

Research Assignment 1

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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. I do not expect the shape to be uniform in shape (hence a spherical shape is ruled out) because of its accretion does not seem to occur in a uniform manner based on a preliminary review of the existing literature. 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.