

Research Assignment 1

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February 2025

Research Topic: MW/M31 Dark Matter Halo Major Merger Remnant

Research Question: What is the Shape of the Dark Matter Distribution of the remnant? Is it Triaxial? Oblate? Prolate?

The established cosmological models seem to predict a triaxial distribution of dark matter in the remnant. Since this is a major merger, based on those models, I would expect a prolate shape. On the basis of a preliminary review of the existing literature, the shape does not seem to be uniform (hence a spherical shape is ruled out) because the accretion does not seem to occur in a uniform manner. Using the data that will be provided to me for the purposes of this project, my goal would be to confirm the aforementioned theoretical predictions within a reasonable bound of certainty.