

Leptophilic dark matter from gauged lepton number: Phenomenology and gravitational wave signatures

Thursday, 24 May 2018 16:50 (20 minutes)

In this work, we consider a model in which the SM is extended by a lepton number gauge group $U(1)_L$. The arising gauge anomalies are canceled by adding two sets of SM vector-like leptons. We further add a scalar field that spontaneously breaks $U(1)_L$. A residual global symmetry ensures the stability of the lightest additional lepton, thus providing a dark matter candidate. We investigate current and future constraints on the model from collider searches as well as dark matter experiments. We further study the lepton number breaking phase transition, particularly focusing on its potential to generate a stochastic gravitational wave background accessible to GW interferometry as a complementary way to probe the model.

Presenter: MADGE, Eric

Session Classification: Parallel Session on Astro-DM II