Contribution ID: **38**   Type: **Oral**

3D Integrated Sensing Solutions

Wednesday, 8 November 2023 12:00 (15 minutes)

We will present the proposed research project to develop 3D-integrated sensors using advanced manufacturing capability for novel sensors, heterogeneously integrated with energy efficient readout circuits. The lack of precision timing in particle tracking detectors and the absence of low power, high throughput communications solutions to read them out limits progress in multiple fields of fundamental science. The aim of the project is to develop technology to enable large-scale particle detectors with 3D-integrated ASIC designs to simultaneously achieve 10 μm position resolution and 10 ps precision timing, with low-power consumption and high throughput rates. This research program leverages the unique combination of facilities and cross-disciplinary expertise of scientists and engineers at SLAC, FNAL, and LLNL and industrial partners.

Early Career

No

Primary authors: SCHWARTZMAN, Ariel (SLAC); CARPENTER, Arthur (LLNL); APRESYAN, Artur; MARKOVIC, Bojan (SLAC); KENNEY, Christopher (SLAC); BRAGA, Davide (Fermilab); FAHIM, Farah (Fermilab); SEGAL, Julie (SLAC); ROTA, Lorenzo (SLAC); LIPTON, Ron (Fermilab)

Presenter: APRESYAN, Artur

Session Classification: RDC3+4+11

Track Classification: RDC Parallel Sessions: RDC3: Solid State Tracking