

Constraining primordial gravitational wave amplitude and de-lensing of CMB maps - influence of Galactic foregrounds

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Detecting primordial gravitational waves (PGWs) is one of the main goals for upcoming Cosmic Microwave Background (CMB) experiments. Achieving this objective requires precise removal of the CMB gravitational lensing signal from polarisation maps – so-called de-lensing – as well as cleaning the maps from diffuse Galactic foregrounds. In this talk, I will present studies on influence of the Galactic emission on the reconstruction of the CMB lensing potential and de-lensing of the divergence-free component of CMB polarization maps. Using realistic foreground models of varying complexity, we test the sensitivity of constraints on the primordial gravitational wave amplitude and the σ_8 parameter to residual Galactic contamination and its interplay with de-lensing. Our results highlight that precise modelling and removal of Galactic emission will be crucial for reliably estimating the amplitude and σ_8 parameter in next-generation CMB experiments.

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