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Lifting the weak lensing degeneracy with a field-based likelihood. (Remote talk)

Friday 27 October 2023 09:00 (1 hour)

With Euclid and the Vera Rubin Observatory starting their observations in the coming years, we need highly precise and accurate data analysis techniques to optimally extract the information from weak lensing data. However, the standard approach based on fitting some summary statistics is inevitably suboptimal and imposes approximations on the statistical and physical modeling. I will present a new method to analyse weak lensing based on a full physics model and field-based statistics. By analysing the data at the pixel level, this method lifts the weak lensing degeneracy and provides uncertainties on the cosmological parameters up to a factor 5 smaller than those from standard techniques on the same data. In addition to a gravity model, the method accounts for intrinsic alignments and baryon feedback. I will discuss the current status and ways to meet the challenges of this approach for its first real data application.

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