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**Daniel Snowden-Iff (Occidental College):
BDX-DRIFT: A low-energy, low-background,
directional search for light dark matter at
accelerators**

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Electron beam dump experiments have been shown to have high sensitivity to light dark matter at accelerators (LDMA). In these experiments high-intensity, multi-GeV electron beams directed at fixed targets can produce, because of couplings to charge, light dark matter particles. With their weak couplings these light dark matter particles easily pass through the beam dump plus, typically, large amounts of shielding, where they can interact with target nuclei in a detector. With its unique directional and background rejection capabilities, the Directional Recoil Identification From Tracks (DRIFT) technology is ideally suited to search for elastic nuclear recoils from LDMA. We propose to search for directional low-energy LDMA-induced recoils utilizing the negative-ion TPC technology developed for DRIFT. Preliminary work, including a test run at SLAC, suggests that a DRIFT detector would have sensitivity rivaling the best limits on LDMA and provide a smoking-gun directional signature in the event of discovery.

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