

# XXVI International Workshop on Deep Inelastic Scattering and Related Subjects



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## A Summary of the EIC Detector R&D Program

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The Electron-Ion Collider (EIC) is the next-generation U.S.-based facility to study Quantum Chromodynamics by probing the dynamics of gluons and sea quarks with comprehensive and systematic measurements of high precision. The experimental program of the EIC is, thus, diverse, covering a broad range of studies from mapping the spatial, momentum, spin, and flavor distributions of gluons and sea quarks in the nucleon to exploring gluon saturation and gluon distributions in nuclei. To carry out this program, the use of different combinations of both beam energy and particle species, wide center-of-mass energy range, measurements of various processes, such as inclusive and semi-inclusive deep-inelastic scattering as well as exclusive elastic and inelastic scattering, and detection of various leptons, mesons, and baryons in the final state, is necessary. The broad experimental scope places challenging and unique requirements on detector capabilities. To name a few, excellent particle identification (PID) over a wide momentum range and full acceptance are a must. The objective of the current generic EIC Detector R&D Program is to develop detector concepts and technologies that are suitable to carry out the EIC scientific program and can operate in the EIC environment. In this talk we will present key aspects of the R&D program, such as calorimetry, PID, and tracking, and discuss the current status of advancing related detector technologies.

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