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Physics performance of the ePIC detector - ongoing and planned studies

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The future Electron-Ion Collider (EIC), with its large range of center-of-mass energies in combination with high luminosity and polarization of both the electron and the proton/light-ion beams will transform our understanding of Quantum Chromo-Dynamics (QCD).
Its new state-of-the-art detector, ePIC, will open a unique opportunity for high precision measurements of both cross sections and spin-asymmetries in e+p(A) collisions.

The ePIC Collaboration has been established in July 2022 to build a general purpose detector designed to investigate the whole EIC core science program.
Studies of key measurements are ongoing in order to demonstrate that ePIC is capable of delivering on its mission.
Processes taken into consideration are chosen for both their relevance to the core science and the specific challenges that they pose to the detector.
This talk will highlight current and planned activities by the Physics Working Groups of ePIC in the context for the Technical Design Report and the Early Science Report, which will explore the impact of EIC early science during its first 5 years of running.

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