

Search for Event Rate Modulation in XENON100 Electronic Recoil Data

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XENON100 is currently one of the world leading dark matter direct detection experiments using a dual phase Xenon time projection chamber (TPC). The XENON100 experiment has accumulated more than one year of dark matter search data since February 2011 at a background level of 5.3 events/(keVtonneday). This data allows to test the interpretation of the long standing DAMA/LIBRA annual modulation observations for certain dark matter models producing electronic recoils. In this talk, we present the new analysis results searching for event rate modulations in the XENON100 electronic recoil data. We demonstrate for the first time that long term stability of dual phase Xenon TPC is sufficient to enable searches for modulation signals in the low energy region. We finally present the search results from un-binned profile likelihood analysis and make comparison with the DAMA/LIBRA annual modulation observation.

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