

A stable vacuum with vector dark matter

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I will discuss an extension of the Standard Model by an additional $U(1)$ gauge group and a complex scalar Higgs portal. As the scalar is charged under this gauge factor this simple model supplies a vector dark matter candidate satisfying LUX bounds, the observed relic abundance and limits from direct dark matter searches. An additional Higgslike state, that may be heavier or lighter than the observed Higgs, is present and satisfies LEP and LHC bounds whilst allowing for absolute stability of the electroweak vacuum in a range of parameter space.

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