

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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## *Probing Cosmic Inflation with Galaxy Surveys*

Mikhail Ivanov  
IAS

The distribution of galaxies on large scales is a sensitive probe of cosmological physics. In particular, the initial conditions for structure formation are set by the dynamics of the early universe. Thus, the galaxy distribution provides us with a unique tool to probe the primordial accelerated expansion, also known as cosmic inflation. Understanding the exact dependence of the observed structure on details of inflation is, however, a challenging task because the observed galaxy distribution is modulated by a variety of non-linear effects. I will present innovative theoretical tools that have allowed for a systematic analytic description of these effects. These tools play a central role in a new program of extracting information about inflation from galaxy surveys. I will share some results of this program from my independent analyses of the public data from the Baryon acoustic Oscillation Spectroscopic Survey. These results include new constraints on non-linear interactions during inflation, the inflation speed of sound, and parity violation in the cosmological initial conditions.

Tuesday, November 15, 2022, 2:30 pm

Hybrid talk

In person at Cosman Seminar Room

Center for Theoretical Physics

Building 6C, Room 6C-442

Zoom link will be distributed to joint cosmology seminar mailing list. See <https://cosmos.phy.tufts.edu/mailman/listinfo/cosmology-seminar> to join.

Massachusetts Institute of Technology

Refreshments at 2:00 in the same room