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Field-level inference of primordial non-Gaussianity, using next-generation galaxy surveys

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A significant statement regarding the existence of primordial non-Gaussianity stands as one of the key objectives of next-generation galaxy surveys. However, traditional methods are burdened by a variety of issues, such as the handling of unknown systematic effects, the combination of multiple probes of primordial non-Gaussianity, and the capturing of information beyond the largest scales in the data. In my presentation, I will introduce my pioneering work of applying field-level inference to constrain primordial non-Gaussianity galaxy surveys. I will discuss how my method can resolve the challenges faced by other approaches and how I can capture more information from the data compared to traditional methods. Additionally, I will explore the additional data products that my method enables and delve into other potential applications. Finally, I will briefly touch upon the future use of field-level inference to study the primordial universe, along with the promises and challenges inherent in this approach.

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