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GeV scale strongly-interacting dark sectors at beam dump experiments

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A natural dark matter candidate in many theories of strongly-interacting dark sectors is the dark pion π_D, which is a composite particle that is expected to have a mass close to or below the GeV scale. In many cases, these theories also contain a light vector meson, ρ_D , that can be produced together with dark pions through dark showers created in particle collisions. Cosmological and astrophysical arguments favor the scenario $m_{\rho_D} < 2m_{\pi_D}$, which implies visible decays of the ρ_D mesons and makes the model testable at accelerators. In this talk I will show that beam-dump experiments sensitive to feebly-interacting long-lived particles can be a valuable tool for probing such strongly-interacting dark sectors and present the projected sensitivity of the upcoming SHiP experiment.

Secondary track

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