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Completing the Exploration of the Minimal Dark Matter Paradigm

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The Minimal Dark Matter idea postulates that the dark matter can be the neutral component of an $SU(2)_L$ multiplet. This idea has been intensively studied for the case of fermion and scalar fields. For many years, our group have extended this paradigm to the case of massive vector fields. We have studied the phenomenology of vector dark matter for vector fields in the fundamental, adjoint and 5-dimensional representations of $SU(2)_L$, completing the exploration of the Minimal Dark Matter paradigm. In this talk, we will recapitulate on the main results of these models, discuss their limitations and possible extensions, including some ultraviolet completions.

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