

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Rethinking the Origin of Small Neutrino Masses

Lena Funcke

MPP and LMU Munich

The observed small neutrino masses are one of the greatest mysteries in current theoretical particle physics. Many possible origins have been proposed so far, such as the see-saw mechanism, radiative corrections, or large extra dimensions. While all these models have been connected in some way to the Higgs condensate, we propose a substantially different mechanism based on nonperturbative gravity: assuming that gravity contains a topological θ -term analogous to the famous θ -term of QCD, we show that a neutrino condensate emerges and effectively generates the small neutrino masses. This neutrino mass generation mechanism implies numerous phenomenological consequences, such as the invalidity of the cosmological neutrino mass bound, enhanced neutrino-neutrino interactions, and neutrino decays.

Tuesday, October 25, 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