

Cracking Open the Window for Strongly Interacting Massive Particles as the Halo Dark Matter

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In the early 1990's, an analysis was completed by several theorists of the available mass/cross-section parameter space for unusual particle candidates to solve the dark matter problem (e.g. SIMPs, CHAMPs). This analysis found several unconstrained windows, such that for SIMP masses and cross-sections within these windows, SIMPs could still be the dominant dark matter in our Galactic halo. Since the early 1990's, some of these windows have been narrowed or closed, and some of these windows have been widened further by more careful analysis. We will summarize the present state of the SIMP parameter space, and point to the cosmological salience of SIMPs as dark matter, given some of the present inadequacies of the WIMP solution to the dark matter problem.