

X32a Satellite Systems around Disc Galaxies in Hydrodynamic Simulations

岡本 崇 (国立天文台)、Noam I. Libeskind、Shaun Cole、Carlos S. Frenk (Durham)

The question of how disc galaxies, satellite systems and dark matter halos are aligned is still an open one, with various observational studies in disagreement. In this work we use the star formation models of Okamoto et al. (2005), which is one of the first high resolution Smoothed Particle Hydrodynamic simulations to resolve realistically sized discs, to study the properties of satellite galaxies orbiting in a host halo. We study how satellites, dark matter halos, and central galaxies are aligned with respect to both their angular momenta as well as their spatial distribution. We find that for galaxies with a significant baryonic disc component, the disc and the dark halo's angular momenta are within 30° of being perpendicular to the long axis of its distribution. We also confirm earlier work and find that in addition to having an anisotropic distribution, satellite structures tend to be aligned with the long axis of their host halos.