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Gravitational Wave-Induced Freeze-In of Fermionic Dark Matter

Tuesday, June 25, 2024 3:00 PM (1h 20m)

The minimal coupling of massless fermions to gravity does not allow for their gravitational production solely based on the expansion of the Universe. In this talk I will explain that changes in the presence of realistic and potentially detectable stochastic gravitational wave backgrounds. Next, I will discuss the resulting energy density of Weyl fermions at 1-loop. If the initially massless fermions eventually acquire mass, this mechanism can explain the dark matter abundance in the Universe. Remarkably, it may be more efficient than conventional gravitational production of superheavy fermions.

Presenter: MALEKNEJAD, Azadeh (King's College London)