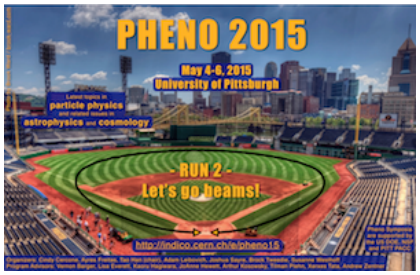

Contribution ID: **147** Type: **parallel talk**

Dark Matter Searches with a Mono-Z' Jet

Monday 4 May 2015 16:30 (15 minutes)

We study collider signatures of a class of dark matter models with a GeV-scale dark Z'. At hadron colliders, the production of dark matter particles naturally leads to associated production of the Z', which can appear as a narrow jet after it decays hadronically. Contrary to the usual mono-jet signal from initial state radiation, the final state radiation of dark matter can generate the signature of a mono-Z' jet plus missing transverse energy. Performing a jet-substructure analysis to tag the Z' jet, we show that these Z' jets can be distinguished from QCD jets at high significance. Compared to mono-jets, a dedicated search for mono-Z' jet events can lead to over an order of magnitude stronger bounds on the interpreted dark matter-nucleon scattering cross sections.

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