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A fermionic portal to vector dark matter from new gauge sector

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We suggest a new class of models – Fermionic Portal Vector Dark Matter (FPVDM) which extends the Standard Model (SM) with $SU(2)_D$ dark gauge sector. While FPVDM does not require kinetic mixing and Higgs portal, It is based on the Vector-Like (VL) fermionic doublet which couples the dark sector with the SM sector through the Yukawa interaction. The FPVDM model provides a vector Dark Matter (DM) with Z_2 odd parity ensuring its stability. Multiple realisations are allowed depending on the VL partner and scalar potential. In this talk, we discuss an example of minimal FPVDM realisation with only a VL top partner and no mixing between SM and new scalar sectors. We also present the model implications for DM direct and indirect detection experiments, relic density and collider searches.

In-person participation

Yes

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