The 3rd KMI School：Machine Learning in Particle and Astrophysics

Contribution ID : 13

Breakout room #1: Non-abelian vector dark matter model with electroweak interactions

Tuesday 17 Nov 2020 at 14:20 (01h40')

Content :

In this presentation, we propose a new electroweakly interacting spin-1 DM model. We consider the non-Abelian extension of electroweak symmetry. Namely, we extend the SU(2)_L group in the Standard Model(SM) into the direct products of three SU(2) groups. We also impose the exchange symmetry between two of these SU(2) groups to stabilize the spin-1 DM candidate. In this setup, the DM pair annihilate into SM particles through the electroweak interaction efficiently. Therefore, we obtain the correct DM energy density via the freeze-out mechanism while evading the current strict bounds from the DM direct detection experiments. We show the parameter region where we obtain the correct DM energy density and discuss the future detectability of this model. This talk is based on JHEP 07 (2020) 136 [arXiv:2004.00884].

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