

On the growth of diffuse light from simulations of galaxy clusters.

Betelehem Bilata-Woldeyes¹, Jaime Perea¹, and José María Solanes²

¹ Instituto de Astrofísica de Andalucía (IAA-CSIC)

² Institut de Ciències del Cosmos (ICCUB), Universitat de Barcelona

Abstract

Deep surface photometry reveals the presence in a good number of galaxy clusters, as well as in their smaller counterparts, galaxy groups, of an extended, diffuse luminous component that fills the space between galaxies. This intracluster light (ICL) is believed to originate from the disruption of the outermost regions of the galaxies that make up these systems.

Our aim in this work is to make use of controlled numerical simulations of pre-virialized clusters to study the formation of the diffuse ICL, and investigate its potential to describe the assembly history of such systems of galaxies.

We are currently using our simulations to track the growth of the ICL over cosmic time, tracing its evolution across clusters spanning a range of masses and galaxy memberships. Here, we present our first results, where we analyzed the relationship of ICL formation with the mass and size of the brightest galaxy in the cluster and its dependence on both the merger fraction and the efficiency of interactions.

My poster is available at <https://zenodo.org/record/7031730#.YwyawNVBzJU>