X-RAY ASTRONOMY 2019
Current Challenges and New Frontiers in the Next Decade
8-13 September 2019
CNR/INAF Research Area, Bologna, Italy

Contribution ID: **184** Type: **Contributed**

Exploring the Virialization Region of Merging Galaxy Clusters

Tuesday, September 10, 2019 3:20 PM (15 minutes)

X-ray observations of the outskirts of galaxy clusters show that the entropy of the intracluster medium (ICM) in the virialization region is generally less than what is expected based on purely gravitational structure formation. Possible explanations include electron/ion non-equilibrium, accretion shocks that weaken during cluster formation, and the presence of unresolved cool gas clumps. These mechanisms are expected to correlate with large scale structure (LSS), such that the entropy is lower in regions where the ICM interfaces with LSS filaments and, presumably, the warm-hot intergalactic medium (WHIM). Major, binary cluster mergers are expected to take place at the intersection of LSS filaments, with the merger axis initially oriented along a filament. We present results from deep X-ray observations of the virialization regions of binary, early-stage merging clusters, including a possible direct detection of the dense end of the WHIM along a LSS filament.

Topic

Hot and diffuse baryons

Affiliation

Harvard-Smithsonian Center for Astrophysics

Author: Dr RANDALL, Scott (Harvard-Smithsonian Center for Astrophysics)

Co-authors: ALVAREZ, G.; PATERNO-MAHLER, R.; BULBUL, E.; SU, Y.; BOURDIN, H.; FORMAN, W.; JONES, C.

Presenter: Dr RANDALL, Scott (Harvard-Smithsonian Center for Astrophysics)

Session Classification: HOT AND DIFFUSE BARYONS