Contribution ID: **38**   Type: **Parallel session talk**

The Analog Photon Processor ASIC

Thursday 9 October 2025 11:00 (20 minutes)

Waveform digitization remains the baseline method for reading out large scale neutrino detectors consisting of thousands of channels of photomultiplier tubes (PMTs). Because events in these detectors happen relatively infrequently, this method results is high cost, high power, and extremely high data volumes. The problems are compounded when considering that modern PMTs with very fast risetimes require ever higher bandwidth to meet the Nyquist rate and ensure proper reconstruction of the waveforms. Analog sampling techniques that capture key parameters of the waveform – such as peak amplitude, leading and trailing edge times, and total integrated charge – present an interesting alternative that can drastically mitigate problems inherent in full digitization. This talk will describe the Analog Photon Processor (APP) integrated circuit, being designed in a 65nm process at the University of Pennsylvania, to be used for photon feature extraction in next generation detectors

Author: NIKOLICA, Adrian (University of Pennsylvania (US))

Presenter: NIKOLICA, Adrian (University of Pennsylvania (US))

Session Classification: RDC 4 Readout & ASICs

Track Classification: RDC 4 Readout & ASICs