Salvatore
Camposeo

SCIENTIFIC BACKGROUND

- Astronomy and Astrophysics («Università del Salento», Lecce)
  with a particular focus on
  - Planetary science
  - Galaxies and cosmology

Salvatore
Camposeo

CURRENT RESEARCH TOPICS

- Analysis of Fermi space telescope data;
- Research on electromagnetic emissions by planets, with focus on high energy photons, performing proper simulations.

POSITION

- PhD at «Politecnico di **Bari**»;
- Supervisors: Nicola Giglietto, Leonardo Di Venere

Muhammad Ali

EDUCATION BACKGROUND

2013 - 2015 **BACHELOR IN PHYSICS**

At: International Islamic University Islamabad (Pakistan)

2019 - 2021 **MASTER IN PHYSICS**

At: COMSATS University Islamabad (Pakistan)

Thesis: *Jet Cross Section in pp Collision at 5.02 TeV.*

.

International Journal of Modern Physics E
Vol. 31, Nos. 10 & 11 (2022) 2250102 (9 pages)
© World Scientific Publishing Company
DOI: 10.1142/S0218301322501026

World Scientific
www.worldscientific.com

WORK EXPERIENCE

2021 October – January 2023 **VISITING LECTURER**

At: University of Haripur

Elucidating the jet cross-section in *pp* and *pPb* collisions at $\sqrt{s_{NN}} = 5.02$ TeV

Muhammad Ali*, Uzma Tabassam*,‖, Zain Ul Abidin*, Muhammad Ajaz†,**, Mais Suleymanov‡, Ahmed M. Khubrani§, Muhammad Waqas* and Muhammad Waqas¶

Muhammad Ali

PhD PROGRAM

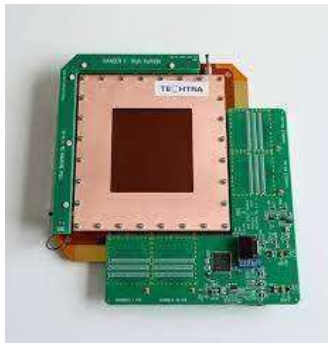
TOPIC: R&D of a MPGD-based sampling Hadronic Calorimeter for a future Muon Collider.

CURRICULUM: Laser, Optics and Detectors.

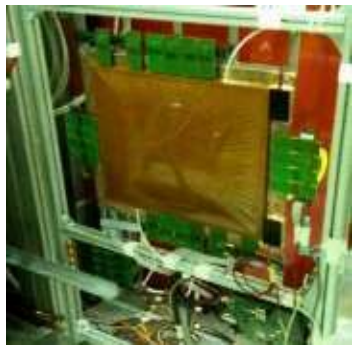
HOSTING UNIVERSITY/RESEARCH CENTRE: Università degli Studi di Bari Aldo Moro / INFN sezione di Bari.

SUPERVISOR: Dr. Rosamaria Venditti/ Dr. Salvatore My.

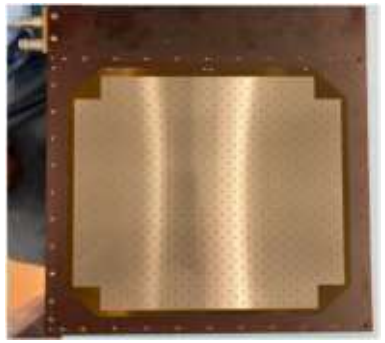
Types of MPGDs



Gas Electron Multiplier (GEM).



MircroMegas Detector



µ-RWELL Detector

Muhammad Ali

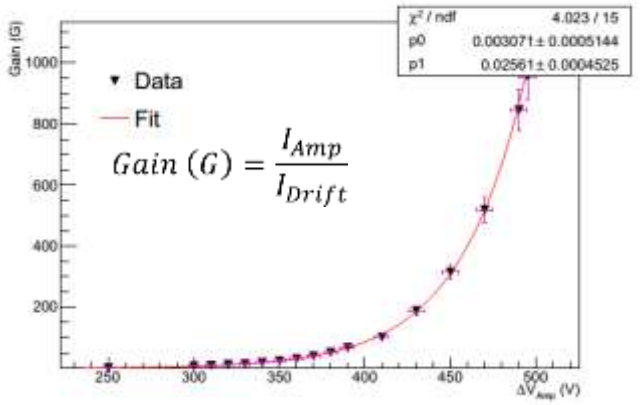
- **R&D on MPGD: 1.** Characterization of 20x20 cm^2 and 50x50cm^2resistive Micro-RWELL detector prototype in Bari lab (Gain, Uniformity response with X- Ray source)
  2. Efficiency, uniformity response and timing measurements with Pion beams of 50x50cm^2 MPGD.

