

Clusters of galaxies: from the physics of electron re-acceleration to cosmology



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Clusters of galaxies are the largest bound structures in the universe, the upper limit of the halo mass function. With total masses spanning from 10^{14} to 10^{15} solar masses, they are home to hundreds, sometimes even thousands of galaxies. Between their galaxies resides a primordial gas that has been heated to millions of degrees Kelvin, emitting in X-ray. But all this baryonic matter accounts to only 20% of their total mass. Most of their mass is in the form of the mysterious dark matter. In this talk, I will revise the basic properties of galaxy clusters and present results, from the physics of re-acceleration of electrons in shock fronts to the use of their demographics to compute cosmological parameters.

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