Warsaw Workshop on Non-Standard Dark Matter:
 multicomponent scenarios and beyond

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Effective Operator Models for Semi-Annihilating Dark Matter

Content :

Semi-annihilation is a generic feature of dark matter which is stabilized by a symmetry group larger than Z2. We systematically classify and enumerate effective operators up to dimension 6 for scalar and/or fermionic dark matter, with a focus on models where annihilation is suppressed. We show when and how different two-to-two processes are generated from a single effective operator. We additionally use searches for high energy gamma rays, positrons and neutrinos to set limits on the Wilson coefficients of these operators for models with a unique dark matter candidate. Finally we briefly discuss complete models inspired by this framework.

Primary authors : Dr. SPRAY, Andrew (Institute for Basic Science)

Co-authors : Dr. CAI, Yi (University of Melbourne)

Presenter : Dr. SPRAY, Andrew (Institute for Basic Science)

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