Contribution ID: **114** Type: **Parallel talk**

Characterisation of Veto Photodetectors for DarkSide-20k: Cryogenic Testing Results

Wednesday 9 April 2025 11:15 (15 minutes)

Silicon Photomultipliers (SiPMs) have been chosen as the dedicated optical readout technology for the upcoming DarkSide-20k experiment. This novel technology is being adopted as a replacement for photomultiplier tubes (PMTs) in the DarkSide-20k detector, due to the higher quantum efficiency, lower radiopurity and reduced noise levels at cryogenic temperatures of SiPMs relative to PMTs. Large-area SiPM arrays featuring an active area of 400 cm^2 with four-channel readout, termed Photo Detection Units (PDUs), are currently being assembled and tested. These PDUs will be used in both the Time Projection Chamber (TPC) and the veto system. The UK groups on DarkSide-20k are responsible for assembling and testing the veto PDUs (vPDUs), ensuring their quality assurance and quality characterisation before they are sent at LNGS for installation in the dark matter search detector. This talk will focus on the cryogenic characterisation of vPDUs in dedicated cryogenic test stands in the UK.

Author: RAVINTHIRAN, Sudikshan (PhD Student)

Presenter: RAVINTHIRAN, Sudikshan (PhD Student)

Session Classification: Detectors and Instrumentation

Track Classification: Detectors and Instrumentation