

# Dark matter distribution in galaxy clusters from X-ray/SZ data

*Monday, 16 September 2024 15:00 (25 minutes)*

Galaxy clusters are dark-matter-dominated systems enclosed in a volume that is a high-density microcosm of the rest of the universe. I will present the most recent results on the distribution of their gravitating and baryonic mass obtained from our XMM-Newton Multi-year Heritage and Large Programmes (CHEX-MATE, X-COP) complemented with Planck maps, highlighting the role of X-ray and SZ data in resolving the astrophysics of the most massive collapsed halos in the universe and in studying the interplay between the hot plasma and dark matter. I will discuss the role of non-thermal pressure support as a major source of the difference between the hydrostatic and the total “true” halo mass. These studies will pave the way for using the next generation of X-ray observatories, like XRISM and NewAthena, to construct a consistent picture of the formation and composition in mass and energy of galaxy clusters.

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