Exploring Cluster Outskirts and Large Scale Filaments in Merging Clusters with Current and Future X-ray Missions


Despite significant recent progress, relatively little is known about the virialization region of clusters, where the faint outskirts of the intracluster medium (ICM) interfaces with the large scale environment. Understanding the physics of the virialization region has important implications for cluster cosmology, the growth of structure, and the microphysics of the ICM. I will discuss what we know about the virialization region of clusters, with a focus on our recent work on merging clusters and the connection between cluster outskirts and large scale filaments. I will also discuss how upcoming and proposed X-ray missions like Athena can contribute to this important area of study.