



Contribution ID: 5

Type: **not specified**

## Understanding the large scale dark matter distribution with machine learning algorithms.

*Thursday 30 May 2019 15:30 (15 minutes)*

Understanding the large scale dark matter distributions in the local Universe is one of the main goals in physical cosmology. However, this distribution is not directly observable and must be inferred from the observed galaxy distribution from large redshift surveys such as the Sloan Digital Sky Survey (SDSS) data or the upcoming of the Dark Energy Spectroscopic Instrument (DESI). In this talk we will show on how machine learning methods can help us to reconstruct the large scale dark matter distribution from observational data. As training data-sets we use different cosmological simulations, both hydrodynamical and semi-analytic. We present preliminary results for our reconstruction algorithms based on SDSS data and comment on its implications and strategies for improvement.

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**Session Classification:** Cosmology