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Probing Leptogenesis with Gravitational Waves

Friday 21 July 2023 15:20 (20 minutes)

I will review different ideas to probe leptogenesis with gravitational waves caused by first-order phase transitions or cosmic strings. In particular, I will focus on local cosmic strings produced after the breaking of a U(1)_(B-L) gauge symmetry that gives masses to right-handed neutrinos. Cosmic strings are expected to produce a stochastic gravitational background that could be probed experimentally in the very near future by e.g. LISA. In our work, we investigate what impact an observation of stochastic gravitational waves originating from U(1)_B-L cosmic strings could have on our understanding of mechanisms that are relevant for leptogenesis. In particular, we scrutinize whether particle production from local cosmic strings in the early universe could have affected leptogenesis via non-thermal production of right-handed neutrinos.

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