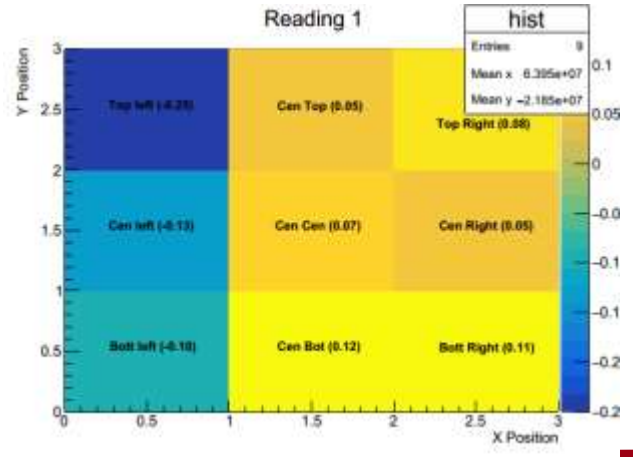
- **R&D on MPGD-based HCAL:** Test of a 10 layer MPGD-HCAL prototype with Pion beams and comparison with GEANT4.

- Full simulation studies in the Muon Collider framework.

- In parallel, work on the quality control of the CMS ME0 modules (based on triple-GEM): linearity, effective gain, response uniformity.

For the Micro-Well Detector:





Gain variation.

Dhiraj Hiralal Gupta

Education

- **Bachelor of Science in Physics** (2016-2019)

  JVM'S Mehta College, Mumbai University,

  CGPI: 7.20/10

- ***Master of Science in Physics*** *(Material Science)* (2019-2021)

  The Institute of Science, Dr. Homi Bhabha State University

  Thesis:- Theoretical Review Of Photocatalytic Compound and Application

  CGPI: 9.29/10

Work Experience

* **Adjunct Professor** (Jan 2023 - Mar 2023)

  THE INSTITUTE OF SCIENCE, Dr. HOMI BHABHA UNIVERSITY

***Assistant Teacher**

- ARYA GURUKUL INTERNATIONAL Jr. COLLEGE,

  Jul 2022 - Apr 2023

- MAZIDUN HIGH SCHOOL AND Jr. COLLEGE,

  Oct 2021 – Apr 2022

Publication

Relativistic theory to Compton effect for spectroscopic detector

[https://doi.org/10.1016/j.nima.2022.166656].

Research experience

Junior Research Fellow at Tata Institute of Fundamental Research (TIFR) (Aug 2023 - Jan 2023)

-Sputtered thin films of different materials on flexible and rigid substrates.

-Involved in developing a custom-built substrate rotation mechanism for a sputtering system.

-Characterization of Thin Film with techniques of Atomic Force Microscopy (AFM), Scanning Electron microscope (SEM), Profilometry, and Ellipsometry.

Hosting Institution: INAF - Osservatorio Astronomico di Brera, Milan
Department: INAF Osservatorio Astronomico di Brera (gOLeM)

Supervisor: Dr. Andrea Bianco
- PhD Research Topic: *Innovative holographic optical elements for modern optical instrumentation.*

- Research Description:

1.Focus of PhD Thesis:

Developing Volume Holographic Optical Elements (VHOEs).

