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Long-lived dark photons at the ILC

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Searches for light, weakly coupled particles are an important component of the physics program at present and future colliders. A classic benchmark for a potential vector-boson mediator between the standard model and the dark sector is the hypothetical dark photon, which could be produced either directly or through a dark Higgs boson. As part of the US Snowmass process, we are studying the sensitivity for detection of long-lived dark photons at the ILC, using the Higgs portal production mode and displaced decays of long-lived dark photons as a benchmark to study the SiD detector performance for detection of displaced decays. In this talk, we will outline our plans for the study, and discuss progress so far, including first looks at both fast and full SiD simulation of long-lived dark photons produced via Higgs-strahlung at $\sqrt{s} = 250$ GeV.

Time Zone

Americas

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