



LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar



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**Hybrid seesaw
leptogenesis and TeV
singlets**

The appealing feature of inverse seesaw models is that the neutrino mass emerges from the exchange of TeV scale singlets with sizable Yukawa couplings, which can be tested at colliders. However, the tiny Majorana mass splitting between TeV singlets is left unexplained. Moreover, we argue that these models suffer from a structural limitation that prevents a successful thermal leptogenesis if Yukawa couplings are unsuppressed. In this talk, I will introduce a hybrid seesaw model, where we replace the mass splitting with a coupling to a high scale seesaw module including a TeV scalar. I will show that this structure achieves the goal of filling both the above gaps with couplings of order unity. The necessary structure automatically arises embedding the seesaw mechanism in composite Higgs models. Our hybrid seesaw models have an interesting interplay between high scale and TeV scale physics in leptogenesis and enlarges the range of allowed high scale singlet masses.

Wednesday, Sept 5, 2018

2:00pm

401 Physical Sciences Building