



Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering



**Laborator pentru senzori optici de inalta
performanta, activitati in derulare**

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on behalf of LHCb Romanian Group*

Cuprins

- **Infrastructura**
- **Grafic activitati**
- **R&D**
- **Iradierare SiPM-uri**
- **Concluzii**

LARA EED - **L**aboratory for **R**adiation and **A**ging **E**ffects in **E**lectronic **D**evices ([link](#)).

➤ **Various test and measurements equipment for:**

- PCB prototyping with CNC machine, assembling and testing;
- mass testing in EPA conditions for quality assurance;
- scalable test bench for rad-hard qualification of various electronic devices (patent submitted).

➤ **Access to automated PCB assembling line available in our Department of Elementary Particle Physics.**

Extra workspace

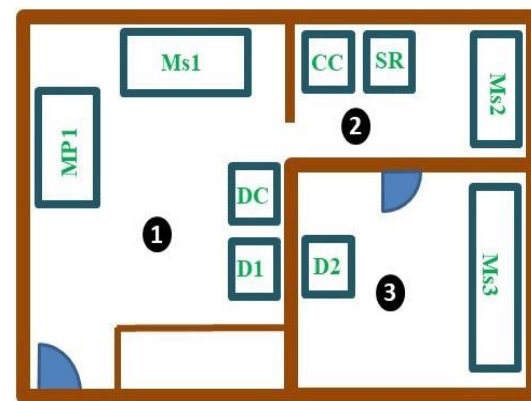
➤ **Work in progress for the optical sensors testing area:**

- ✓ recently bought a **Taiko PDL M1** laser system;
- ✓ **Light Tight Enclosure (LTE)** already implemented.

➤ **Thermal Chamber** and **for Ultra Low Freezer:** studying annealing phenomena vs temperature, real-time investigation of any deviation in electrical parameters with temperature for devices and boards.

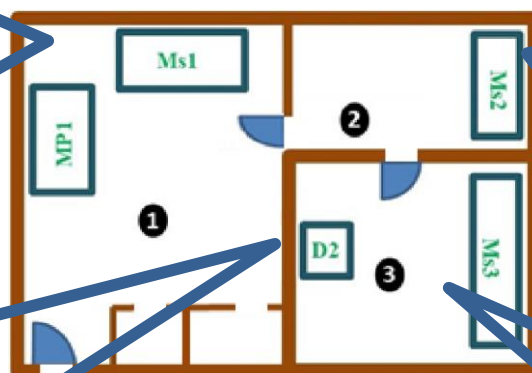
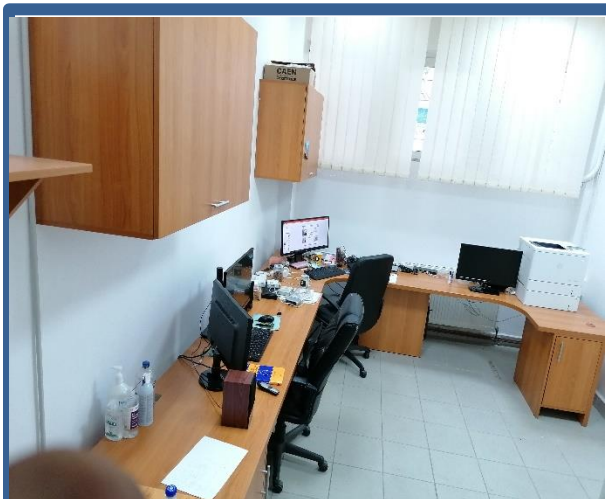


**LARA EED
initial workspace**



**Workspace for optical sensor
testing and climate test chamber**

Infraestructura



➤ **ianuarie – prezent:**

- ✓ asamblare coloane RICH1, debugging PDMDB, cablare HV RICH1, Test Beam June 2022;
- ✓ pregatire stand experimental pentru caracteriare SiPM-uri, achiztii si sedinte cu posibili colaboratori ;
- ✓ coordonare studenti (V. Lupusoru si R. Jomiru);

➤ **septembrie - decembrie:**

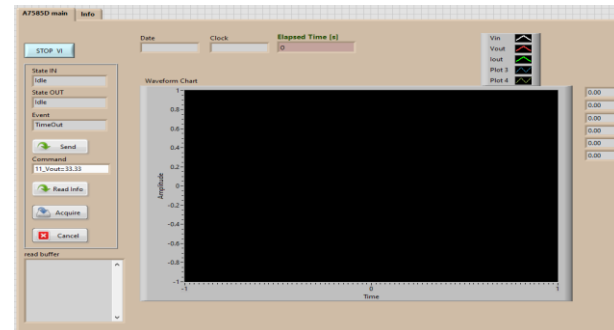
- ✓ 11-17.09.2022 participare RICH2022 workshop (pregatire poster in prealabil);
- ✓ septembrie – arhitectura mecanica sistem pozitionare, asamblare intregului sistem;
- ✓ octombrie – finalizarea lantului electronic pentru DNRC (Vlad), automatizare LCR metru pentru extragere parametrii schema echivalenta SiPM, caacterizare SiPM-uri inainte de iradiere;
- ✓ noiembrie – iradiere SiPM si pregatire date pentru Faza NUCLEU;
- ✓ decembrie-Faza Nucleu
- ✓ coordonare studenti (V. Lupusoru si R. Jomiru);

