

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Matter-graviton inter-conversion via parametric resonance

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Parametric resonance is the instability induced by a periodical driving force whose frequency equals to twice of the intrinsic frequency of the system (speaking of the 1st narrow resonance band of the Mathieu equation). In my talk, I will start from the Klein-Gordon equation expanded up to linear order in gravitational waves, and show that it is actually a Mathieu equation: namely the gravitational waves can cause the exponential instability of the scalar in the Klein-Gordon equation. The same conclusion applies to the Maxwell equation. Nextly, the inverse process, namely the matter-to-graviton conversion via parametric resonance will also be introduced, and then further generalised to the theories beyond the general relativity.

Tuesday, October 3, 2023, 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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