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The Hadron Blind Ring Imaging Cherenkov Detector MARIE BLATNIK, STEPHANIE ZAJAC, TOM HEMMICK, Stonybrook University — Heavy Ion Collisions in the Relativistic Heavy Ion Collider (RHIC) at Brookhaven Lab have hinted at the existence of a new form of matter at high gluon density, the Color Glass Condensate. High energy electron scattering off of nuclei, focusing on the low-x components of the nuclear wave function, will definitively measure this state of matter. However, when a nucleus contributes a low x parton, the reaction products are highly focused in the electron-going direction and have large momentum in the lab system. High-momentum particle identification is particularly challenging. A particle is identifiable by its mass, but tracking algorithms only yield a particle's momentum based on its track's curvature. The particle's velocity is needed to identify the particle. A ring-imaging Cerenkov detector is being developed for the forward angle particle identification from the technological advancements of PHENIX's Hadron-Blind Detector (HBD), which uses Gas Electron Multipliers (GEMs) and pixelated pad planes to detect Cerenkov photons. The new HBD will focus the Cerenkov photons into a ring to determine the parent particle's velocity. Results from the pad plane simulations, construction tests, and test beam run will be presented.

Marie Blatnik
Stonybrook University

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