BOSTON UNIVERSITY

Boston University College of Arts & Sciences
Institute for Astrophysical Research

2023—2024 ASTROPHYSICS SEMINAR SERIES

Exploring the cosmic puzzles with gravitational lensing and machine learning

The measured expansion rate of the universe is faster than expected from the standard model of cosmology. Independent of this 'cosmic expansion puzzle', the growth of large-scale structure also appears slower than expected. I will summarize the status of these cosmic puzzles and possible resolutions, focusing on measurements of weak gravitational lensing. The question of how much information is contained in galaxy surveys is still wide open. I will describe the state of play using both analytical statistics that theorists love and deep learning approaches that evoke mixed feelings. I will also introduce transformers, a promising new architecture for astronomical data (as well as chatGPT).

Monday, November 6th
3:30 - 4:30 p.m.
CAS 502

Bhuvnesh Jain
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