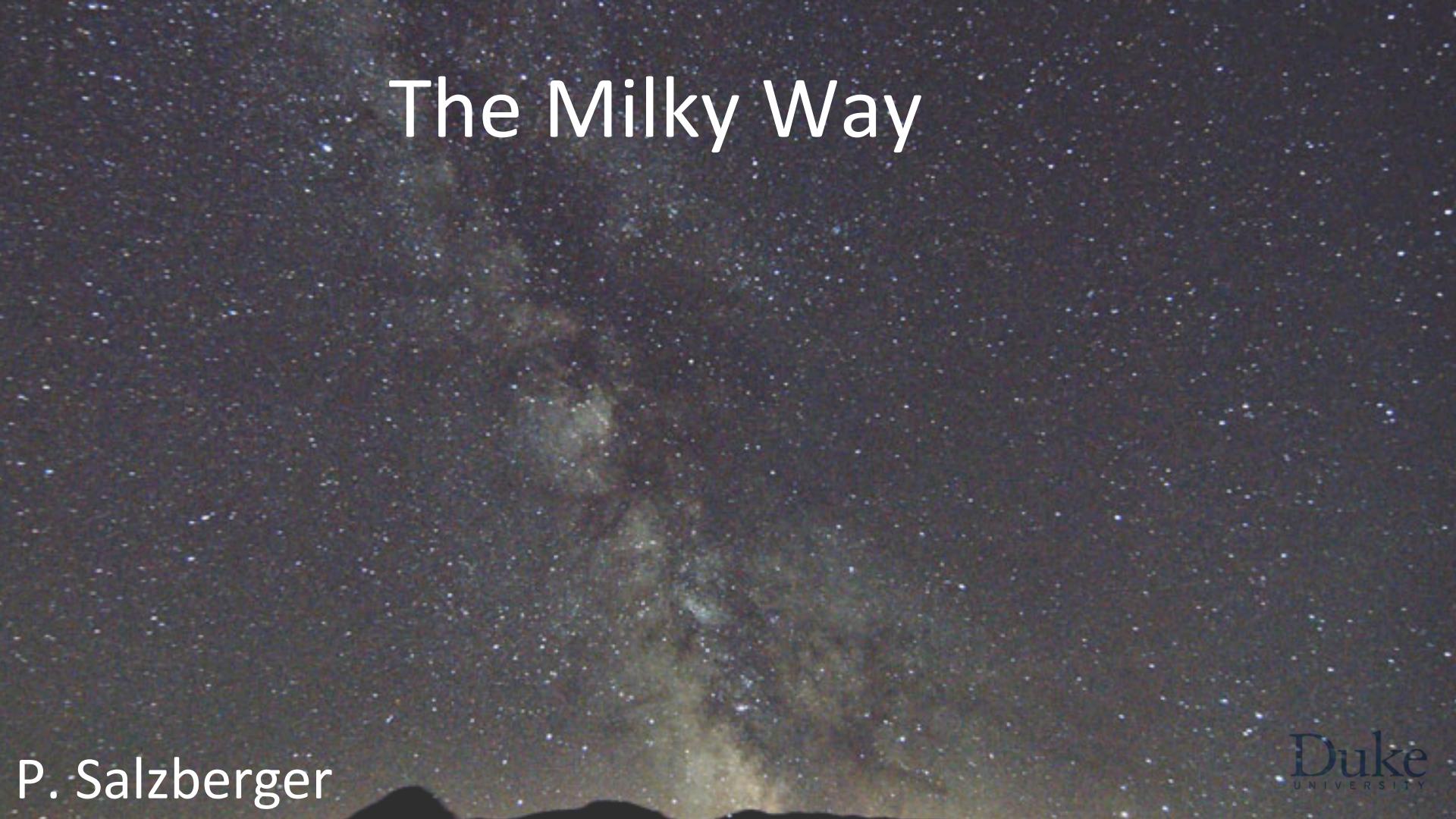


Introductory Astronomy

Week 1: Positional Astronomy

Clip 1: Introduction

The Milky Way



P. Salzberger

Duke
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A detailed image of the Orion Nebula (M42), showing its characteristic red and blue emission nebulae and numerous stars of various sizes.

Orion Nebula (M42)

Rob Schooley

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Pleiades Cluster (M45)

A wide-field photograph of the Pleiades star cluster (M45). The cluster is composed of numerous bright, blue-white stars of varying sizes, some with distinct stellar flares. It is set against a dark, textured background of numerous smaller, distant stars and a few wispy, blue-tinted nebulae.