Obiective realizate:

- obtinere timp fascicol TANDEM 9 MV, IFIN-HH;
- automatizare alimentare SiPM-uri cu compensare in temperatura;
- DAQ pentru masurarea DNRC la SiPM-uri (sr. Vlad faza septembrie);
- automatizare sistem pozitionare micrometrica (jr. Vlad);

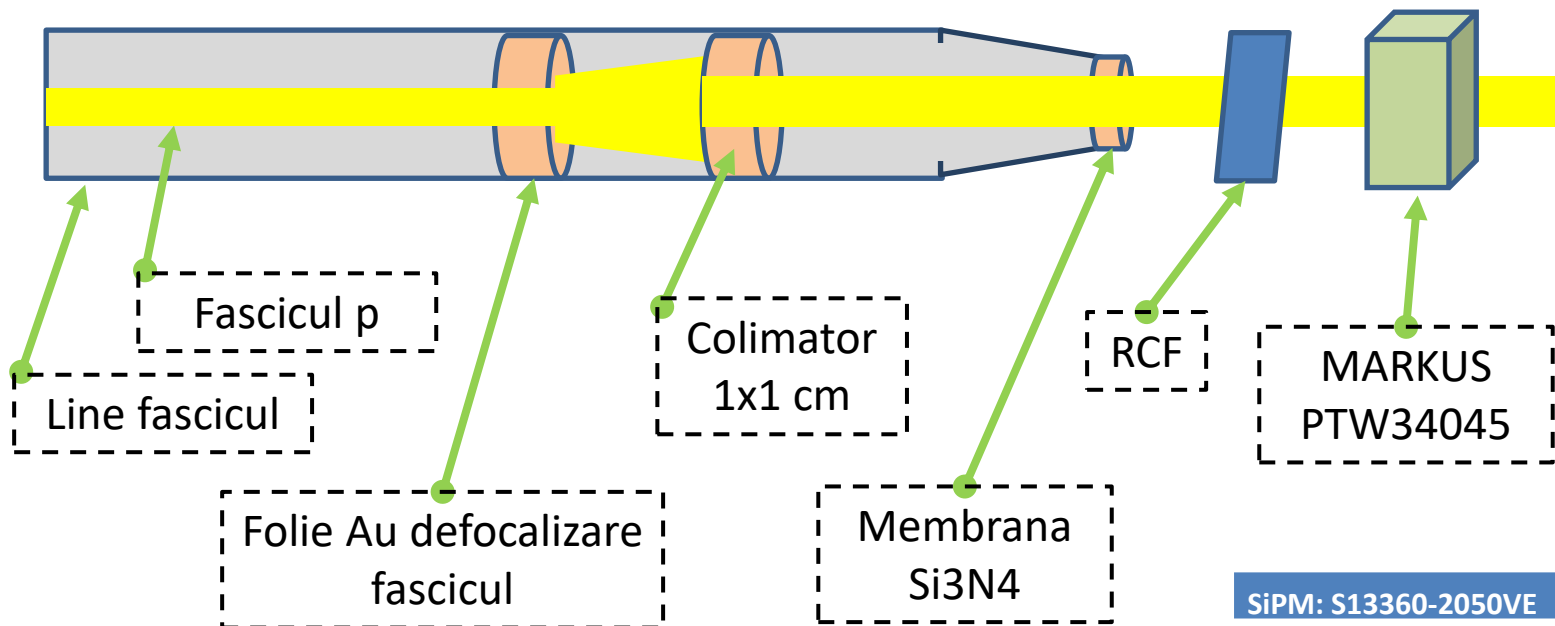
Activitati prevazute:

- realizare parte mecanica sistem pozitionare (sept.);
- automatizare LCR metru (oct.);
- caracterizare SiPM-uri inainte de iradiere (oct);
- pregatire linie fascicul (M. Straticiuc, M. Constantin);



Beamtime schedule 9 MV Tandem accelerator (2022): [LINK](#)

- 5 noiembrie 2022 zi arondata iradiere SiPM cu fascicul de protoni;
- pregatirea liniei de fascicul pentru iradiere;
- definitivarea strategiei de iradiere (Florin, M. Straticiuc, M. Constantin);



SiPM: S13360-2050VE	4
SiPM: S13615-1050N-04	4
SiPM: MICROFC-10010-SMT-TR1	3
SiPM: P1125-WB	3

Agenda foarte incarcata cu activitati pentru perioada imediat urmatoare.

- Realizarea obiectivelor, trebuie mentinute termenele limita pentru:
 - implementare sistem de pozitionare;
 - implementare DAQ masurare DNRC la SiPM-uri;
 - automatizare LCR metru;
 - pregatire linie de fascicul;
 - **caracterizarea DUT-urilor inainte de iradiere.**
- Efectuarea cu success a iradierii SiPM-urilor in noiembrie depinde de foarte multi factori, in special de resursa umana implicata..



Vă mulțumesc pentru atenție!