

Reconstructing the Formation Histories of the Milky Way and Andromeda Galaxies

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In hierarchical cosmologies, large galaxies like the Milky Way and Andromeda (M31) form through the accretion and tidal disruption of smaller (satellite) galaxies. Evidence of these processes remains imprinted in the observed stellar properties of the galactic halo and debris from tidally-disrupted satellites. I will show how combining information about the age, chemical abundance, and phase-space distribution of these stars can be used to reconstruct the formation histories of the Milky Way and M31. I will illustrate this approach using a suite of high resolution N-body models of Milky Way- and M31-like galaxies formed in a hierarchical Lambda CDM Universe. Finally, I will compare these theoretical results with recent observations from state-of-the-art wide field surveys of these galaxies.