CENTRO FEDERAL DE EDUCAÇÃO TECNOLÓGICA CELSO SUCKOW DA FONSECA
UNIVERSIDADE FEDERAL FLUMINENSE
DIRETORIA DE PESQUISA E PÓS-GRADUAÇÃO
DEPARTAMENTO DE PÓS-GRADUAÇÃO
COORDENADORIA DO PROGRAMA DE PÓS-GRADUAÇÃO EM INSTRUMENTAÇÃO E ÓPTICA APLICADA

A Coordenadoria do Programa de Pós-Graduação em Instrumentação e Óptica Aplicada tem a satisfação de convidá-lo para assistir à

QUALIFICAÇÃO DE TESE DE DOUTORADO

TÍTULO:
"DEVELOPMENT OF LHCB UPGRADE II TRACKER'S SCINTILLATING FIBERS MODULES QUALITY ASSURANCE SYSTEM"

Diogo Ayres Rocha

This qualification thesis presents an experimental evaluation framework for SciFi signal acquisition systems intended for applications in the LHCb Upgrade II Mighty Tracker. The proposed methodology combines a controlled laboratory setup, a motorized X-Y positioning table, and a CAEN FERS-5200 front-end acquisition architecture to validate the full readout chain of scintillating fiber detectors. The experimental platform enables precise and repeatable planar scans, allowing systematic characterization of detector response, signal propagation, and acquisition performance under controlled conditions. The readout system employs the CAEN A5202 acquisition board based on Citiroc-1A ASICs for multi-channel SiPM readout, supporting spectroscopy, counting and timing measurements. In addition, a custom 8-channel signal injector was utilized to emulate detector pulses and validate the acquisition electronics without requiring particle beams. Experimental results include analog waveform observations using an oscilloscope, digital signal acquisition through the FERS architecture, and preliminary validation using a radioactive source coupled to scintillating fibers. The obtained results demonstrate the feasibility and stability of the proposed acquisition methodology, providing a reproducible framework for detector calibration, electronics validation, and future scintillating fiber characterization studies associated with high-energy physics tracking systems.

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Local e data: 09 de Setembro de 2026 às 16h 00 min – Quarta-Feira, na Plataforma Teams

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