2. Research Objectives:

Enhancing and simplifying the performance of optical systems through VHOEs

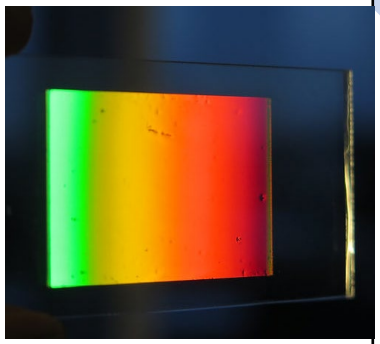
3. VHOE Developments:

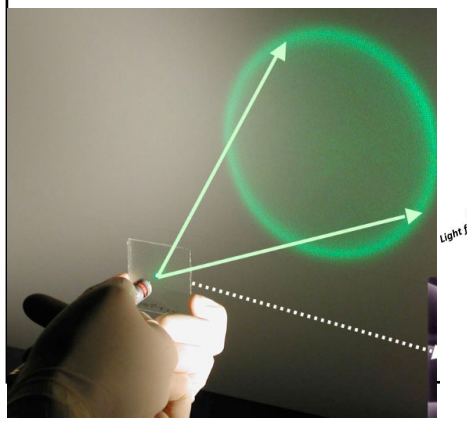
1. Volume Phase Holographic Gratings (VPHGs)

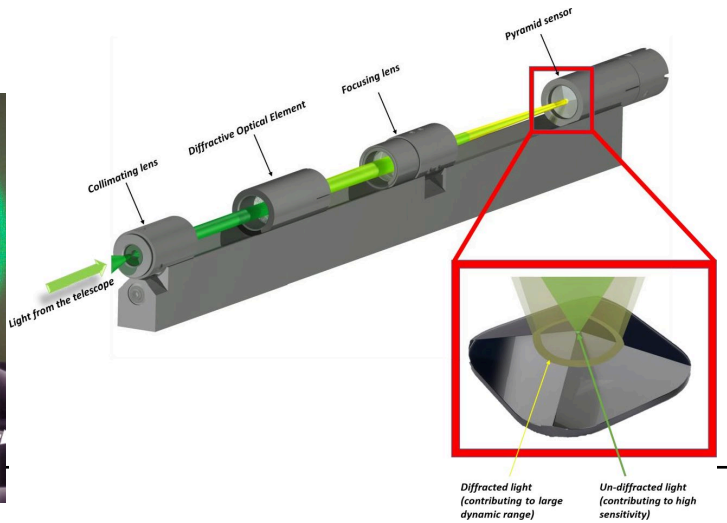
- Used as Efficient elements in spectroscopy for astronomical instrumentation.

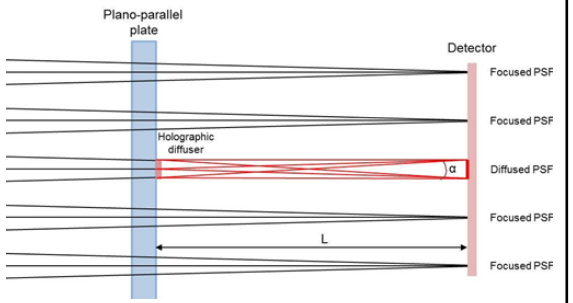
2. Volume Phase Holographic Diffuser:

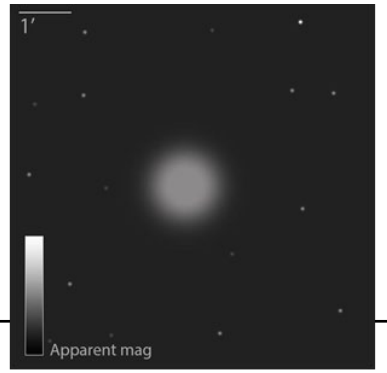
- Applied in adaptive optics for Pyramid wavefront sensors. (static modulation approach)
- Accurate Photometry Of Exoplanet.











