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Constraining Cosmology with Persistent Homology

Tuesday, June 28, 2022 11:00 AM (1 hour)

Persistent homology naturally addresses the multi-scale characteristics of the large scale structure. I will discuss the specifics of its application to mock galaxy catalogues to construct a simple and interpretable summary statistic. With the Fisher matrix formalism, I will show that our approach outperforms the momentum-space statistics in constraining cosmological parameters and offers robustness against marginalization over nuisance parameters.

Presenter: YIP, Jacky (University of Wisconsin-Madison)