

A maximum-likelihood-method search for low-mass WIMPs using the CDMS II experiment

Monday, 9 September 2013 17:40 (20 minutes)

The Cryogenic Dark Matter Search II (CDMS II) operated a set of germanium detectors with a payload of 4.75 kg. A subset of these detectors with the lowest energy thresholds were chosen to search for low-mass weakly interacting massive particles (WIMPs), a contender for the dark matter posited in the Universe. Two new searches were performed: an annual-modulation search for WIMPs as the flux changes due to the Earth's motion through the WIMP halo and a maximum-likelihood method to estimate the backgrounds and possible WIMP signal component, where the signal would appear as an exponential excess of nuclear recoil events. This talk discusses the CDMS II experiment and presents the status of the annual-modulation search and the maximum-likelihood analysis.

Primary author: NELSON, Robert (Cal Tech)

Presenter: NELSON, Robert (Cal Tech)

Session Classification: Dark Matter II

Track Classification: Dark Matter