Maria Bazzicalupo

Educational background :

- Bachelor's degree in Astronomy at the University of Padova
- Master's degree in Astrophysics and Cosmology at the University of Padova

Previous Research and Work Experience:

- Astronomical observations at the Galileo Telescope of the University of Padova for the observation of comets
- Astronomical observations at the Copernico Telescope of the University of Padova for the QSO campaign, an international reverberation mapping campaign of quasars
- Alternative service at the Museum of Astronomical Instruments of the University of Padova
- ALBA CUBESAT student project in the Ground station team where we set up the basis for building a ground station to communicate with cubesats

Maria Bazzicalupo

Current position within the PhD Program of National Interest in Technologies for fundamental research in Physics and Astrophysics:

- **Curriculum**: Rivelatori, laser e ottica
- **Topic**: Technologies for the phasing of segmented pupil optical telescopes
- **Hosting research center**: INAF Osservatorio Astrofisico di Arcetri
- **Supervisor**: Lorenzo Busoni

My PhD focuses on adaptive optics, a set of techniques that enhance astronomical images distorted by various perturbations. Specifically, I study wavefront deformations in the Extremely Large Telescope (ELT), the largest ground-based telescope ever designed, with a diameter of 39 meters.
My project is about the design of the “CiaoCiao WFS”, a rotational shearing interferometer to sense discontinuities in the ELT's fragmented pupil, its implementation at the Arcetri Astrophysical Observatory, and the development of the software for data analysis.

Dr. Tommaso Croci

tommaso.croci@phd.unipd.it / tommaso.croci@pg.infn.it

- **Educational background** @ University of Perugia (UNIPG), Department of Engineering (DI) - Perugia, Italy
  - ❑ Bachelor's Degree in *Computer Science and Electronic Engineering* (curriculum: *Electronics*)
  - ❑ Master's Degree in *Electronic and Telecommunication Engineering* (curriculum: *Electronics and Radio Frequencies*)
- **Research and work experience** @ INFN Perugia Unit & DI UNIPG

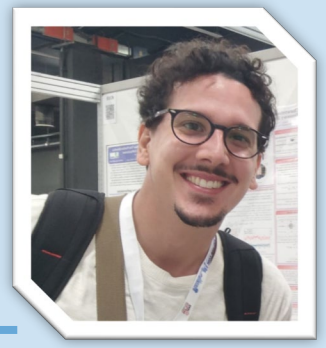
  Development of technologies for radiations and particles detection, with a special focus on the field of sensors and their related readout electronics.
  - ❑ **TCAD simulation** and **design** (Synopsys Sentaurus)
    - DC-coupled Resistive Silicon Detector (**DC-RSD**): development of a hybrid approach (TCAD + Spice), design and optimization in terms of spatial resolution and reconstruction of the particle impact positions.
    - Low-Gain Avalanche Diode (**LGAD**): design and optimization of the gain layers of thin LGAD detectors and the related guard-ring protection structures (radiation hardness and high voltage operations).
  - ❑ **Development** and **validation** of the **surface and bulk radiation damage numerical model** ("University of Perugia" TCAD model)
  - ❑ **Experimental measurements** (i.e., electrical characteristics and response to radiation stimuli - laser and β source) in **laboratory** of p-i-n and LGAD devices, before and after irradiation.
  - ❑ **VLSI design**, **simulation** and **verification** (Cadence Virtuoso, Synopsys Custom Compiler)
    - Monolithic Active Pixel Sensors (**MAPS**) in 110 nm LFoundry CMOS technology
    - integrated 10 μm-pitch Active Pixel Sensor (**APS**) arrays in standard CMOS technology (LFoundry 110 nm).
  - ❑ **PCB design** (KiCAD EDA) of an **acquisition system** (based on the Arduino platform) for the measurement of analog signals generated by active pixel test structures.

Dr. Tommaso Croci

tommaso.croci@phd.unipd.it / tommaso.croci@pg.infn.it

Università degli Studi di Padova

Istituto Nazionale di Fisica Nucleare



- **Current position within the PhD TFPA**
  - ❑ Hosting institution: National Institute for Nuclear Physics (INFN), Perugia Unit
  - ❑ Supervisor: Dr. Arianna Morozzi, Prof. Daniele Passeri, Prof. Pisana Placidi
  - ❑ Curriculum: Detector, Laser and optics
  - ❑ A.Y.: 2023/2024

- **Topics of the technological research work to be carried out in the PhD**
  - ❑ TCAD simulation methodologies and models for particle sensors and radiation-induced damage effects.
  - ❑ Analysis of state-of-the-art CMOS technologies for the fabrication of monolithic sensors and related readout electronics.
  - ❑ Integrated sensors and readout electronics technologies for High Energy Physics experiments in the next generation of high-performance particle colliders (e.g., Future Circular Collider – FCC, at CERN, Geneva, Switzerland).

