

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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## *Weyl Fermion Creation by Cosmological Gravitational Wave Background at 1-loop*

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Weyl fermions, when minimally coupled to Einstein's gravity, cannot be produced purely gravitationally in an expanding universe. However, this picture changes at the gravitational 1-loop level in the presence of cosmic perturbations, leading to a new and unavoidable mechanism for gravitational particle production. In this talk, I will explore the theory and rich phenomenological implications of this new particle production mechanism. Notably, if Weyl fermions acquire mass and assuming a realistic—and potentially detectable—gravitational wave background, this mechanism could explain the abundance of dark matter in the Universe.

**Tuesday, October 8, 2024, 2:30 pm**

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

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