

Informationen zum Electron-Ion Collider (EIC)

- Abschätzung Interesse der KET Community-

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KET-Jahresversammlung 2021

Machine:

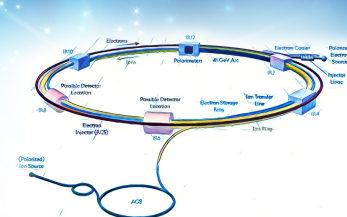
- Highly polarized electron and proton beams (each ~70%)
- Ion beams from light to heavy (deuteron, gold, lead, uranium)
- Variable ep center of mass energies from 20 to 100 (140) GeV
- Luminosity $10^{33} - 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ (100-1000 times HERA)
- Two interaction regions

Physics:

- Origin of the spin and mass of the proton/nucleon
- 3D Imaging of the protons/nucleon (TMD-PDF, GPD)
- Properties of dense systems of gluons (CGC, ..)
- Nuclear PDFs (shadowing, anti-shadowing, ...)
- Passage of partons through matter (hadronization,...)
- Some possibilities for BSM and EW
- ...



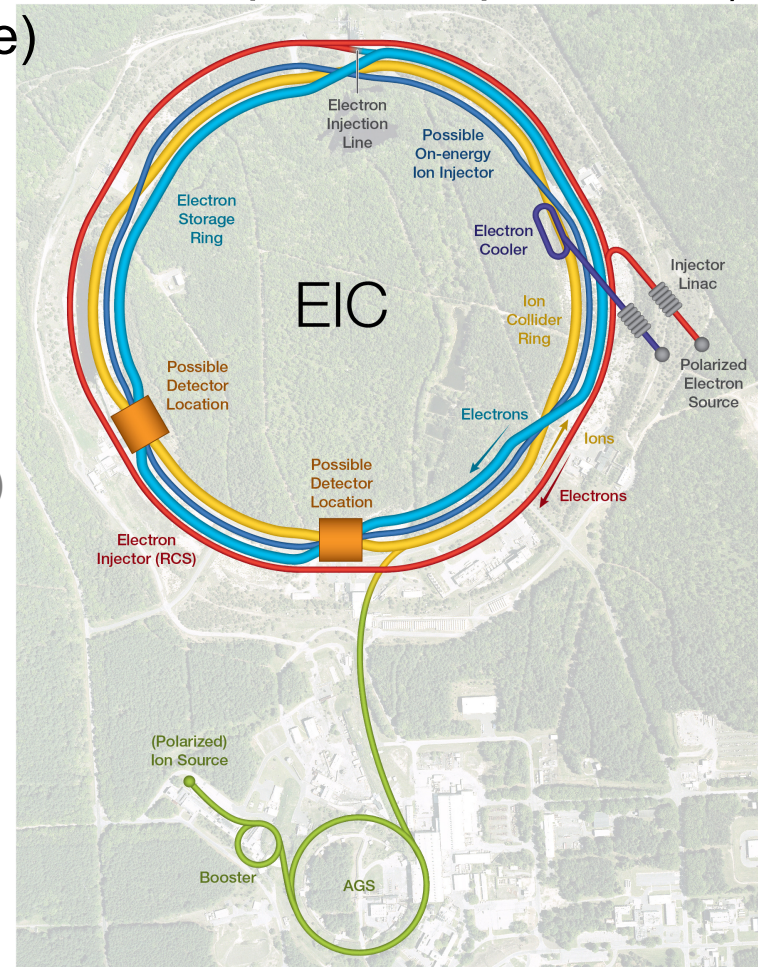
EIC YELLOW REPORT
Volume I: Executive Summary



EIC Yellow Report: arXiv: 2103.05419

Milestones:

- Dec. 2019: CD-0 (Critical Decision Zero) → official project of US government
 - Jan. 2020: site selection → BNL (make use of RHIC for polarized p and Ions)
 - Jul. 2021: CD-1 (start of proj. execution phase)
 - Presently development of detector proposals (proposal submission in December)
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- March 2022: Selection of Project Detector (Detector for 2nd IR a bit later)
 - April 2023: CD-2 Approval (Baselining the project)
 - July 2024: CD-3 Approval (Start of construction)
 - 2031: CD-4A (Start of operation)



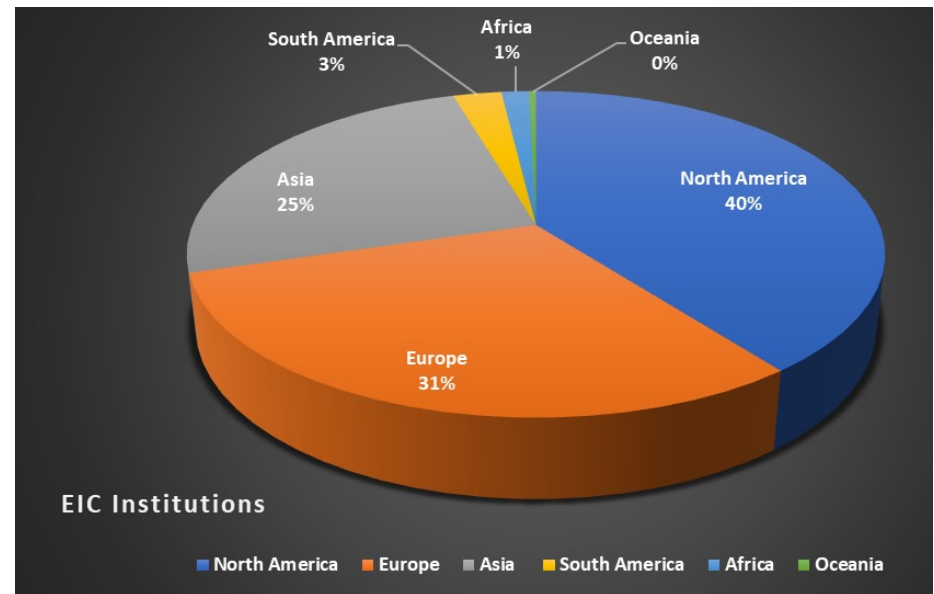
Interested ?

EIC User group: <http://www.eicug.org/>

(November 2021)

- 1298 collaborators
- 36 countries
- 264 institutions

(Exp. 799, Theorists 324, Acc. Sci. 161)



KET wants to assess the level of interest in our community
(KHuK also wants our feedback on this)

→ If you are interested to potentially start participating in the next few years,
please send an email to ellinghaus@uni-wuppertal.de