

# Multi-channel readout electronics of silicon photomultipliers for plastic scintillating fiber detector

*Wednesday 3 July 2024 14:40 (1 minute)*

The position-sensitive scintillating fiber (SciFi) detector with one-dimensional silicon photomultipliers (SiPMs) readout could achieve a better position resolution than typical plastic scintillator detectors which is even comparable to silicon strip detectors but with a much lower cost. In this work, to develop a large-size SciFi detector for muon tomography, a compact multi-channel front-end electronics for SiPM readout is designed with a 32-channel front-end ASIC Citiroc1A. This front-end electronics board mainly includes Citiroc1A, Analog-to-Digital Converter (ADC), Field Programmable Gate Array (FPGA) as well as optical communication modules. It can adjust biased voltage of SiPMs channel by channel and offers a large dynamic range from single to thousands of photon-electrons. Therefore, this readout electronics system also has broad application prospects in other types of SiPM-based detectors.

**Author:** WU, Zibing (Shandong University (CN))

**Presenter:** WU, Zibing (Shandong University (CN))

**Session Classification:** Poster Session