Proton - Electron discrimination capabilities with CALET
AARON J. WORLEY, JONATHAN F. ORMES, Department of Physics and Astronomy, University of Denver, ON BEHALF OF THE CALET COLLABORATION —
The CALorimetric Electron Telescope (CALET) is a space–borne observatory set to be deployed on the ISS-JEM (aka Kibo) by a Japanese led collaboration with Italy and the United States. The primary objective of the mission is to provide precise measurements of the flux of photons, electrons and nuclei in the cosmic radiation, with energies in excess of several TeV. The instrument consists of the three sub-detectors: The Charge Detector (CHD), Imaging Calorimeter (IMC), and Total Absorption Calorimeter (TASC); totaling 30 X_0 and 1.3 λ on axis. The imaging capabilities and depth of the apparatus produces precise longitudinal and lateral profiles, as well as the energy loss of the electromagnetic particles, allowing for a discrimination factor of about 10^5 between electromagnetic and hadronic particles. We demonstrate the separation capabilities of the instrument and present a multivariate technique developed from both Monte Carlo simulations and test beam data **to aid in the electron/hadron separation while maintaining a very high detection efficiency.**

Aaron J. Worley
Department of Physics and Astronomy, University of Denver