DOE DE-SC0017963

Final Report
Sensor Development for Future e+e- Colliders
August 1, 2017 – July 31, 2018

PI: James Brau

The Oregon effort supported by this award contributed to the development of highly granular electromagnetic calorimetry based on silicon-tungsten sampling. This effort was carried out within a collaborative effort involving the SLAC National Accelerator Laboratory and Tohoku University, Japan, as well as others. The Oregon group focused its contribution on the simulation of the calorimeter performance. The results were presented at the Asian Linear Collider Workshop in Fukuoka, Japan, in June, 2018, but Jason Barkeloo. The results included reconstruction of electromagnetic showers and tagging efficiencies from test beam data and Monte Carlo simulations. These results are contributing to the on-going optimization of the calorimeter design, led by out SLAC colleagues. The slides presented are posted at

https://agenda.linearcollider.org/event/7826/sessions/4672/attachments/33636/51590/BarkelooALCWS2018.pdf

Three of the key results are shown in the following figures.
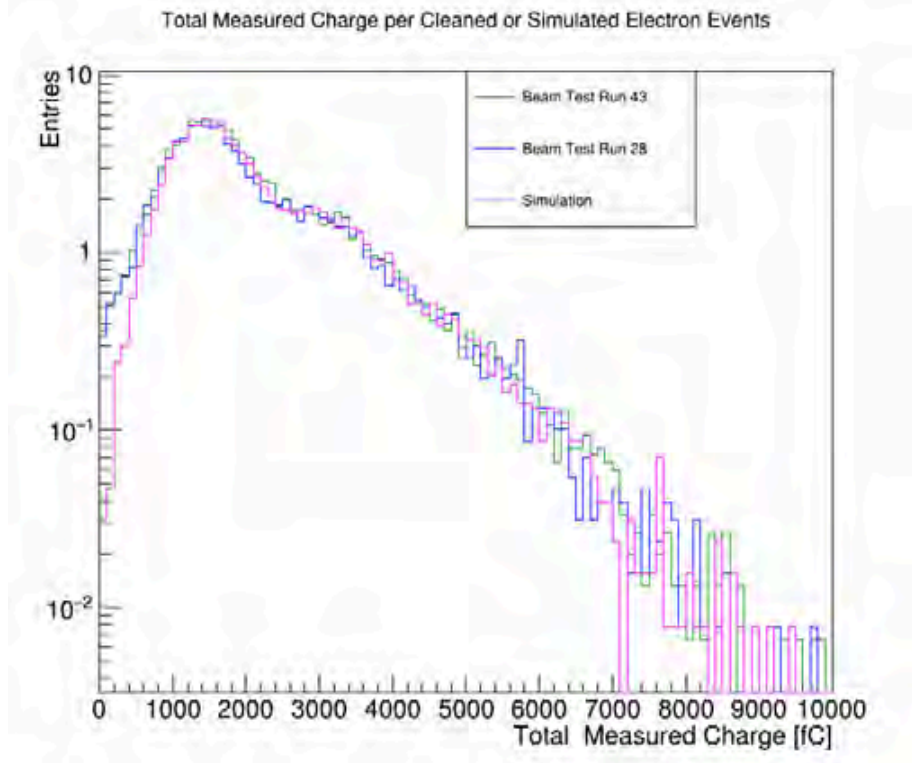

