

Abstract Submitted  
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**Mass-Eigenstate Scattering and Conversion of Non-Relativistic Self-Interacting Flavor-Mixed Dark Matter Particles**<sup>1</sup> A. FORD, M.V. MEDVEDEV, U. Kansas — Some Cold Dark Matter candidates are flavor-mixed particles. Recently, it has been shown that a collision (scattering) of two non-relativistic flavor-mixed particles, as in a self-interacting dark matter model, can cause the particles to experience mass eigenstate conversions, which in turn can ultimately lead to their escape from a trapping gravitational potential of a dark matter halo. Such a process has an important effect on the large scale structure formation and provides an elegant solution to several outstanding cosmological problems. Here we study elementary processes involving flavor-mixed particles – elastic scatterings and conversions – and calculate cross-sections of these processes under various conditions. Our results are of great importance for fundamental theory of the interaction of mixed particles and for understanding of the cosmological structure formation.

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