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## **New Cluster Weak Lensing Mass Constraints and their Implications for Cluster Baryonic Scaling Relations**

*Tuesday, 9 April 2024 14:25 (25 minutes)*

Cluster mass calibration using the DES weak lensing dataset as well as weak lensing informed cluster abundance analyses of ICM selected cluster samples from SPT, RASS and eROSITA offer new accuracy and precision for cluster mass measurements that can be used to improve studies of cluster baryonic scaling relations. We present new measurements of the ICM mass versus halo mass relation and their comparison to state of the art hydrodynamical simulations. These indicate increases of the ICM mass fraction with cluster mass that extend to the highest mass clusters studied. Through comparison of observed and simulated scaling relations one can constrain the range of baryonic impacts on the matter power spectrum by assigning a credibility to each set of hydro simulations. This effort should enable the extension of cosmic shear analyses to smaller scales by improving theoretical priors on the matter power spectrum. We highlight the implications of our new cluster measurements.

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