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Retrieving EoR constraints from small-scale CMB data with an improved kSZ model

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In this talk, I will present the first constraints on the reionisation timeline obtained from a consistent analysis of small- and large-scale CMB data, namely SPT and Planck. Utilising random forests trained to reconstruct the kinetic and thermal Sunyaev Zel'dovich angular power spectra from a set of cosmological and reionisation parameters, according to the Salvati+2018 and Gorce+2020 frameworks, we are able to retrieve the cosmological information enclosed in these foregrounds and obtain a direct measurement of the reionisation mid- and end-points. By breaking degeneracies between foreground amplitudes, this approach enables a 5 sigma measurement of the kSZ amplitude, with error bars cut in half compared to previous analyses. We also present the first direct measurement of the amplitude and shape of the patchy kSZ signal stemming from redshifts higher than 5.

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