

Abstract

The clustering properties of dark matter haloes are influenced by their formation history, in what is known as assembly bias. We investigated its origin and its effect on the (baryonic and dark matter) content of haloes using a dedicated suite of high-resolution hydrodynamical simulations named ZOMG – Zooming On a Mob of Galaxies. I will present the main results of the first series of simulations. The physical origin of assembly bias is found to lie in the environment hosting the haloes, that can prevent accretion of material or provide a steady flow of matter, shaping the halo assembly history. The central galaxies appear to be only marginally affected by the collapse time of the host, since only their stellar discs show differences connected with the halo age. Finally, the dynamics of satellite galaxies is greatly affected by the environment and shows a number of features directly linked to the host assembly history. Our results represent a way forward to observationally determine the halo collapse time and the connected properties.