中華民國天文學會
The Astronomical Society of the Republic of China (Taiwan)

Contribution ID: **62** Type: **Oral**

# Progenitor diversity in the accreted stellar halos of Milky Way-like galaxies

*Saturday, May 17, 2025 1:45 PM (15 minutes)*

The tidal disruptions of dwarf galaxies are thought to be the most important process in building diffuse stellar halos around galaxies. Multiple spectroscopic surveys seek to reconstruct major assembly events with chemical and dynamical information of stellar halo stars. In our recently published paper, we compute the number of progenitors that contribute to the accreted stellar halos of simulated Milky Way–like galaxies as a function of radius (the radial diversity) in three suites of models: Bullock & Johnston, Aquarius, and Auriga. We demonstrate that the difference in the radial diversity between these simulation suites is beyond the halo-to-halo difference within each suite but reflects the star formation efficiency of dwarf galaxies. We compare, at face value, to current constraints on the radial diversity of the Milky Way's accreted halo. These constraints imply that the halo of our Galaxy is dominated by $\sim 2$ progenitors in the range 8–45 kpc, in contrast to averages of 7, 3.5, or 4.2 progenitors in the simulation suites over the same region. In addition, we compute the diversity in the energy-angular momentum ($E - L_z$) diagram to investigate the detection limits of current assembly history reconstruction methods based on $E - L_z$ diagrams.

## Section

Galaxy/Extragalactic

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**Session Classification:** Galaxies