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Antisymmetric galaxy cross-correlations

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Galaxies are biased tracers of the underlying dark matter density field. If we work with a single tracer, its two-point function will be symmetric under exchange of the pair of galaxies under consideration. But if we look at two different tracers, then in principle their cross-correlation could be not symmetric (Dai et al. 2016). This locally antisymmetric signal arises naturally when the two tracers have different bias parameters, and it could provide additional information with respect to the standard power-spectrum, both on the clustering and on initial conditions. I will present the basic formalism, then build on it to add redshift space distortions and primordial non-Gaussianity. Finally, I present a way to build an estimator for this signal and to get an estimate of the signal-to-noise.

Primary author: VANZAN, Eleonora (Università degli Studi di Padova)

Co-authors: RACCANELLI, Alvise (Università e INFN, Padova (IT)); Prof. BARTOLO, Nicola (Università degli

Stdui di Padova, Italy)

Presenter: VANZAN, Eleonora (Università degli Studi di Padova)

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