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Gas dynamics in the Intra-Cluster Medium of galaxy clusters : case study of a simulation of the Virgo cluster

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Galaxy clusters are the most massive gravitationally bound structures in the Universe. They lie at the nodes of the cosmic web and are connected to each others by cosmic filaments. These objects are mostly made of dark matter which generates a gravitational potential well in which cosmic gas is trapped and heated, we call it the Intra-Cluster Medium (ICM). Assuming hydrostatic equilibrium, i.e. the balance between gravitational forces and pressure in the ICM, we can infer their mass from X-rays and sub-millimetre observations, and thus use them as cosmological probes. However, complex physics processes (e.g. turbulence, shocks, magnetic fields,⋯) happen in the ICM, which can lead to biased hydrostatic mass estimation. It is therefore crucial to investigate these process in order to accurately measure cluster's masses. In this talk, I will present some investigations about ICM physics in a case study of a simulation of the Virgo cluster.

Astrophysics Field

Cosmology

Day constraints

Pas présent à la conférence le mercredi matin et le jeudi matin

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