Particle Physics on the Plains 2024



Contribution ID: 3

Type: not specified

Navigating the flood of electromagnetic secondary production at SHiP

Sunday 3 November 2024 10:12 (18 minutes)

We perform a simulation of dark-vector production from electromagnetic cascades at SHiP. The cascades are initiated by photons from $\pi^0 \rightarrow \gamma \gamma$, and lead to substantial increases in sensitivity for long-lived dark vectors with masses below $\sim 50 - 300$ MeV. The dominant production mode in the regions of new sensitivity is $e^+e^- \rightarrow V(\gamma)$. New sensitivity projections for dark photons and gauged $L_i - L_j$ models are provided for SHiP and compared to previous literature.

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Session Classification: Beyond the Standard Model Phenomenology 2