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Type-I Seesaw as the Common Origin of Neutrino Mass, Baryon Asymmetry, and the Electroweak Scale

Monday 21 October 2019 17:00 (20 minutes)

In this talk, I will discuss some recent work on resonant leptogenesis in the context of the so-called “neutrino option”. The “neutrino option” denotes the idea that the Higgs mass parameter results entirely from heavy-neutrino threshold corrections in the type-I seesaw extension of the Standard Model. This is possible for a heavy-neutrino mass scale of the order of 10^6 to 10^7 GeV, provided that the Higgs scalar potential satisfies classically scale-invariant boundary conditions at high energies. In my talk, I will describe the viable parameter space of this scenario, which is consistent with (1) the low-energy data on neutrino oscillations, (2) the observed value of the baryon asymmetry, and (3) electroweak symmetry breaking with a 125 GeV Higgs boson. In addition, I will highlight some interesting implications for high-energy flavor models and low-energy neutrino observables. This talk is based on work in collaboration with Vedran Brdar, Alexander J. Helmboldt, and Sho Iwamoto [1905.12634]. I will also refer to the closely related work by I. Brivio, K. Moffat, S. Pascoli, S.T. Petcov, and J. Turner [1905.12642].

Presenter: SCHMITZ, Kai Ruven (CERN)**Session Classification:** Baryogenesis