PHYSICS AND ASTRONOMY

SEMINAR

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"On the origin of gas-poor galaxies in galaxy clusters using cosmological hydrodynamic simulations"

Abstract

The environmental effect is commonly used to explain the excess of gas-poor galaxies in galaxy clusters. Meanwhile, the presence of gas-poor galaxies at cluster outskirts, where galaxies have not spent enough time to feel the cluster environmental effect, hints at the presence of preprocessing. Using cosmological hydrodynamic simulations on 16 clusters, we investigate the mechanisms of gas depletion of galaxies found inside clusters. The gas-depletion mechanisms can be categorized into three channels based on where and when they took place: preprocessing, fast cluster processing, and slow cluster processing. The relative importance of each channel varies with a cluster's mass, while the exact degree of significance is subject to large uncertainties. Our research highlights the importance of considering the past history of galaxies before entering current clusters for understanding the origin of gas-poor galaxies in clusters.

Wednesday, October 17, 2018
10:30 a.m.
HSD Building – Room A270