Inferring dark matter substructure with global astrometry beyond the power spectrum

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Abstract

Abstract goes here

1 Introduction

2 Model and inference

Template regression

3 Tests on simulated data

4 Conclusions and outlook

Code and data used for reproducing the results presented in this paper is available at https://github.com/smsharma/sbi-astrometry.

Broader Impact

Accounting for epistemic uncertainty is crucial for making robust conclusions from data in machine learning applications. This work is part of the broader scientific effort to design and implement techniques that attempt to incorporate deficiencies in our ability to model consequential aspects of real-world data in a principled manner.

We acknowledge the importance of considering the ethical implications of scientific research in general, and machine learning research in particular, as well as of placing both the process and output of scientific research in a broader societal context. We do not believe the present work presents any issues in this regard.

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GPyTorch [3], HEALPix [4, 5], IPython [6], Jupyter [7], Matplotlib [8], NumPy [9], Pyro [10], PyTorch [11], SciPy [12], and Seaborn [13] software packages.

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