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Studying the Full Phase Space of Sterile Neutrino Dark Matter from a B-L Phase Transition

Thursday 31 August 2023 22:00 (5 minutes)

Sterile Neutrinos are well motivated Dark Matter candidates. They arise naturally in models with gauged $U(1)$ B-L symmetries to avoid anomalies. While previous studies have focused on the Sterile Neutrino abundance, knowing their spectrum is important to determine whether they can actually explain the observed Dark Matter. I numerically solve the full Boltzmann equation for Sterile Neutrinos in a model with a supercooled B-L phase transition. I identify regions in the parameter space spanned by the mass of the new Z' boson and its gauge coupling where the Sterile Neutrinos thermalize or where they keep a non-thermal spectrum. This allows to compare the model to structure formation constraints.

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Session Classification: Posters of thursday (ignore time)