

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

---

## *Primordial gravitational waves from tidal imprints in large-scale structure*

**Kiyoshi Masui**  
MIT

I will describe a tidal effect whereby the decay of primordial gravitational waves leaves a permanent shear in the large-scale structure of the Universe. Future large-scale structure surveys - especially radio surveys of high-redshift hydrogen gas - could measure this shear and its spatial dependence to form a map of the initial gravitational-wave field. The three dimensional nature of this probe makes it sensitive to the helicity of the gravity waves, allowing for searches for early-Universe gravitational parity violation. Due to the large number of measurable modes in the high-redshift large-scale structure, these tidal imprints could ultimately be more sensitive than searches for CMB B-modes, and could be used to test the inflationary tensor-mode consistency relation.

**Tuesday, November 19, 2019, 2:30 pm**  
**574 Boston Ave, Room 316**  
**Tufts University**

Refreshments at 2:00 outside room 304