

Abstract Submitted  
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**Leptogenesis in the Presence of New Forces**<sup>1</sup> INA FLOOD, BRIAN SHUVE, Harvey Mudd College — We study the viability of leptogenesis in scenarios where new forces are coupled to the right handed neutrinos (RHNs) responsible for generating the lepton asymmetry. In our study, we focus on the specific mechanism of leptogenesis via neutrino oscillations. This model predicts new, low-mass particles which could in principle be produced in existing experiments, but these new particles may interact so weakly that they are difficult to observe. Recent proposals have suggested that right handed neutrinos have better detection prospects at colliders if they are coupled to other forces beyond those of the Standard Model. We investigate for what parameters these observable models would be compatible with leptogenesis, since the increased coupling which improves detection prospects could violate the out-of-equilibrium condition needed to generate an asymmetry. We include the effects of RHN scattering in the Boltzmann equations describing the evolution of the lepton asymmetry, and we study the solutions numerically and analytically. Preliminary results show that new forces can lead to a dramatic suppression of the asymmetry, prompting study of models with direct applicability to colliders.

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