Contribution ID: **42** Type: **Talk**

Results from Cryo-PoF project: power over fiber at cryogenic temperature for fundamental and applied physics.

Tuesday 27 August 2024 16:20 (20 minutes)

Cryo-PoF project is an R&D funded by the Italian Insitute for Nuclear Research (INFN) in Milano-Bicocca (Italy). The technology at the basis of the project is the Power over Fiber (PoF), which delivers electrical power by sending laser light through an optical fiber to a photovoltaic power converter, to power sensors or electrical devices.
This solution offers several advantages: removal of noise induced by power lines, robustness in a hostile environment, spark free operation when electric fields are present and no interference with electromagnetic fields.
R&D for the application of PoF for the DUNE Vertical Drift detector started at Fermilab in 2020, motivated by the need to operate the Photon Detector System on the high-voltage cathode surface.
Cryo-PoF developed a single laser input line cryogenic system to power both the electronic amplifier and the Photon Detection devices, tuning their bias by means the input laser power.
In this talk the results obtained in Milano Bicocca will be discussed, presenting the tests performed to power photosensors at liquid nitrogen temperature. The performances of the system at temperature below the liquid nitrogen one will be also presented, for Cryo-PoF potential application in the field of applied physics.

Internet talk

No

Is this an abstract from experimental collaboration?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

N/A

Primary author: FALCONE, Andrea (Universita e INFN, Milano Bicocca(IT))

Presenter: FALCONE, Andrea (Universita e INFN, Milano Bicocca(IT))

Session Classification: High Energy Particle Physics

Track Classification: Main topics: High Energy Particle Physics