Contribution ID: **16**   Type: **not specified**

Cosmology beyond the average with one-point statistics

Thursday, June 30, 2022 9:30 AM (1 hour)

One-point statistics such as counts-in-cells capture essential non-Gaussian properties of the cosmic web, including peculiar regions of high and low density. I will show that those statistics not only provide information complementary to common two-point statistics, but also allow for accurate theoretical predictions. I will explain how matter counts-in-cells statistics and their dependence on cosmological parameters can be predicted from first principles. I demonstrate the power of the matter PDF and its complementarity to the matter power spectrum at mildly nonlinear scales for constraining wCDM parameters, the total neutrino mass, the primordial skewness and modified gravity parameters. Finally, I will give an outlook on how predictions for the matter PDF can be adapted to predict survey observables related to galaxy clustering and weak lensing.

Presenter: UHLEMANN, Cora