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Type: Oral presentation

Large Halo Sparsity, a Fast Detector and Chronometer for Galaxy Cluster Mergers

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Galaxy clusters have proven themselves to be valuable probes of cosmology and astrophysics. However observing galaxy cluster merger events can give us additional insight on the properties of gas inside the intra-cluster medium, dark matter physics or the theory of gravitation, it is therefore of prime interest to devise a fast and reliable way of detecting which clusters have undergone recent mergers.

Here we present a novel approach using halo sparsity and define thresholds $s_{200,500}^{th}(z)$ above which dark matter haloes can be considered as having undergone a recent major merger. We further expand this detection approach to estimate the approximate time at which the last major merger occurred. This work opens the way to detecting and timing major mergers in galaxy clusters solely through measurements of their mass at different radii.

Field

Cosmology

Day constraints

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Classification de Session: Talk

Classification de thématique: Astrophysics