

# Testability of Heavy Neutral Leptons as origin of the Baryon Asymmetry of the Universe

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The nuMSM is the Standard Model extended by three right-handed neutrinos with Majorana masses below the electroweak scale. The lightest of them is a candidate of dark matter, which is known as sterile neutrino dark matter. Other two heavier particles with quasi-degenerate masses of  $O(1)$  GeV are responsible to explain the masses of ordinary neutrinos and baryon asymmetry of the universe (BAU). In order to produce the observed abundance of dark matter without contradiction to bounds from X-ray observations and structure formation, the dark matter candidate has to be produced resonantly with a large lepton asymmetry, and only the heavier particles can be the source of lepton asymmetry in this extended model. We discuss the lepton asymmetry production via right-handed neutrino oscillation, which is same mechanism to explain the BAU, and the evolution in plasma with cosmological magnetic field.

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