

Advancing Optical Interlock System with Custom MicroTCA RTM Solution for MYRRHA

Thursday 4 December 2025 11:00 (15 minutes)

For the implementation of the first 100 MeV stage of the superconducting, high power proton linac for MYRRHA at SCK CEN (Belgium) an optical Interlock Rear Transition Module (RTM) and its companion daughterboard were developed to provide a modular, high-speed solution for optical signal transmission in MicroTCA-based control systems. Designed for reliability and low latency, the system ensures robust isolation and immunity to electrical noise in safety-critical applications. A simplified Spartan-7 FPGA reference design complements the RTM, implementing key functionalities to interface primary system devices. This presentation outlines the architecture, design choices, and validation results of the RTM and reference design, emphasizing lessons learned from collaboration with DESY and potential extensions toward future accelerator system integration.

Author: Mr FERENCZ, Krisztian

Presenter: Mr FERENCZ, Krisztian

Session Classification: Session 8