[GC-16] The Evolution of Satellite Dark Halos during merger

Dowon Yi, Taysun Kimm, Sukyoung K. Yi
Department of Astronomy, Yonsei University

We present a preliminary result of the dynamical evolution of the satellite halo during halo merger. For this purpose, we have performed a set of numerical n-body simulations using the GADGET2 code. We adopt the NFW or the Hernquist density profile as the halo models. Our simulations cover a wide parameter space in terms of mass ratio (Msat/Mhost), energy, and eccentricity. We find that the mass-loss of the satellites is primarily affected by the orbital parameter and the shape of the host halo potential, whereas mass ratio has a minor effect for each orbital period. Interestingly, the fractional mass-loss turns out to be nearly the same for each period. We also find that the shape of the host halo potential mainly determines the merging time-scale. We will discuss how internal structure of the satellite halo changes during merger.

[GC-17] The Satellite Overquenching Problem

Sukyoung K. Yi and Taysun Kimm
Department of Astronomy, Yonsei University,

Satellite galaxies in groups and clusters show much more rigorous star formation activities compared to central galaxies. This comes from two effects: one is that some satellites are late type while centrals are mostly early type, the other is that even among the early types alone satellites show more star formation than centrals do. However, this empirical fact is reproduced by none of the realistic galaxy formation models built from theory ab initio. We call this 'the satellite overquenching problem'. We believe that this shortcoming of models is due to the currently-inaccurate prescriptions on the supply and stripping of hot gas on the satellites while they are accreted to the cluster/group halo. We present a new but preliminary solution to this problem, considering Ram pressure, tidal stripping and stellar mass loss realistically.