Contribution ID: **162** Type: **Plenary/Parallel talk**

Bias Expansion for Covariance Matrices

Monday 22 August 2022 15:20 (20 minutes)

Covariance matrices are a fundamental component in the process of constraining physical models from observations, determining the sensibility of the dataset to modifications in the model parameters. However, estimating them correctly presents many challenges; in particular, when computing this quantity using simulations, one must assume a galaxy formation model and a set of fiducial parameters. This represents a twofold limitation: on the one hand, the model or the chosen parameters may not represent well the relevant galaxy population; on the other hand, populating simulations with galaxies represents a large computational cost that sums to the already costly process of generating thousands of dark-matter only simulations. In this work, we are able to circumvent these issues by presenting an application of the bias formalism which allows us to obtain covariances for galaxies as a linear combination of quantities estimated from dark-matter only simulations, weighted by constant bias parameters. This allows one to vary agnostically the galaxy formation model used to build the covariances at essentially no computational cost.

Author: MAION, Francisco (Donostia International Physics Center)

Co-author: Dr ANGULO, Raul (Donostia International Physics Center)

Presenter: MAION, Francisco (Donostia International Physics Center)

Session Classification: Parallel Session Main Cupula: DM

Track Classification: Statistical Methods and Tensions in Cosmology