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HE mass bias in The Three Hundred clusters

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Galaxy clusters are the most massive structures in the Universe and their mass plays a key role in the estimation of the cosmological parameters. The mass of these objects is estimated through X-rays and SZ (Sunyaev-Zeldovich) effect observations, from which the temperature, density and pressure profiles of the hot gas between the galaxies are extracted, then the hydrostatic equilibrium (HE) is used to estimate their mass. This method usually leads to an underestimation of the mass, as shown in numerical simulations. We use a set of almost 300 simulated clusters from The Three Hundred Project, in order to estimate the cluster hydrostatic mass, and the bias deriving from it. We study the dependence of the bias on several dynamical state indicators across a redshift range from 0.07 to 1.3. Moreover, some clusters experienced a merger in the redshifts of our interest, so we study the evolution of the bias during those events.

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