Contribution ID: **151** Type: **Contributed Poster**

A Directional Dark Matter Detector

Thursday 15 September 2005 10:30 (30 minutes)

DRIFT (Directional Recoil Identification From Tracks) is a Time Projection Chamber (TPC) that can provide directional signature. As the Earth rotates and revolves around the Sun a diurnal and annual signal modulation could be detected as a result of relative motion between the Earth and a non-rotating WIMP halo - providing very strong background discrimination.
Currently operational and taking WIMP data, the DRIFT-II detector is an array of CS2 gas filled TPCs where ionization from a recoiling target nucleus is drifted to a Multi Wire Proportional Counter (MWPC) readout plane. Low pressure CS2 gas has proven to reduce diffusion of the track by drifting negative ions as opposed to electrons, and discrimination between electron and nuclear recoils is excellent [3]. Track reconstruction then gives energy loss and recoil direction. Thus, DRIFT-II not only has the potential for providing information on WIMP number density and distribution within the halo, but it can also discriminate between different WIMP halo and stream models.

Author: Mr GHAG, Chamkaur (University of Edinburgh)

Co-author: Mr PLANK, Steven (University of Edinburgh)

Presenter: Mr PLANK, Steven (University of Edinburgh)

Session Classification: P : Coffee and Poster Session

Track Classification: Applications in Space Science