

11th International "Hiroshima" Symposium on the Development and Application of Semiconductor Tracking Detectors (HSTD11) in conjunction with 2nd Workshop on SOI Pixel Detectors (SOIPIX2017) at OIST, Okinawa, Japan

Contribution ID: 165

Type: POSTER

## Digital Electromagnetic Calorimetry for future colliders

*Sunday 10 December 2017 21:17 (1 minute)*

A Digital Electromagnetic Calorimeter (DECAL) is a highly granular device, which counts the number of particles in a shower rather than the total energy deposited. The required ultra-high granularity ( $50 \times 50 \mu\text{m}^2$ ) can be achieved using radiation hard CMOS Monolithic Active Pixel Sensors (MAPS).

We will present simulated results for the optimisation of a DECAL at future colliders (ILC/CLIC/FCC-hh). Particular focus will be on single particle resolutions, the impact of pile-up at hadron colliders and its reduction, and reconstruction algorithms to extract the additional shower information available from such a highly segmented detector. We will also present an overview, and initial measurements, of a radiation hard MAPS designed for such a calorimeter.

**Primary authors:** PRICE, Tony (University of Birmingham (GB)); ALLPORT, Philip Patrick (University of Birmingham (UK)); WATSON, Nigel (University of Birmingham (GB)); WINTER, Alasdair (University of Birmingham (GB)); WORM, Steven (University of Birmingham); DOPKE, Jens (STFC - Rutherford Appleton Lab. (GB)); SEDGWICK, Iain (STFC); VILLANI, Enrico Giulio (STFC - Rutherford Appleton Lab. (GB)); WILSON, Fergus (STFC - Rutherford Appleton Lab. (GB)); ZHANG, Zhige (STFC - Rutherford Appleton Lab. (GB)); CHEN, Liejian (Chinese Academy of Sciences (CN))

**Presenter:** PRICE, Tony (University of Birmingham (GB))

**Session Classification:** POSTER

**Track Classification:** New ideas and future applications