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Verdoglia Michele

TECHNOLOGIES FOR FUNDAMENTAL RESEARCH IN
PHYSICS AND ASTROPHYSICS

Detectors, Lasers and Optics

High spatial and temporal resolution pixelated radiation sensors for next generation experiments in fundamental physics

michele.verdoglia@studenti.unipd.it

Educational Background

Vocational Training Certificate: Cook

Corresponding Business expert in Foreign Languages

Bachelor in Physics & Master degree in Nuclear and Subnuclear Physics

michele.verdoglia@studenti.unipd.it

Educational Background

Vocational Training Certificate: Cook

agenzia formativa
Friuli Venezia Giulia

Corres & Master and ics

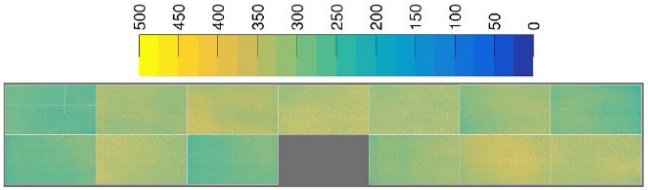
IVERSITÀ GLI STUDI RIESTE

michele.verdoglia@studenti.unipd.it

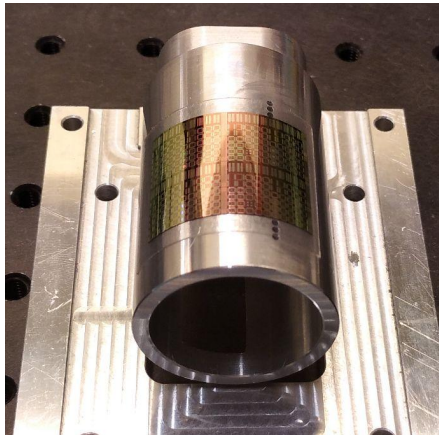
Educational Background

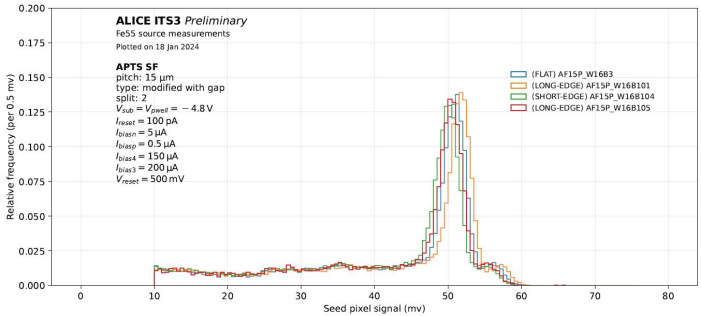
Bachelor & Master degree in Nuclear and Subnuclear Physics in Physics

Bachelor thesis: ALICE ITS2 outer barrel module characterisation



Master thesis: ALICE ITS3 Analog bent sensor characterisation





michele.verdoglia@studenti.unipd.it

Current Position

michele.verdoglia@studenti.unipd.it

Current Position

UNIVERSITÀ DEGLI STUDI DI PADOVA

INFN CAGLIARI

Supervisors: *Alessandro Cardini* (INFN Cagliari) & *Adriano Lai* (INFN Cagliari)

Topic of the technological research work to be carried out in the PhD:

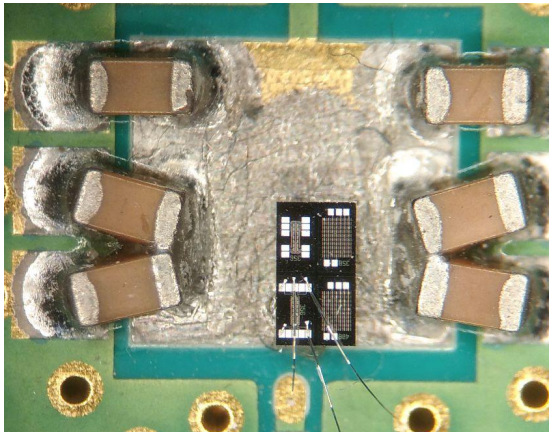
Research & Development on LHCb Vertex Locator detector for the Upgrade II

