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Characterizing the bulk and turbulent gas motions in galaxy clusters

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We aim at characterizing the turbulent gas motions in the intracluster medium via the study of the statistics of the SZ distortion and X-ray surface brightness fluctuations. Our work is based on three complementary samples observed in SZ by Planck and/or NIKA2 and ACT, and in X by XMM-Newton, covering a wide range of redshifts and dynamical states of clusters. Characterizing the physical properties of these bulk and turbulent gas motions will help us to better understand the assembly of massive halos, hence the formation and the evolution of these large scale structures. We will present the results of our ongoing analysis from the X-ray and SZ data for a pilot sample of clusters. We will discuss the perspective of our work to the full LPSZ@NIKA2 sample.

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