



Contribution ID: 61

Type: Oral

RADiCAL: Ultra-compact, Radiation-hard, Fast-timing EM Calorimetry

Tuesday, 7 November 2023 16:45 (15 minutes)

To address the challenges of providing high performance calorimetry in future hadron collider experiments under conditions of high luminosity and high radiation, we are conducting R&D on advanced calorimetry techniques suitable for such operation, based on scintillation and wavelength-shifting technologies and photosensor (SiPM and SiPM-like) technology. In particular, we are focusing our attention on ultra-compact radiation hard EM calorimeters, based on modular structures (RADiCAL modules) consisting of alternating layers of very dense absorber and scintillating plates, read out via radiation hard wavelength shifting (WLS) solid fiber or capillary elements to photosensors positioned either proximately or remotely, depending upon their radiation tolerance. RADiCAL modules provide the capability to measure simultaneously and with high precision the position, energy and timing of EM showers. This paper will provide preliminary results from recent beam tests of a RADiCAL module in electron beams over the energy range $25 \text{ GeV} < E < 150 \text{ GeV}$.

Early Career

Yes

Primary authors: LEDOVSKOY, Alexander (University of Virginia); PEREZ-LARA, Carlos (Hofstra University); WETZEL, James (Coe College); RUCHTI, Randal (University of Notre Dame)

Co-authors: PENZO, Aldo (University of Iowa); MESTVIRISHVILI, Alexi (University of Iowa); TOSUN, Ali (Istanbul University); KARASU UYSAL, Ayben (Yildiz Technical University); KAYNAK, Berkan (Istanbul University); ISILDAK, Bora (Yildiz Technical University); COX, Bradley (University of Virginia); DURAN, Buse (Istanbul University); ZORBILMEZ, Caglar (Istanbul University); JESSOP, Colin (University of Notre Dame); RUGGIERO, Daniel (University of Notre Dame); SUNAR CERCI, Deniz (Adiyaman University, Yildiz Technical University); BLEND, Dylan (University of Iowa); DINCER, Gizem Gul (Istanbul Technical University); HOS, Ilknur (Istanbul University - Cerrahpasa); CANKOCAK, Kerem (Istanbul Technical University); ZHANG, Liyuan (Caltech); VIGNEAULT, Mark (University of Notre Dame); DUBNOWSKI, Max (University of Virginia); WAYNE, Mitchell (University of Notre Dame); CHIGURUPATI, Nihal (University of Virginia); KOSEYAN, Ohannes Kamer (University of Iowa); POTOK, Onur (Istanbul University); DEBBINS, Paul (University of Iowa); ZHU, Renyuan (Caltech); CERCI, Salim (Adiyaman University); HATIPOGLU, Selbi (Istanbul University); OZKORUCUKLU, Suat (Istanbul University); YETKIN, Taylan (Yildiz Technical University); ANDERSON, Thomas (University of Virginia); BARBERA, Thomas (University of Notre Dame); AKGUN, Ugur (Coe College); ONEL, Yasar (University of Iowa); WAN, Yuyi (University of Notre Dame)

Presenter: WETZEL, James (Coe College)

Session Classification: RDC9

Track Classification: RDC Parallel Sessions: RDC9: Calorimetry