Abstract Submitted
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The DRIFT Directional Dark Matter Experiments[1] JOHN HARTON, Colorado State University, DRIFT COLLABORATION — The DRIFT dark matter collaboration aims to detect the sidereal modulation of the dark matter signal through measurement of spatial components of the recoil nucleus direction from WIMP-nucleon interactions. DRIFT uses low-pressure negative-ion time projection chambers to measure recoil nuclei, and the recoiling nuclei, from a standard WIMP halo, would typically leave a millimeter-scale ionization track in the chamber. The rotation of the Earth on its axis combined with the motion of the solar system through the WIMP halo creates the sidereal modulation. This sidereal ("daily") modulation is the change in average direction of the recoils over the course of the sidereal day, which for the DRIFT detector, located in England, changes from generally down to south once a (sidereal) day. Recent advances in background rejection are allowing DRIFT-IId to run background free. And measurement of the interaction location along the ion drift direction has recently been enabled by adding a small amount of oxygen to the drift gas. This talk will report on these recent advances and show current limits, as well as describe plans for future DRIFT detectors.

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