

Abstract Submitted  
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**Prompt Photon Measurements with the PHENIX MPC-EX Detector** JOHN LAJOIE, Iowa State University, for the PHENIX Collaboration — The MPC-EX detector is a Si-W preshower extension to the existing PHENIX Muon Piston Calorimeter (MPC). The MPC-EX consists of eight layers of alternating W absorber and Si mini-pad sensors. Covering a large pseudorapidity range,  $3.1 < |\eta| < 3.8$ , the MPC-EX and MPC access low-x partons in the Au nucleus in d+Au collisions through prompt photon measurements. With the addition of the MPC-EX, the neutral pion reconstruction range extends to energies  $> 80$  GeV, a factor of four improvement over current capabilities. Not only will the MPC-EX strengthen PHENIX's existing forward  $\pi^0$  and jet measurements, it also provides the necessary  $\pi^0$  rejection to make a prompt photon measurement feasible. With this  $\pi^0$  rejection, prompt photon yields at high  $p_T$ ,  $p_T > 3$  GeV, can be statistically extracted using a double ratio method. The prompt photon  $R_{dAu}$  measured with the MPC-EX will quantify the level of gluon shadowing or saturation in the Au nucleus at low-x,  $x \sim 10^{-3}$ , with a projected systematic error band a factor of four smaller than current global fits to current measurements.

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