- 3D silicon pixel sensor characterisation (up to now)
- 28 nm CMOS Front-end characterisation (next future)

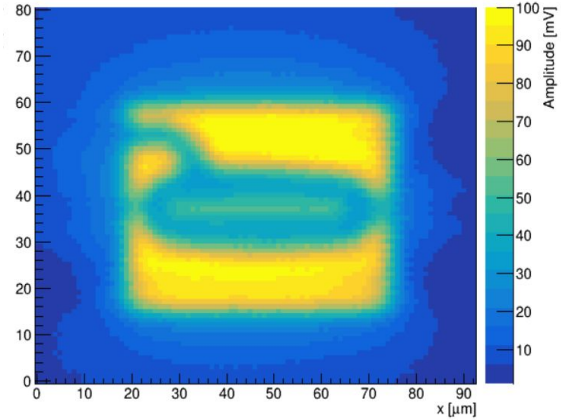
Current Position

The work so far:

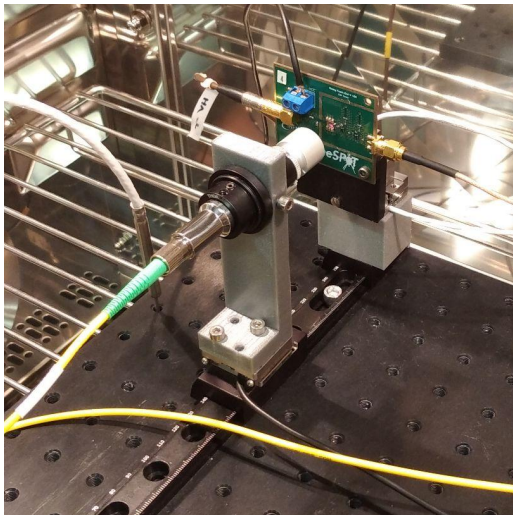
Full Characterisation of highly irradiated 3D sensors using ^{90}Sr radioactive source and micro-focussed laser inside a climatic chamber



Highly irradiated 3D silicon test structure



In-pixel signals amplitudes measured with laser



Laser measurement in a climatic chamber (-20°C)

michele.verdoglia@studenti.unipd.it

Current Position

The work so far:

Test-Beam @ SPS (Apr-May @ CERN)
Publication of an article in September 2024

Highly irradiated 3D silicon pixel test structures performances:

- Spatial resolution = 15 μm
- Time resolution = 12 ps
- Efficiency = 97%

Suitable for FCC-*hh* (~2070) !!!

michele.verdoglia@studenti.unipd.it

Current Position

Università degli Studi di Padova

INFN Cagliari

Other relevant Activities:

Talk at TREDI24 (Feb.)

LHCb VeLo Recabling & Recommissioning (Feb.)

Talk at SIF 2024 (Sept.)

michele.verdoglia@studenti.unipd.it

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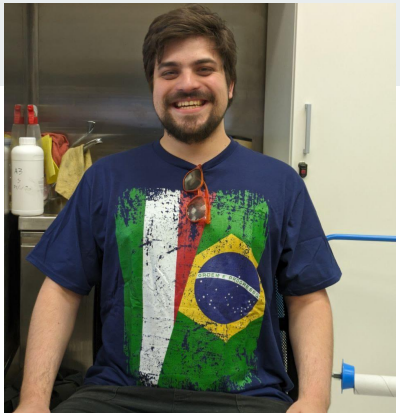
THANKS !!!

michele.verdoglia@studenti.unipd.it

Gabriel Botogoske

Country: Brazil **City:** Curitiba



– Electronic Technician - 2011 to 2015
Universidade Tecnológica Federal do Paraná (UTFPR)

– Electronic Engineer - 2016 to 2021

Universidade Tecnológica Federal do Paraná (UTFPR)

Final Project: System for controlling the relevant parameters of a cryostat containing liquid argon

