



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar

Gowri Kurup

Cornell

Conformal Freeze-In of Dark Matter



In this talk, I will discuss our recent work on the conformal freeze-in (COFI) scenario for dark matter production. At high energies, the dark sector is described by a gauge theory flowing towards a Banks-Zaks fixed point, coupled to the standard model via a non-renormalizable portal interaction. At the time when the dark sector is populated in the early universe, it is described by a strongly coupled conformal field theory. As the universe cools, cosmological phase transitions in the standard model sector, either electroweak or QCD, induce conformal symmetry breaking and confinement in the dark sector. One of the resulting dark bound states is stable on the cosmological time scales and plays the role of dark matter. Conformal bootstrap puts a non-trivial constraint on model building in this case.

Wednesday, Oct. 30, 2019

2:00pm

401 Physical Sciences Building