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The ePIC experiment: detector and physics highlights

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With the project to build a future Electron-Ion Collider (EIC) in the USA, equipped with a new state-of-the-art detector (ePIC), we are now preparing for the next step in precision studies of QCD.
The EIC will be the only new high-energy collider world-wide in the next twenty-thirty years. Electrons and ions, from p up to U, will collide at high luminosity on a large range of center-of-mass energies. The machine is designed to achieve a high polarization of both the lepton and the proton/light-nucleon beams. The EIC and it's ePIC detector will open a unique opportunity to address fundamental questions as the origin of the nucleon spin and will allow us for a precise 3D imaging of the partonic structure of nucleons and nuclei. Other key questions addressed by th EIC are the origin of the hadron masses and the exploration of high-density gluonic matter.
The approved project is successfully progressing at Brookhaven National Laboratory (BNL) and it includes the ePIC experiment, a general purpose detector designed to cover the whole EIC physics case.
The main characteristics of the ePIC experiment are discussed, together with highlights on the physics case and detector performance studies.

Primary author: FAZIO, Salvatore (University of Calabria & INFN Cosenza)

Presenter: FAZIO, Salvatore (University of Calabria & INFN Cosenza)

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