

A Simulation Study of Intracluster Turbulence

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Abstract

Clusters of galaxies are the largest virialized structures in the universe, which serve as laboratories for the study of astrophysical processes on very large scales. Observations and theoretical arguments suggest that intracluster media is turbulent. The media are very hot and dynamic, highly rarefied, and probably magnetized at some level. The physics involved is complex and high-resolution simulations help us understand the physics and consequent phenomena. We are engaged in a simulation study designed to understand in this context how subsonic turbulence with very weak initial magnetic fields develops and evolves with imposed forcing. We find that the resulting turbulence is sensitive to the nature of forcing as well as the dissipation properties of the media.