

Abstract Submitted  
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**Reconstructing  $\pi^0$  Decays at Intermediate Energy Using the MPC-EX Detector at RHIC-PHENIX<sup>1</sup>** HUGO BETHANCOURT, Augustana University, PHENIX COLLABORATION — The Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory produces  $\pi^0$ s that decay into the majority of photons detected by the Pioneering High Energy Nuclear Interaction eXperiment (PHENIX). The Muon Piston Calorimeter (MPC) in PHENIX is a PbWO<sub>4</sub> electromagnetic calorimeter situated at forward rapidity ( $3 < |\eta| < 4$ ). The preshower MPC-EX is a Si-W extension to the MPC that detects the decay photon shower position with higher spatial resolution than the MPC. The lowest energy  $\pi^0$ s decay into photons that are separated in the MPC while the highest energy  $\pi^0$ s decay to photons that are reconstructed as a single electromagnetic shower. At intermediate energies, both can happen and fluctuations in the showers are larger than at higher energies. Care must be taken to reconstruct  $\pi^0$ s at these energies. We will show the current status of the analysis of intermediate energy  $\pi^0$ s in  $\sqrt{s_{NN}} = 200$  GeV d+Au collisions.

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