

Presentation of the Detectors (and Lasers and Optics) Curriculum

Salvatore My - Università degli Studi di Bari and INFN

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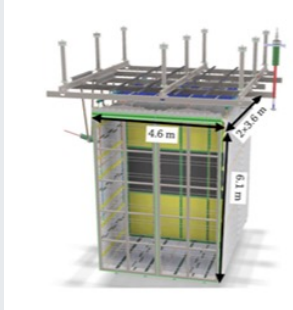
Welcome meeting for PhD students of the 41° cycle
PhD in Technologies for Fundamental Research in Physics and Astrophysics

Presentation of the curriculum

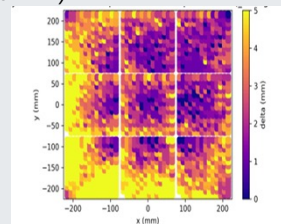
- Last but not least
- As for the name , an heterogeneous curriculum but
- Collects Ideas to study new ways to (produce), collect and record EM radiation

What Happend in the past (Cycle 39)

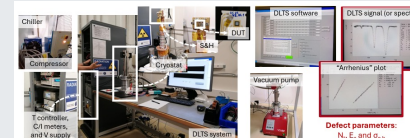
Gabriel Botogoske - “Photodetection in cryogenic environment”
DUNE (Deep Underground Neutrino Experiment)



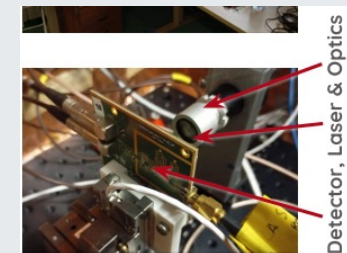
Salvatore Camposeo - “Studies of reconstruction algorithms for the next generation of MeV-GeV gamma rays satellite missions for the National HPC Center”
APT (Advanced Particle-astrophysics Telescope) and ADAPT (Antarctic Demonstrator for APT)



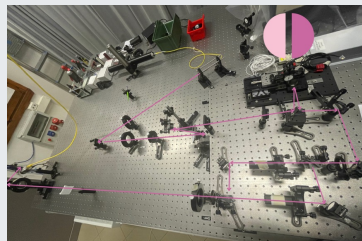
Tommaso Croci - “Integrated sensors and read-out electronics technologies development for High Energy Physics experiments”
e.g. Future Circular Collider (FCC) @ CERN



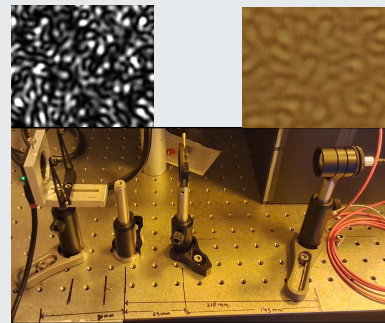
Michele Verdoglia - “High spatial and temporal resolution pixelated radiation sensors for next generation experiments in fundamental physics”
@LHC



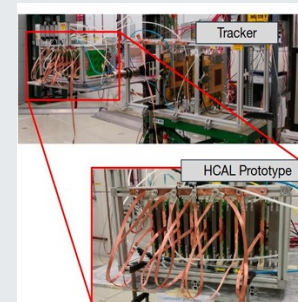
Maria Bazzicalupo - “Technologies for the phasing of segmented pupil optical telescopes”
@ELT



Dhiraj Hiralal Gupta - “Innovative holographic optical elements for modern optical instrumentation”



Muhammad Ali - “Hadron Calorimeter MPGD-based development for future Muon Collider experiment”



What is happening: Students of the 41° cycle

Muhammad Muneeb Bin Shoaib - *Applications of integrated photonics for a new generation of astrophysical space measurements* – Politecnico di Torino

Valentina Minoia - *Development of solid-state detectors for future high-energy physics experiments* – University of Bari

Mamoon Asghar - *Design and Development of Adaptive Optics Systems and Components* – University of Padua

Educational Offer A.Y. 2025/26

- **Photodetection: Scintillators and Silicon Photomultipliers** (Prof.ssa Elisabetta Bissaldi; Dott.ssa Serena Loporchio – University of Bari)
- **HIGH-ENERGY PARTICLE PHYSICS DETECTORS IN SPACE** (Dott.ssa Serena Loporchio – University of Bari)
- **New technologies for Cherenkov telescopes** (Dott.ssa Serena Loporchio – University of Bari)
- **HE-5: Front-end and readout electronic systems for High Energy Astroparticle Physics** (Dott.ssa Felicia Barbato; Dott. Adriano di Giovanni – GSSI)
- **Rare event search with Noble Liquids** (Dott. Paolo Agnes – GSSI)
- **Cryogenics sensors for astroparticle physics** (Dott. Andrei Puiu)
- **High Energy Radiation Measurements (Laboratory course)** (Dott.ssa Felicia Barbato; Dott. Adriano di Giovanni – GSSI)
- **Cabling and Shielding for low noise applications** (Prof. Alberto Aloisio – University of Naples)
- **Gaseous Detectors for Experimental Particle Physics** (Dott. Luigi Longo; Dott. Antonello Pellecchia – INFN Bari)
- **Advanced scientific programming in Matlab** (Prof. Paolo Bardella; Prof. Stefano Scialò – Politecnico di Torino)
- **Programmable System on Chip (SoC) for data acquisition and processing** (Prof. Andrea Fabbri – University of Roma Tre)
- **Vacuum technologies** (Dott. Oscar Azzolini – INFN LNL)
- **Adaptive Optics for Astronomy** (Dott. Carmelo Arcidiacono – INAF Padova)

Educational Offer A.Y. 2025/26

- **Radio and Optical Interferometry** (Dott. Fabrizio Massi; Dott. Luca Olmi – INAF Arcetri)
- **Fundamentals of system engineering and project management for large scientific projects** (Dott. Marco Xompero; Dott. Runa Briguglio – INAF Arcetri)
- **Simulation of optical photon propagation for generic scintillator-based detectors** (Dott. Davide Serini – INFN Bari)
- **Cosmic radiation and radiation hardness assurance** (Dott. Pierluigi Casolaro – INFN Napoli)
- **Laboratory of low-energy radiation measurement** (Dott. Andrei Puiu; Dott. Lorenzo Pagnanini – GSSI)
- **Methodologies and techniques for the analysis of experimental data** (Prof. Alexis Pompili – University of Bari)
- **Adaptive optics for astronomy** (Dott. Kalyan Kumar Radhakrishnan Santhakumari – INAF Padova)
- **Physics with High Energy particle detectors from photographic plates to the LHC experiments** (Prof. Simone Paoletti – University of Siena)
- **Radiation Matter Interaction** (Dott. Piet Verwilligen – INFN Bari)
- **Novel detectors for future experiments at collider** (Prof. Domenico Colella – University of Bari)
- **Semiconductor light sources for engineers** (Prof.ssa Mariangela Gioannini; Prof. Lorenzo Columbo – Politecnico di Torino)
- **Solid State Detectors** (Prof. Donato Creanza – Politecnico di Bari)