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UNIONS: The impact of systematic errors on weak-lensing peak counts

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The Ultraviolet Near-Infrared Optical Northern Survey (UNIONS) is an ongoing deep photometric multi-band survey of the Northern sky. As part of UNIONS, the Canada-France Imaging Survey (CFIS) provides r-band data which we use to study weak-lensing peak counts for cosmological inference.
In this talk I will explain how I assess systematic effects for weak-lensing peak counts and their impact on cosmological parameters for the UNIONS survey. In particular, I will present results on local calibration, metacalibration shear bias, baryonic feedback, the source galaxy redshift estimate, intrinsic alignment, and the cluster member dilution.
For each uncertainty and systematic effect, I will describe our mitigation scheme and the impact on cosmological parameter constraints. I obtain constraints on cosmological parameters from MCMC using CFIS data and MassiveNuS N-body simulations as a model for peak counts statistics.
This work investigates for the first time with UNIONS weak-lensing data and peak counts the impact of systematic effects and I will present the different results obtained.

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Classification de Session: Joint galaxy clustering and lensing analysis