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Updating the mass calibration of the Planck cluster sample

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The second Planck catalogue of Sunyaev-Zeldovich sources (PSZ2) was originally presented by the Planck Collaboration as part of their 2015 data release. Along with the catalogue, a cosmological analysis was also published, conducted on the PSZ2 cosmological sample that contains 439 high signal-to-noise cluster candidates. However, this analysis was limited by the precision of its mass calibration, i.e. the relation between the measured observable, in this case the Sunyaev-Zeldovich (SZ) signal, and the underlying halo mass, an essential step to compare detected cluster counts with theoretical predictions of cluster abundance. The mass calibration was done with a scaling relation between SZ signal and hydrostatic mass derived with X-ray data, which was then corrected with the introduction of a hydrostatic mass bias calibrated with weak-lensing (WL) data. In this talk, I present the cosmological constraints we obtained with updated mass calibrations, using a larger X-ray sample and either a larger pointed WL observation sample or wide-field Dark Energy Survey (DES) shear data. I will compare these constraints with various other cosmological studies, with a particular focus on comparing the constraints derived with DES data with recent South Pole Telescope and eROSITA studies sharing the same mass calibration.

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