Contribution ID: **1305** Type: **Parallel session talk**

Q-Pix: ASIC Development and First Prototypes for Pixelated Charge Readout

Thursday 18 July 2024 11:53 (17 minutes)

The Q-Pix concept is a continuously integrating low-power charge-sensitive amplifier (CSA) viewed by a Schmitt trigger. When the trigger threshold is met, the comparator initiates a 'reset'transition and returns the CSA circuitry to a stable baseline. The reset time is captured in a 32-bit clock value register, buffers the cycle and then begins again. The time difference between one clock capture and the next sequential capture, called the Reset Time Difference (RTD), measures the time to integrate a integrated quantum of charge (Q). Waveforms are reconstructed without differentiation and an event is characterized by the sequence of RTDs. Q-Pix offers the ability to extract all track information providing very detailed track profiles and also utilizes a dynamically established network for DAQ for exceptional resilience against single point failures. This talk will present the first results of the Q-Pix 180 nm ASICs, introduce novel light-based prototypes, and discuss future tests.

Alternate track

1. Neutrino Physics

I read the instructions above

Yes

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Session Classification: Detectors for Future Facilities, R&D, Novel Techniques

Track Classification: 13. Detectors for Future Facilities, R&D, Novel Techniques