Contribution ID: **47**　　　　　　　　　　　　　　　　　Type: **not specified**

2D thermodynamic maps: dynamical state, scatter, and systematics

Wednesday, 30 June 2021 12:00 (25 minutes)

The ICM often shows significant two-dimensional structure generated by mergers and/or AGN feedback. The presence of temperature and density inhomogeneities can cause biases in the determination of the azimuthal profiles (key inputs in the mass estimate from X-ray analysis), and so on the X-ray measured mass distribution. Thus, the more disturbed the cluster is, the more underestimated the X-ray cluster mass is expected to be.

Thanks to the high quality X-ray data available for the CHEX-MATE clusters we are in the position to obtain accurate thermodynamic 2D maps and investigate the systematics associated with the inhomogeneous gas distribution.

We analyzed a pilot sample of 25 clusters to obtain information about the dynamical state of the clusters and to access the systematic errors in cluster mass measurements due to departures from HE.

In the talk I will show how the maps can be used to complement the standard morphological analysis and to selectively remove the regions that significantly deviate from the azimuthal average value.

Primary authors: LOVISARI, Lorenzo; ETTORI, Stefano (INAF OA Bologna); Dr BOURDIN, Hervé (Università degli Studi di Roma "Tor Vergata"); MAZZOTTA, Pasquale (ROMA2); ECKERT, Dominique (Department of Astronomy, University of Geneva); DE LUCA, Federico (Istituto Nazionale di Fisica Nucleare)

Presenter: LOVISARI, Lorenzo