

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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*Primordial Stochastic Gravitational-Wave  
Background from a Sharp Small Scale  
Feature in Multi-field Inflation.*

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Inflation is among the cosmological sources of SGWB. Single-field slow-roll inflation, without features, predicts an  $\Omega_{\text{GW}}$  that is almost constant in frequency and whose magnitude is well below the sensitivity level of future detectors. However, single-field models with periods of ultra-slow rolling or rapid-turning multi-field models of inflation can source detectable gravitational waves to second order in perturbation theory. For example, a brief, rapid turn in field space is a departure from single-field behavior and sources both a feature in  $\mathcal{P}_\zeta$  (at shorter scales than observed by CMB and LSS) and the Stochastic Gravitational-Wave Background (SGWB). We will present evidence that the shape of this SGWB signal is mostly independent of the number of dynamical fields and has an enhanced amplitude sourced by the large isocurvature transient, opening a new window of detectable parameter space with small adiabatic enhancement.

Tuesday, October 1, 2024, 2:30 pm  
Cosman Seminar Room  
Center for Theoretical Physics  
Building 6C, Room 6C-442  
Massachusetts Institute of Technology