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eRHIC: An Electron - Ion Collider at BNL

Wednesday, 30 April 2014 14:00 (20 minutes)

BNL's plan for an electron-ion collider, eRHIC, a major new research tool that builds on the existing RHIC facility to advance the long-term vision for Nuclear Physics to discover and understand the emergent phenomena of Quantum Chromodynamics (QCD) will be presented.

The scientific requirements for such a facility, following up on the community-wide 2012 white paper, "Electron-Ion Collider: the Next QCD Frontier"[arXiv:1212.1701], and the design concept that incorporates new, innovative accelerator techniques to provide a cost-effective upgrade of RHIC with polarized electron beams colliding with the full array of RHIC hadron beams, 250 GeV polarized protons and 100 GeV/u heavy ion beams, at a luminosity of $10^{33} \text{ cm}^{-2} \text{ s}^{-1}$ will be shown. Further the IR design together with the studies for an eRHIC detector realization, based on the sPHENIX and STAR detector and a model detector, which is completely optimized to the physics requirements, will also be discussed.

Primary author: ASCHENAUER, elke-caroline (BNL)

Presenter: ASCHENAUER, elke-caroline (BNL)

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