

# 400B Research Proposal

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February 25, 2025

## 1 Research Topic

Milky Way / M31 Galaxy Major Merger Remnant: Stellar Remnant and Formation of Elliptical Galaxies

## 2 Research Questions

1. Stellar Density Profile of the Merged Bulges and Disks
  - How well is the remnant described as a classical elliptical galaxy based on its surface density profile? What is the best fit sersic profile?
2. Shape of the Stellar Remnant
  - Is the remnant a spheroid, or does it have elongation/triaxiality? How does this vary as a function of radius? Is there a substructure in the remnant, i.e. tidal tails?
3. Properties of Bulge Particles vs. Disk Particles in the Remnant
  - What is the contribution of bulge vs disk to the density profile/ velocity dispersion/ angular momentum of the remnant? What component is rotating, if any?