

The XENONnT Neutron Veto

Friday 31 March 2023 15:15 (15 minutes)

The Neutron Veto of the XENONnT experiment is a Gd-loaded water Cherenkov detector designed to recognise the radiogenic neutrons coming from the detector materials, in order to reduce one of the most important Nuclear Recoil backgrounds for the WIMP search in the XENONnT TPC.

The Neutron Veto is instrumented with 120 (8" Hamamatsu R5912) photomultiplier tubes, featuring high-QE and low-radioactivity, installed inside a high light-collection volume delimited by ePTFE reflector panels around the cryostat.

In this talk we will describe the Neutron Veto performances in the first XENONnT Science Run, where the Veto has been operated with demineralised water.

We will also present the systems for Gd-doping of water in the next phase, as the Gd-Water dissolution and purification plant.

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