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SiPMs for the Photon Detection System of DUNE

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The DUNE (Deep Underground) experiment will bring the technology of Liquid Argon TPC to an unprecedented size in order to study neutrino oscillations at very long baselines and establish CP violation in the leptonic sector. The observation of the VUV photons from the scintillation of Argon plays a prominent role in the DUNE physics programme and requires the development of a novel Photon Detection System (PDS) based on NUV SiPMs.

In this talk, we summarize the requirements for the DUNE SiPMs, the structure, the characteristics and the expected performance of the Photon Detection System. Special emphasis is given on the developments performed in collaboration with FBK for the DUNE first module, the cold tests of the NUV-HD sensors and the design of the cold amplifiers.

Innovative solutions based on monolithic devices for the next DUNE modules will also be discussed.

Primary authors: CITTERIO, Mauro (MI); TERRANOVA, Francesco (MIB); SALA, Paola (MI); PESSINA, Gianluigi Ezio (MIB); FALCONE, Andrea (Istituto Nazionale di Fisica Nucleare); GALLICE, Niccolò (Istituto Nazionale di Fisica Nucleare)

Presenter: FALCONE, Andrea (Istituto Nazionale di Fisica Nucleare)

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