Contribution ID: **17** Type: **not specified**

Dark Matter from a vector field in the fundamental representation of SU(2)

Wednesday 9 May 2018 13:30 (15 minutes)

We explore a simple extension of the Standard Model which incorporates a vector field in the fundamental representation of SU(2)L as the only non-standard degree of freedom. This kind of field may appear in models where a new strong sector produce the Higgs doublet as a composite state but does not break the chiral symmetry. We study the model in the presence of a discrete Z2 symmetry. As a consequence, the neutral CP-even component of the new vector field becomes a Dark Matter candidate. We constraint the values of the model parameters from unitarity bounds, h $\longrightarrow \gamma\gamma$ measurements, electroweak precision tests, cosmological observations and current dark matter searches.

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Session Classification: Short Communications