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The Electron-Ion Collider Science and Project Status

Friday, 12 July 2024 12:10 (40 minutes)

The scientific foundation for the Electron-Ion Collider (EIC) was built over two decades. The EIC will be sited at Brookhaven National Lab and constructed in partnership with Jefferson Lab. The EIC will have a versatile range of beam energies, polarizations, and ion species, as well as high luminosity, to precisely image quarks, gluons, and their interactions in protons and complex atomic nuclei. It will discover how mass and spin are dynamically generated by the interaction of quark and gluon fields inside protons and neutrons. Using its versatility, the EIC can probe deep inside nuclei where structures and dynamics are expected to become dominated by dense systems of gluons, possibly reaching a state of saturation. The overarching EIC goal is an understanding of the internal structure of nuclear matter comparable to our knowledge of the electronic structure of atoms. The EIC construction project is notionally envisioned to be completed in the first part of the next decade. The status of the EIC and the worldwide efforts towards the realization of the ePIC detector will be presented.

session

A. Facilities and Detectors

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Session Classification: Plenary session