

Dark Photon from Light Scalar Boson Decays at FASER

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FASER is one of the promising experiments which search for long-lived particles in beyond standard models. In this paper, we focus on dark photon associating with an additional $U(1)$ gauge symmetry, and also a scalar boson breaking this $U(1)$ gauge symmetry. We study the sensitivity to the dark photon originated from $U(1)$ -breaking scalar decays. We find that sizable number of the dark photon signatures can be expected in wider parameter space than previous studies.

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