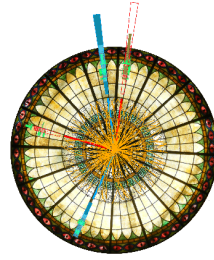


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The Evolution Of PHENIX Into An Electron Ion Collider (EIC) Experiment

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The Electron Ion Collider (EIC, arXiv:1212.1701.v3) will allow for precision measurements of the partonic and spin structure of nucleons and the partonic structure of nuclear matter using e+p and e+A collisions, respectively. One of the realizations of the EIC, the eRHIC at BNL, plans to utilize the existing RHIC storage rings (polarized proton and other ion beams) and a high-intensity polarized electron facility to be built in the RHIC tunnel. Before the transition to eRHIC, RHIC itself still holds a huge potential for study leading to new insights into hadronic spin structure and cold nuclear matter with p+p and p+A collisions. An experiment based on the BaBar solenoid with barrel calorimeters and tracking detectors (sPHENIX, arXiv:1207.6378v2) and additional instrumentation in the proton-going direction (fsPHENIX) would realize this potential. By design, this detector is planned to smoothly evolve into a full-fledged EIC experiment at eRHIC with additional calorimeters, tracking, and particle identification systems (arXiv:1402.1209). We give an overview of the experiment in its RHIC and eRHIC stages, the respective physics goals, and detector simulations.

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