R. Gendler

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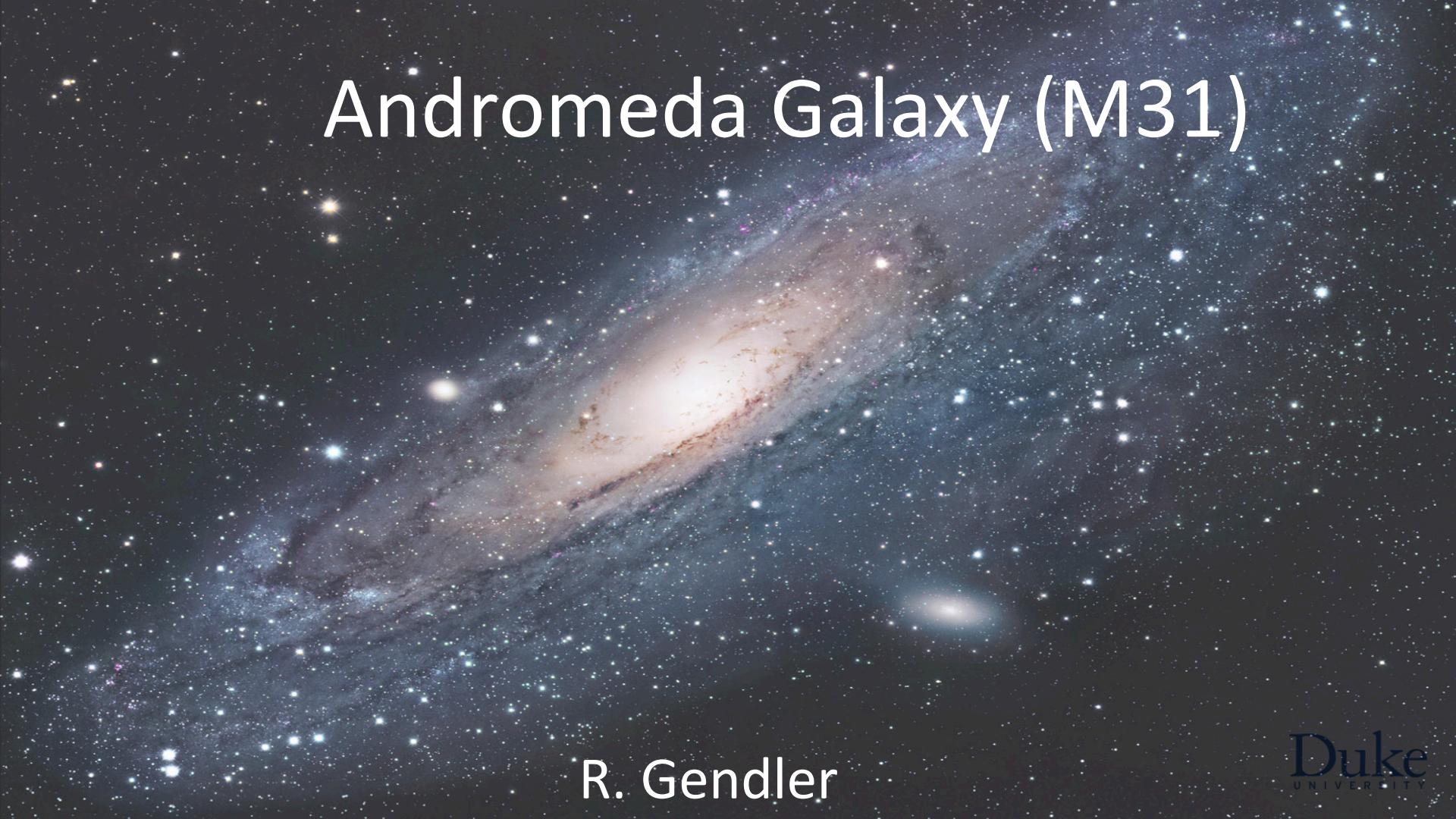
Globular Cluster (M13)

A photograph of a globular star cluster, likely M13, set against a dark, star-filled background. The cluster is composed of numerous small, white and blue stars, with a higher density of stars towards the center, creating a bright, luminous core.

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Andromeda Galaxy (M31)

A detailed image of the Andromeda Galaxy (M31), showing its spiral structure and surrounding star field.

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Ring Nebula (M57)

Rob Schooley

Albireo



W. Li, A. Filippenko

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Summary

- On a clear, dark night, can see as many as 3000 stars.
- We use names and groupings from ancient Greece because pattern is (almost) unchanging
- Yet sky changes by the hour and season
- Relative positions of stars do not change, admitting a geography of the sky
- Entire pattern revolves daily: stars rise in the East, across sky to set in the West
- This week: Understand apparent motion and find mathematical formulation

Credits

- Sky Simulation: Starry Night <http://www.starrynight.com/>
- Milky Way: Philipp Salzberger <http://www.salzgeber.at/index.html>
- M42, M57, M31 Amateur Images: R. Schooley
- M42: Image Acquisition: Michael Joner and David Laney (BYU); Image Processing: Robert Gendler; 0.9M Telescope, West Mountain Observatory, BYU
<http://www.robgendlerastropics.com/M42-BYU.html>
- M45: R. Gendler <http://www.robgendlerastropics.com/M45STLmosaic.html>
- M15: R. Gendler <http://www.robgendlerastropics.com/M15.html>
- M57: Processing by R. Gendler. Based on observations made with the NASA/ESA Hubble Space Telescope, and obtained from the Hubble Legacy Archive, which is a collaboration between the Space Telescope Science Institute (STScI/NASA), the Space Telescope European Coordinating Facility (ST-ECF/ESA) and the Canadian Astronomy Data Centre (CADC/NRC/CSA)
<http://www.robgendlerastropics.com/M57-HST-Gendler.html>
- M31: R. Gendler <http://www.robgendlerastropics.com/M31Page.html>
- Albireo: Weidong Li and Alex Filippenko, UC Berkeley
http://astro.berkeley.edu/bait/public_html/calstar/bear1.html