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Cosmology with galaxy clusters: the role of X-rays

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Galaxy clusters are dark-matter dominated systems enclosed in a volume that is a high-density microcosm of the rest of the universe. Clusters are thus excellent laboratories for probing the physics of the gravitational collapse of dark matter and baryons. As cluster growth and evolution depend on the underlying cosmology, their number density as a function of mass and redshift, spatial distribution and internal structure are powerful cosmological probes.
I will review what we have learned on the use of X-ray to map their dominant baryonic component and to infer their intrinsic properties, and what we need to understand through a fruitful use of the upcoming X-ray projects and observatories to construct a consistent picture of the formation and composition of galaxy clusters.

Topic

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