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Flavored dark matter

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We consider the possibility that dark matter and Standard Model flavor are related. We take dark matter to belong to a dark sector which contains at least two types of particles. We then identify these as different “flavors” in the dark sector, and then hypothesize that the dark sector and the SM share a common flavor interaction. As interaction eigenstates and mass eigenstates need not coincide, we consider flavor-changing and flavor-conserving interactions. These interactions are then constrained by kaon mixing, meson decays, direct detection, and current collider bounds, and we examine their relevance for direct detection and LHC.

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