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Electron Identification in the EEMC at STAR JOSHUA VREDEVOOGD, THEODORE HOPKINS, Valparaiso University, STAR COLLABORATION — The Endcap Electromagnetic Calorimeter (EEMC) at STAR provides a new tool to probe the origins of nucleon spin. In particular, the spin contribution of up and down sea antiquarks can be studied through charged intermediate vector boson (W) production in quark-antiquark annihilation. The W bosons are identified in STAR by the observation of a single electron track from their decay. By measuring the parity-violating helicity sensitivity of the yield of these electrons, one can infer information about spin preferences of sea antiquarks in the proton. A prerequisite for this, and several other studies, including J/Psi production, is the ability to efficiently differentiate between electrons and hadrons as they pass through the calorimeter. Measurements of the transverse and longitudinal evolution of the electromagnetic and hadronic showers in the EEMC provide distinguishing characteristics that permit the separation of these two shower types. We have developed an algorithm that provides electron identification and charged pion background suppression that surpasses the design requirement for EEMC signals alone. Further efforts are underway to discriminate against prompt photon and neutral pion backgrounds, both of which also produce electromagnetic showers in the EEMC. An overview of our identification method and results are presented.

Joshua Vredevoogd
Valparaiso University

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