

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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## *Inflation and the quantum measurement problem*

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Perhaps the most interesting aspect of inflationary paradigm is that it traces the origin of structure in the Universe to quantum zero-point fluctuations. However, the mechanism assumes a "quantum non-demolition measurement." In this talk, I will propose a new solution to this cosmological quantum measurement problem. Our solution is an effective collapse mechanism arising from two-body self-interaction of Fourier modes of cosmological perturbations, inspired by weakly-interacting Bose gases, to be contrasted with traditional fundamental modifications to the Schrodinger equation. By appropriately setting the coupling between modes, we recover the standard (nearly) scale-invariant power spectrum of cosmological perturbations. This talk is based on arXiv:1602.01216 [gr-qc].

**Tuesday, April 26, 2016, 2:30 pm**  
**Cosman Seminar Room**  
**Center for Theoretical Physics**  
**Building 6C, Room 6C-442**  
**Massachusetts Institute of Technology**

Refreshments at 2:00 in the same room