

Electronic recoil channel in XENONnT: results and perspective

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The electronic recoil (ER) channel has gained more and more popularity in recent years due to its background suppression ability and rich physics. The XENONnT experiment, located at Laboratori Nazionali del Gran Sasso (LNGS), is a dark matter direct detection experiment using a dual-phase time projection chamber with 8.5 tonnes of xenon. In its first science run (SR0), XENONnT achieved an electronic recoil background of 15.8 events/(tonne-year-keV) below 30 keVee, establishing a new benchmark as the lowest background recorded in a dark matter detector. This achievement was made possible by reducing the amounts of radioactive Kr-85 and Rn-222 to an unprecedented low level. With the SR0 data, XENONnT has excluded new physics interpretations of the XENON1T excess and provided the most stringent constraint on neutrino magnetic moment. After SR0, the amount of Rn-222 was further reduced by a factor of ~ 2 , improving XENONnT's sensitivity to solar pp neutrinos. In this talk, I will present the results and outlook of XENONnT in the ER channel.

Collaboration (if any)

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