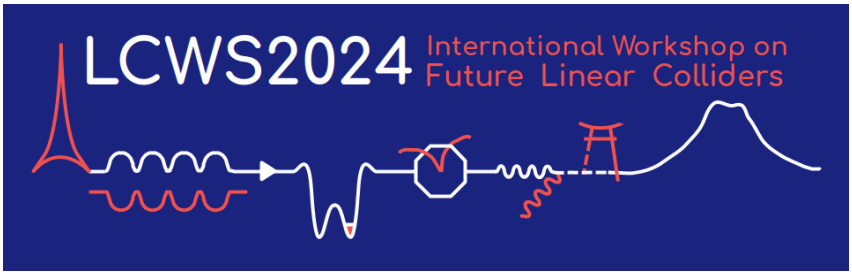

Contribution ID: **92** Type: **Oral presentation (in person)**

Nanosecond timing MAPS

Tuesday, 9 July 2024 11:00 (20 minutes)

The detectors at future e+e- linear colliders will need unprecedented precision on Higgs physics measurements. These ambitious physics goals translate into very challenging detector requirements on tracking and calorimetry. Monolithic Active Pixel Sensor (MAPS) technology offers small dead areas, thin sensors, and small pixels over large areas. Future e+e- Colliders could benefit from O(ns) timing tagging, with the constraint that the overall power consumption stays within the target of few tens of mW/cm^2. Today some commercial imaging technologies offer the possibility of producing large, stitched sensors (with a rectangle area ~30 cm × 10 cm). Such large sensors are very interesting from a physics point of view, but they are very challenging from an engineering point of view. A first MAPS prototype 'NAPA-p1'was designed by SLAC in CMOS Imaging 65 nm technology. The prototype has dimensions of 1.5 mm × 1.5 mm with a pixel pitch of 25 µm. This work benefits from our collaboration with CERN, capitalizing on the improved sensor's performance after a decade of optimizations. This prototype will set the baseline for the sensor and the electronics performance which will serve future developments. This talk will feature the first measurements performed to fully characterized this prototype.

Apply for poster award

Primary authors: VERNIERI, Caterina (SLAC National Accelerator Laboratory (US)); BRAU, James; ROTA, Lorenzo (SLAC); BREIDENBACH, Martin (SLAC); VASSILEV, Mirella (Stanford U)

Presenter: VERNIERI, Caterina (SLAC National Accelerator Laboratory (US))

Session Classification: Vertex, Tracking, Timing detectors

Track Classification: Physics and Detector: Vertex, Tracking, Timing