-Master in Physics - from 2021 to 2023

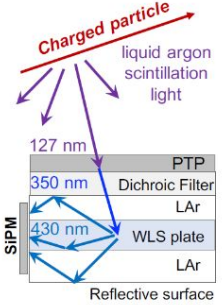
Universidade de Campinas - UNICAMP

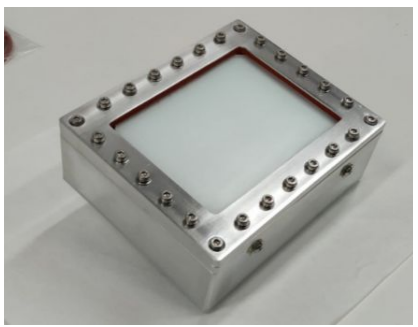
Supervisor: Ana Amélia Bergamini Machado

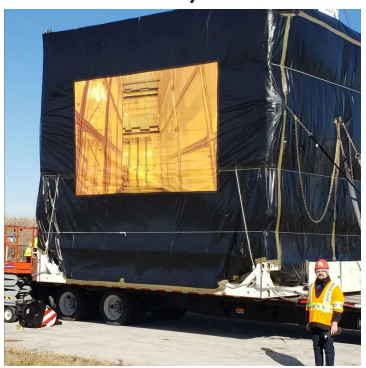
Co Supervisor: Anderson Campus Fauth

Thesis: Application of Arapuca technology for detection of scintillation light in liquid argon and Cherenkov radiation in water

SBND (Short Baseline Near Detector) at **FERMILAB**
→ Efficiency of ARAPUCA VIS
→ Front end electronics of the Photon Detection System







NOW

Università di Padova

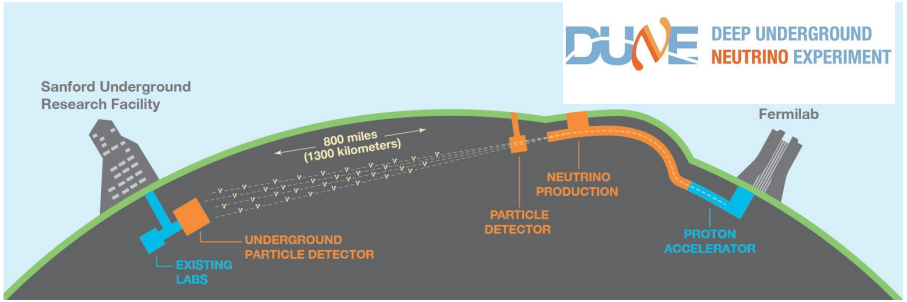
Working place: Napoli, **Università degli Studi di Napoli Federico II**

- Supervisor: Giuliana Fiorillo
- Co Supervisor: Francesco di Capua
- **Dottorato Nazionale** in **Tecnologie per la ricerca fondamentale in Fisica e Astrofisica**
- **Curriculum: Rivelatori, laser e ottica**

Two experiments:

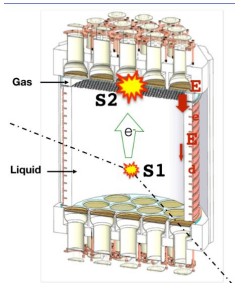
DUNE - Deep Underground Neutrino Experiment

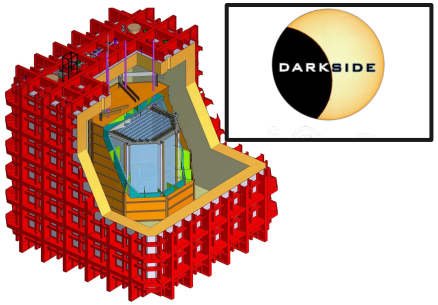
Neutrino oscillation experiment



DarkSide-20k

Dark matter experiment - direct detection





Research goal: Studies and detection of solar neutrino and low energy neutrino using convolutional neural network in LArTPCs

BACK UP

SO FAR

Analysis of the X-ARAPUCA efficiency of DUNE far detector vertical drift (MEGACELL)

–At Naples: Analysis of the single face module

–At CIEMAT(Madrid) Analysis of double face module

-Learned Geant4 to make Monte Carlo Simulations of the experimental setups