

JOINT TUFTS/MIT COSMOLOGY SEMINAR

The Hunt for New Fundamental Physics in Gravitational Waves

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In this talk I will discuss various connections between gravitational waves and particle physics from the perspective of a particle theorist. I will kick things off with a quick overview of the gravitational wave experimental landscape before turning to the various signals that populate this space. In this context I will briefly talk about recent work on super-cooled phase transitions (2212.08085) before turning the bulk of my attention to the role non-minimally coupled scalars to gravity (i.e a direct coupling between the scalar field and the Ricci curvature scalar) play in the early Universe. These scalars play an important part in reheating (see 1905.06823 and 2112.08388) and can exhibit interesting dynamics as they come to dominate the energy density. Of particular interest are the scenarios where the scalar in question is the Standard Model Higgs.

Tuesday, February 7, 2023, 2:30 pm
Cosman Seminar Room
Center for Theoretical Physics
Building 6C, Room 6C-442
Massachusetts Institute of Technology