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Overview of the EIC Beam instrumentation and synergies with FCC

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The electron-ion collider (EIC) to be constructed at Brookhaven National Laboratory is presently in the conceptual design phase of development. This facility will be based on the existing RHIC complex. There will be a new electron gun, linac and rapid cycling synchrotron feeding the 5-18 GeV storage ring to provide polarized electrons for collision with hadrons. The existing RHIC hadron rings will be reconfigured into one combination acceleration and storage ring to provide 40–275 GeV hadrons, this includes polarized protons. A strong hadron cooling facility is included in the baseline, the cooling is realized by co-propagating 120 mA, 150 MeV micro-bunched electrons with the hadron beam. A brief overview of the proposed beam instrumentation will be presented along with potential collaborations with the FCC.

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