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Gravitational Wave Signatures of Baryonic Dark Matter

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Gravitational waves provide a unique method of testing theories with extended gauge symmetries. In particular, spontaneous symmetry breaking can lead to a detectable stochastic gravitational wave background generated by cosmic strings and first order phase transitions in the early universe. I will discuss the unique gravitational wave signature of a dark matter model with gauged baryon and lepton numbers, in which a high scale of lepton number breaking is motivated by the seesaw mechanism for the neutrinos, whereas a low scale of baryon number breaking is required by the observed dark matter relic density. This novel signature can be searched for in near-future gravitational wave experiments.

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