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Vector dark matter and Fermi LAT gamma ray line

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We propose a model for vector dark matter with an extra U(1) gauge symmetry broken by the VEV of a complex singlet scalar. Due to the mixing between the singlet scalar and the Standard Model Higgs doublet, the relic density of vector dark matter can be consisitent. The model may contain a charged scalar. the annihilation of vector dark matter into two photons can be sizable enough to account for the excess of the Fermi-LAT gamma ray line.

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