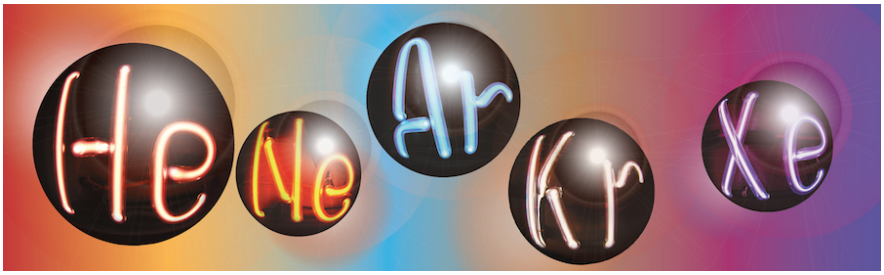

Contribution ID: **2** Type: **Oral**

Characterization of the Hamamatsu R12699-106-M4 2-inch Photomultipliers in MarmotX and XAMS

Tuesday 27 August 2024 12:30 (20 minutes)

The novel square Hamamatsu R12699-106-M4 2-inch photomultiplier tubes (PMT) feature a four-anode readout in a single low-profile package with a high photocathode coverage (about 75%). This makes them attractive as potential light detectors in future liquid-xenon based direct detection dark matter experiments, such as DARWIN/XLZD. The low-profile reduces buoyancy and therefore the amount of material required close to the xenon target. The multi-anode readout allows for a single high voltage cable, further reducing material and potential backgrounds. I will show results from the MarmotX facility at the University of Zurich, where these PMTs were first characterized in liquid xenon (LXe) cryogenic conditions. I will then discuss the performance of the PMTs in the XAMS time projection chamber at Nikhef.

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Session Classification: Light/Charge Readout

Track Classification: Light/charge readout (PMT, SiPM, WLS, electronics etc.): SiPM