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Non-Gaussianity in CMB lensing

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CMB lensing is one of the most powerful techniques to describe the large-scale structures in the Universe. It extends our sight of structure evolution to very high redshift and can be used to constrain fundamental physical quantities, such as matter density and neutrino masses. Several competitive constraints have been achieved from the Planck CMB lensing power spectrum. However, the power spectrum method is inadequate to characterize all the information, especially the non-Gaussian information from small-scale non-linear evolution, which can be gleaned from ongoing and upcoming high-resolution ground-based CMB observations, such as AdvACT and CMB Stage-IV surveys. In this talk, I will discuss the feasibility of Minkowski functionals as morphological descriptors of CMB lensing and explore the impact given by the non-Gaussian reconstruction noise. I will also introduce a pipeline for full-sky CMB lensing simulations.

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