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Two component dark matter model in light of Beam Dump experiments.

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We study a scalar dark matter (DM) model with two DM species coupled to standard model (SM) particles via a sub-GeV dark photon. The two DM candidates can be produced at fixed-target experiment a la Beam-Dump. Predictions for signal and backgrounds are obtained with the help of MadDump and NuWro Montecarlo generators. We explore the potential reach on the sensitivity of DUNE near detector and SHiP experiment and analyze the constraints coming from current limits on DM observables such as relic density and DM conversion in the early universe.

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