

ArgonCube: A Novel Design for Modular Liquid Argon Time Projection Chambers

Tuesday 26 May 2020 14:36 (18 minutes)

ArgonCube is a novel design for Liquid Argon Time Projection Chambers (LAr TPCs), segmenting the total detector volume into a number of electrically and optically isolated TPCs sharing a common cryostat. For the charge-readout, a pixelated anode plane is employed, providing unambiguous 3D event reconstruction. In order to maximise the active TPC volume a new technology is used for field-shaping, replacing the classical field-cage with a continuous resistive plane.

Large dielectric light-collection tiles within the TPC allow for an efficient detection of prompt scintillation light.

ArgonCube has found application in the near-detector of the Deep Underground Neutrino Experiment, DUNE, and is also proposed for one of the four far-detectors.

Funding information

Author: Mr BERNER, Roman (University of Bern)

Session Classification: Sensors: Noble liquid detectors

Track Classification: Sensors: Noble liquid detectors