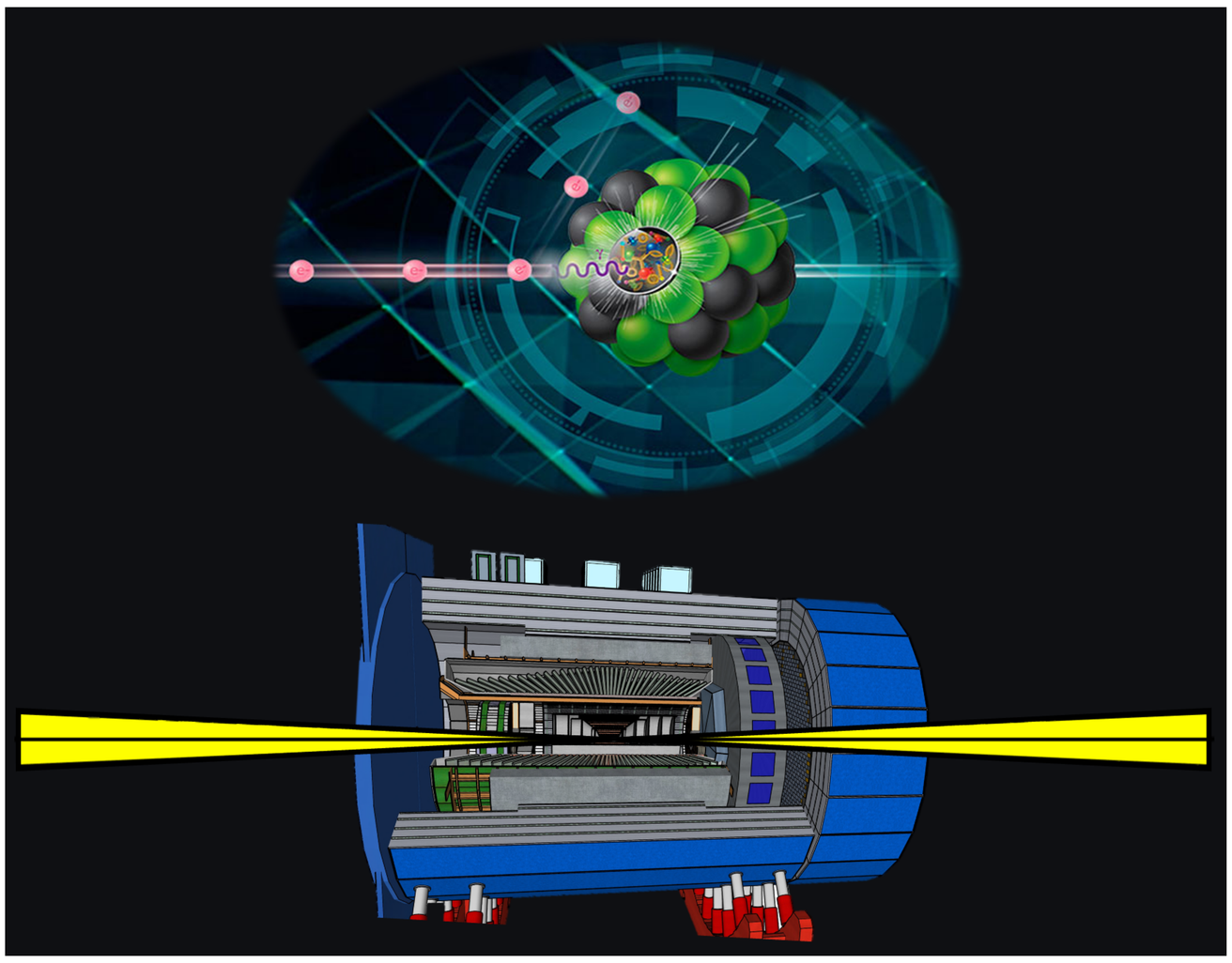
KCETA Colloquium

From QCD to Visible Matter: An Insight into the U.S. Electron-Ion Collider

Thursday, June 15, 2023
Kleiner Hörsaal A (CS) 15:45 - 17:00

Professor Or Hen
(Massachusetts Institute of Technology)



Recently the United States greenlit the construction of a revolutionary Electron-Ion Collider (EIC) at the Brookhaven National Lab. This once-in-a-generation $2.4 billion investment is set to propel our understanding of subatomic matter by generating unmatched high-current polarized electron and proton/ion beams that will interact at two distinct collision points. These interactions will be meticulously analyzed by cutting-edge detectors to uncover unprecedented insights into the formation and properties of subatomic matter.

The EIC's research program is primed to address some of the most profound questions in quantum physics encompassing the emergence of nucleon spin and mass the role of Quantum Chromodynamics (QCD) in nuclear interactions and its influence on bound nucleon structure and the three-dimensional structure of nucleons and nuclei. It will further delve into the uncharted territories of low-temperature dense gluonic matter properties and the quest for physics beyond the confines of the standard model.

In this talk I will elaborate on how the EIC will serve as an invaluable tool in addressing these perplexing questions. Additionally I will present an overview of the ePIC detector currently under design and construction by an international collaboration of scientists from over 160 institutions promising to redefine our understanding of the subatomic world.

Please note:
The colloquium will also be live-streamed to B402 SR224 (CN).

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