Contribution ID: **177** Type: **Parallel session talk**

Characterization of charge-sensitive tile anode for the nEXO experiment TPC

Tuesday 26 May 2020 14:54 (18 minutes)

nEXO is a proposed tonne-scale experiment searching for neutrinoless double-beta decay. In its current design it will be a single-phase time projection chamber (TPC).
Particular care is given to the anode, especially a design consisting of a charge-sensitive tile is under study. A modular array of tiles can collect e^- from a wide area. Since the tile provides 2d reconstruction, a TPC without Frisch grid can in principle be built, reducing the radioactive background.
Hence, the induction signal can be studied, potentially leading to a better energy reconstruction and its shape could also be used to discriminate signal from background.
A dedicated TPC has been built to test such tile in liquid xenon and to explore the potential benefit of a gridless approach. Results from this setup will be shown, including simultaneous light/charge detection and the study of PSA using the tile. Improvement on these two aspects could enhance energy resolution and background discrimination in nEXO.

Funding information

US DoE Office of Nuclear Physics

Author: Mr DALMASSON, Jacopo (Stanford University)

Session Classification: Sensors: Noble liquid detectors

Track Classification: Sensors: Noble liquid detectors