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Stable dark matter from Pauli blocking in the degenerate fermion background with Quantum Field Theory

Thursday, 21 August 2025 16:30 (20 minutes)

We study a mechanism to make dark matter stable based on the Pauli blocking in the fermion background. In the background where fermions occupy the states, the decay of dark matter to those final states is not allowed, as a result, DM becomes stable.
We derive the evolution equations of the distribution function in the quantum field theory and compare it with the Boltzmann equation.
We apply this mechanism to a realistic model of neutrino and dark matter.

Primary authors: CHO, Wonsub (SungKyunKwan University); CHOI, Ki-Young (Sungkyunkwan University); JOH, Junghoon (SungKyunKwan University); SETO, Osamu (Hokkaido University)

Presenter: JOH, Junghoon (SungKyunKwan University)

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