Contribution ID: **5** Type: **not specified**

Glass-free SiPMs with Through Silicon Vias for VUV/NUV light detection

Wednesday, 21 February 2024 14:50 (20 minutes)

SiPM have proven to be a successful technology where fast single-photon counting is required. Although their application is mainly focused on visible/near IR detection, there is an active interest in extending SiPM sensitivity to vacuum UV (VUV). In fact, next generation rare event searches would greatly benefit from a VUV single photon sensitive device as it can guarantee higher radiopurity compared to PMTs. Efforts on maximizing the SiPM sensitivity in the VUV region developed a custom-designed manufacturing process that reaches a photon detection efficiency over 25%, meeting and exceeding requirements from experiments. Moreover, the R&D on through-silicon vias (TSV) enables efficient device/chip integration, allowing a compact and scalable photosensitive region to be deployed in a large cryogenic environment such as the one needed for rare event searches. With this poster the author reports the work performed at FBK on the design and test of VUV sensitive SiPMs equipped with TSV.

Primary authors: Dr GOLA, Alberto Giacomo (FBK); Dr PATERNOSTER, Giovanni (FBK); Dr DALMASSON, Jacopo (FBK); Dr PARELLADA MONREAL, Laura (FBK); Dr RUZZARIN, Maria (FBK)

Presenter: Dr DALMASSON, Jacopo (FBK)

Session Classification: SiPM 1