Do the Satellites of M31 suggest an Accretion of a Large Progenitor?

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Context

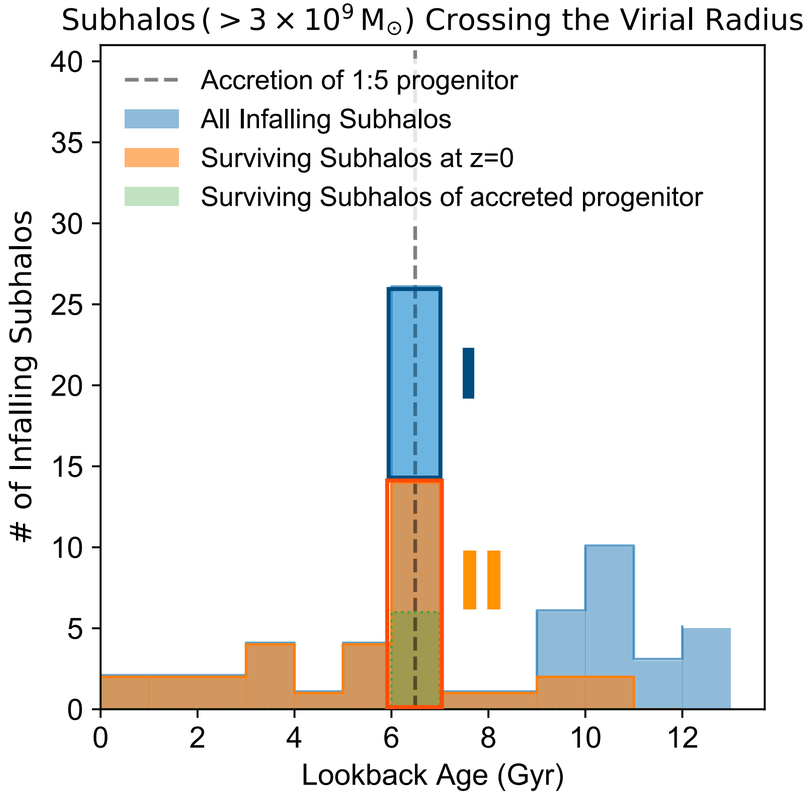
Studies of the halo and the disk of the M31 independently suggest a merger with a large progenitor (half the size of the MW) about 2 Gyrs ago (D'Souza & Bell 2018, Hammer et al. 2018). **Do the satellites of M31 also support such a hypothesis?**

Main Result

Using a large number of high resolution dark-matter only simulations of MW-mass halos, we find that the accretion of a large progenitor (>1:5) in a MW-mass halo:

- **Is simultaneous accompanied by the accretion of large number of subhalos hosting classical dwarfs** (in multiple simultaneous accretion events)
- **The number of subhalos accreted are much larger than the expected subhalos of the large accreted progenitor.**

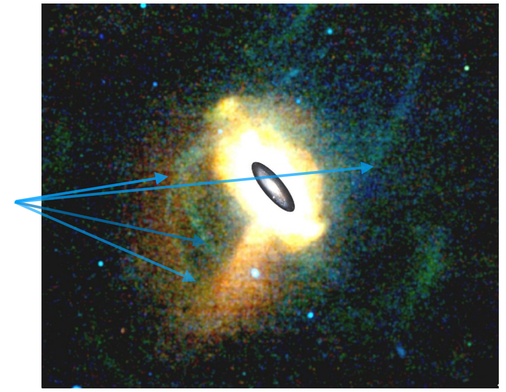
Example of infall of subhalos in a ~1:5 accretion event



Expected Signatures

2-4 Sagittarius-like streams

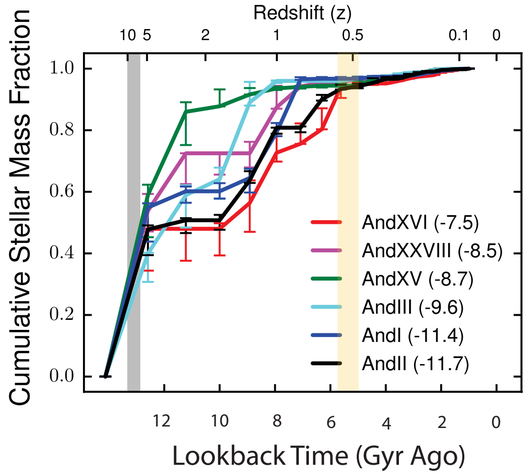
I



Martin et al. 2014. McConnachie et al. 2018

Simultaneous shutdown of starformation in a large number of classical dwarfs

II



Skillman et al. 2017 , Weisz et al. 2013