

Stability of the Gains of the STAR Endcap Calorimeter from 2006 to 2011

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The Solenoid Tracker at RHIC (STAR) experiment, based at Brookhaven National Laboratory's Relativistic Heavy Ion Collider (RHIC), uses polarized-proton collisions to investigate sea quark and gluon contributions to the fundamental proton property called "spin." The STAR detector's Endcap Electromagnetic Calorimeter (EEMC) measures the energy of particles produced by those collisions using a lead-scintillator sampling calorimeter, consisting of several layers that include pre-shower, shower maximum, tower, and post-shower detectors. In these detectors, the energy gains, which convert a measured pulse into an energy deposition, have been determined using data taken from the years 2006, 2009, and 2011. Changes in the gains over time may result from known high voltage changes or deterioration of the detector, such as from radiation damage. A comparison of the gains from the three years will be presented.

Information about the Author:

Kayla Kutz is a senior physics and secondary education double major planning to either begin a career teaching high school physics or pursuing a master's degree in a related field following graduation. Nuclear physics has been a personal area of interest for her since her introduction to the sub-discipline through the Physics Department colloquia, and she was thrilled to have the opportunity to join the nuclear physics research community through the STAR collaboration.

Faculty Sponsor: Dr. Shirvel Stanislaus

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