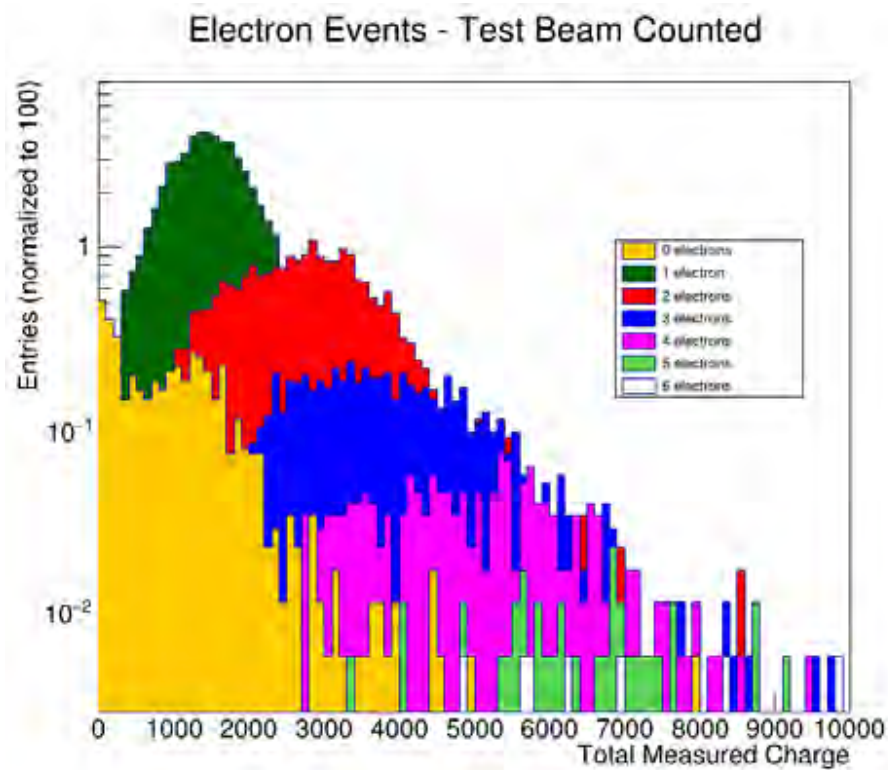FIG. 1: Prototype test beam runs match very well with GEANT4 simulated data.

FIG. 2: Distributions of the number of counted electrons in test beam data.
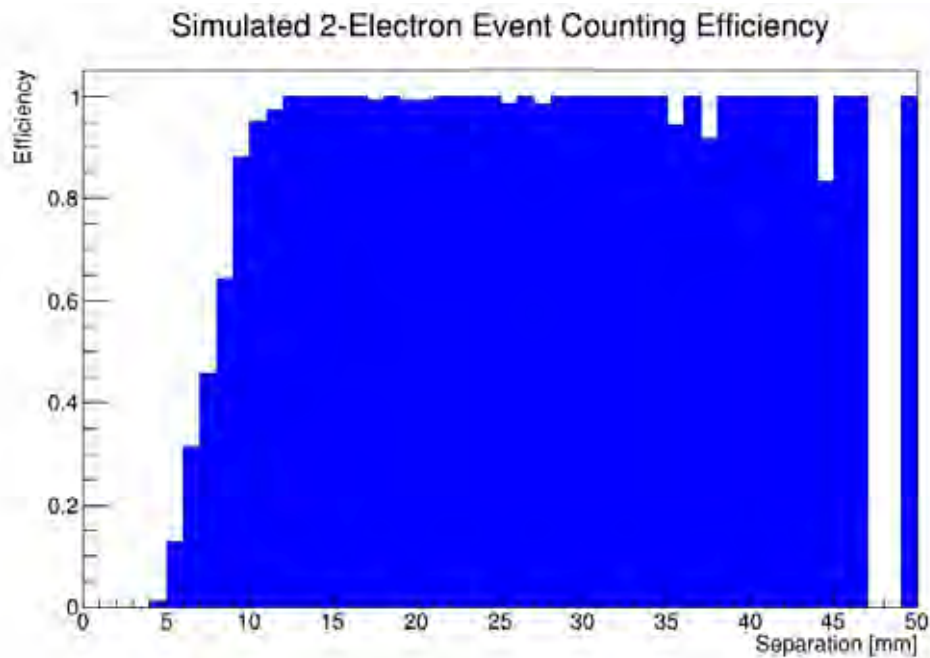

FIG. 3: Efficiency of electron counting algorithm with simulated two electron events.