

FBK paper

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Updates

Paper organization:

- Title: “Characterization of FBK SiPM sensors for the DUNE2 Photon Detection System”
- Contents: There will be a general description of FBK TT sensors with the innovations wrt the previous models. Then there will be a general description of the measurements we took especially for V_{bd} , R_q , thermal cycles, gain, DCR and correlated noise. No comparison 1T-TT but only TT description (different from HPK paper). Finally there will be a description of the PDE at cold measured by F. Di Capua/ G. Gallina at TRIUMF with a comparison of the data at room measured by FBK.

Updates

- Summary

19 **Contents**

20	1 Introduction	1
21	2 SiPM features	2
22	2.1 NUV-HD-Cryo Technology	2
23	2.2 DUNE Customization	2
24	2.3 Characterization at room temperature	3
25	3 Cryogenic characterization	4
26	3.1 Experimental apparatus for cryogenic characterization	4
27	3.2 Results of the cryogenic characterization	6
28	4 Photo detection efficiency measurements	9
29	4.1 Experimental Setup	10
30	4.2 PDE measurement procedure	10
31	5 Conclusions	12

Updates

Intro:

- DUNE (especially FD1)
 - PDS (XArapuca, SiPM, ...)
 - SiPM down-selection
 - FBK
 - Organization of the paper
-
- 1pg

Updates

SiPM:

- NUV-HD-Cryo Technology
- DUNE Customization + figures trenches
- Study at room T at FBK with plots (gain VS OV, CT VS OV, PDE room)

- 2pg
- In charge A. Ficarella (FBK)

Updates

Cryo characterization:

- Setup description
 - Procedure / protocol
 - Measurements example IV
 - Results values V_{bd} , R_q
 - Distribution pre-post cycles V_{bd} & R_q
 - 2 dim amplitude-time plot dark signals
 - Results gain + dcr + AP + CT
-
- Pg 5
 - In charge: M. Guarise, A. Verdugo

Updates

Absolute PDE meas @ LAr

- Setup description
- Procedure
- **Results**
- **Comparison with data room**

- Pg 5
- In charge: F. Di Capua, G. Gallina

Updates

History:

- Measurements, data taking and analysis: 2021-2022
- Start discussion: 1 Dec 2022
- [...lot of work...]
- Actual draft: 26 June 2024

We are now waiting for the final plots and final adjustments of the PDE part which is in charge F. Di Capua (which is waiting for G. Gallina, not part of DUNE collaboration).

Updates

Links:

- Overleaf:

<https://www.overleaf.com/project/6388a8ef67df28becae8531e>

- Acknowledgments:

<https://docs.google.com/document/d/1QSVmZXEGXbmPMiZ3nsnfc-i6LNDbE1oPYNA-kyaGyX8/edit?tab=t.0>

- Authors:

<https://docs.google.com/spreadsheets/d/11V5aICun5O3L2IKSiGSI1BOLebqJ8LUmwypePoLguqY/edit?gid=0#gid=0>

Updates

Proposed schedule:

- End of November: conclusion of the draft (if PDE ready)
- December-January revision of the PDS group
- February submission to JINST