

PhD Position in Physics at the University of Bologna for Topical Research Project on "**Study and Characterization of SiPM-Based Detectors for RICH at the EIC and Future Applications**"

The Physics and Astronomy Department at the University of Bologna invites applications for fully-funded PhD positions in experimental particle physics. One of the available positions is specifically aimed towards a Topical Research Project for the Electron-Ion Collider (EIC). The successful candidate will have the opportunity to join a dynamic research team and work on an exciting project titled "Study and characterization of prototype SiPM-based detectors for Ring Imaging Cherenkov (RICH) at the Electron-Ion Collider (EIC) and future applications".

Silicon photomultipliers (SiPM) are selected as the baseline photodetector technology for the dual-radiator Ring-Imaging Cherenkov (dRICH) detector of the ePIC experiment at the future Electron-Ion Collider (EIC). SiPM-based photodetector prototypes for the ePIC-dRICH detector will be developed, constructed and fully equipped with a complete chain of readout electronics. They will be thoroughly tested in the laboratory and in beam tests at the CERN-SPS, CERN-PS and other accelerator facilities. The PhD candidate for this research project will actively take part in the development, construction and test of the detector prototypes. It will critically contribute in the definition of the characterisation and test procedures as well as in the analysis of the collected data to establish the performance of the detector prototypes.

The project aims to develop and test new detector technologies based on Silicon Photomultipliers (SiPMs) for Ring Imaging Cherenkov (RICH) detectors at the Electron-Ion Collider (EIC) and other future particle physics experiments. The project will involve simulations, design, construction, and characterization of prototype detectors, as well as data analysis and interpretation of the experimental results.

The ideal candidate should have a Master's degree in physics or a related field, with a strong background in experimental particle physics, detector development, and data analysis. Knowledge of programming languages such as C++, Python, and ROOT is highly desirable. Experience with SiPMs and/or RICH detectors would be an advantage but is not required.

The EIC-Bologna group has a leading role in the development of the dRICH SiPM photodetector. The group also plays a major role in the ALICE experiment at the Large Hadron Collider (LHC) and follows several innovative lines of research for future applications testing state-of-the-art silicon detector technology. The PhD candidate will therefore have an excellent perspective to learn and grow in a vibrant research environment.

For more information, please contact  
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To apply, follow this link: <https://www.unibo.it/en/teaching/phd/2023-2024/physics>  
Application deadline: **June 20, 2023 at 11:59 PM**

The University of Bologna is an equal opportunity employer and welcomes applications from all qualified candidates, regardless of gender, ethnicity, disability, religion, or sexual orientation.