Contribution ID: **359** Type: **Oral Presentation**

The DRIFT Dark Matter Search

Saturday 11 June 2011 10:10 (20 minutes)

The Directional Recoil Identification From Tracks (DRIFT) detector is a 1 mˆ3 scale negative ion TPC operating in the Boulby Mine in England. DRIFT is one of only a few dark matter experiments that has sensitivity to the directionality signature expected from dark matter particles due to our motion through the galaxy. We will review the DRIFT technology and its directional capabilities, and present recent results on spin dependent limits for the WIMP-proton cross-section.
Our primary background are from low-energy nuclear recoil events due to radon progeny plated out on the detector's wire central cathode. In the past year we have installed a new thin-film central cathode, which has resulted in a dramatic background reduction in the current data being taken underground. We have also developed additional background rejection techniques that are being tested and show promise. We will describe our background rejection work and summarize our plans for the future, which include a scale-up to a larger detector.

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Session Classification: Gaseous Detectors

Track Classification: Gaseous Detectors