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Sensitivity to Decays of Long-Lived Dark Photons at the ILC

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Many theories suggest that new particles could have measurably long lifetimes, requiring dedicated search methods not typically used in studies of particles with prompt decays. We present a study on the sensitivity to long-lived dark photon production via dark Higgs decay with the proposed Silicon Detector for the future International Linear Collider (ILC). The ILC is designed to produce a large number of Higgs bosons in an environment cleaner than what is typical of hadron colliders, providing an opportunity to detect low-mass displaced particles and previously unseen Higgs decays to long-lived weakly-interacting particles. This is the first projection for long-lived particle detection at the ILC, and the sensitivity to long-lived dark photons that we have determined can be used as a benchmark for other long-lived searches.

In-person or Virtual?

In-person

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