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Dark Photon Search with Drell-Yan-Like Process SHIVANGI PRASAD, JEN-CHIEH PENG, Univ of Illinois - Urbana — Many models of physics beyond the Standard Model predict the existence of dark photon (A'), which is the gauge boson for a new U(1)' group in the dark sector. Through the kinetic mixing term in the Lagrangian, the dark photon can effectively couple to the Standard Model electromagnetic current with a strength reduced by a factor ϵ. Extensive searches for dark photon have been reported for fixed-target and collider experiments using electron and hadron beams. We have considered a Drell-Yan-like process for A' production, where a quark-antiquark pair annihilates into a dark photon, which then decays into a pair of charged leptons. The A' signals could be distinguished from the Drell-Yan background through the decay vertex and accurate mass measurements. Formulation for this Drell-Yan-like process for A' production will be presented. Application of this process for some ongoing and future fixed-target experiments will also be discussed.

Shivangi Prasad
Univ of Illinois - Urbana

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