Center for Frontiers in Nuclear Science

Beam Polarization and polarimetry at the EIC

Welcome

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Center for Frontiers in Nuclear Physics

June 26, 29 and July 1, 2020

In this time of world-wide Corona-Virus crisis, attending this workshop even virtually probably means you & your loved ones are doing well. Please keep it that way.

We wish those who are not as lucky, our best and hope for the pandemic to end soon.

Center for Frontiers in Nuclear Science

http://www.stonybrook.edu/cfns

History:

- Established in Fall 2017 with generous support from the **Simons Foundation** and the **SUNY/NY State**
- Joint initiative by Stony Brook University & Brookhaven National Lab

Vision:

- To support and help the EIC user community to enhance the case for the EIC.
- Invest in, train and support young scientists in the field to work on EIC

Scientific Activities & Operations:

Reviewed annually by an International Advisory Committee, a Physics Advisory Committee and a local Steering Committee

- 4 Workshops & 4-5 adhoc meetings
- Post doctoral program:
  - ~8-10 post docs (local)
  - ~5 joint post docs w/ remote institutions
- Bi-monthly Seminars
- Visitor programs
- Summer schools
- Supporting EIC conferences and meetings

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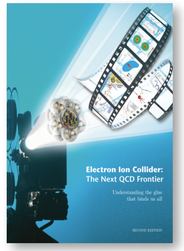
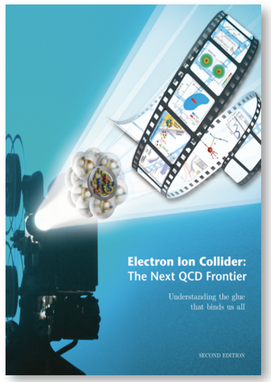
"Science: Compelling & fundamental, Realization: Timely"



Electron Ion Collider

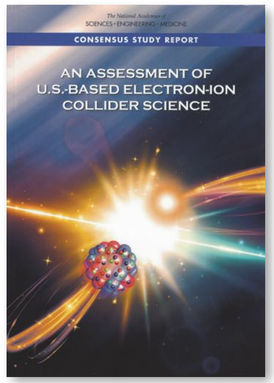
2015



2016

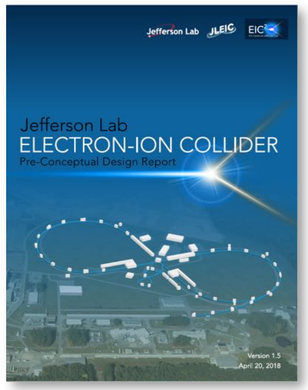
Physics of EIC

2018

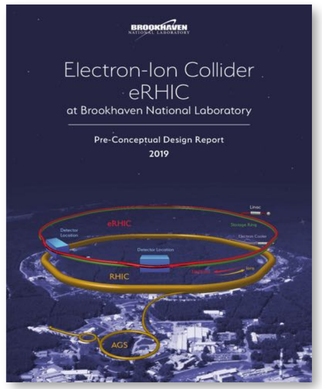


Evaluation

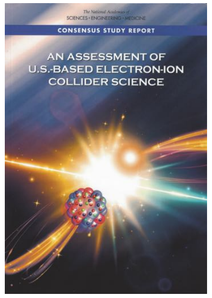
2019



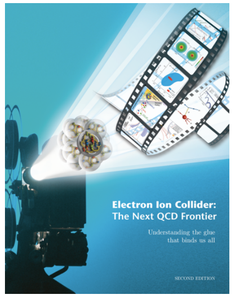
2019 - future



Realization

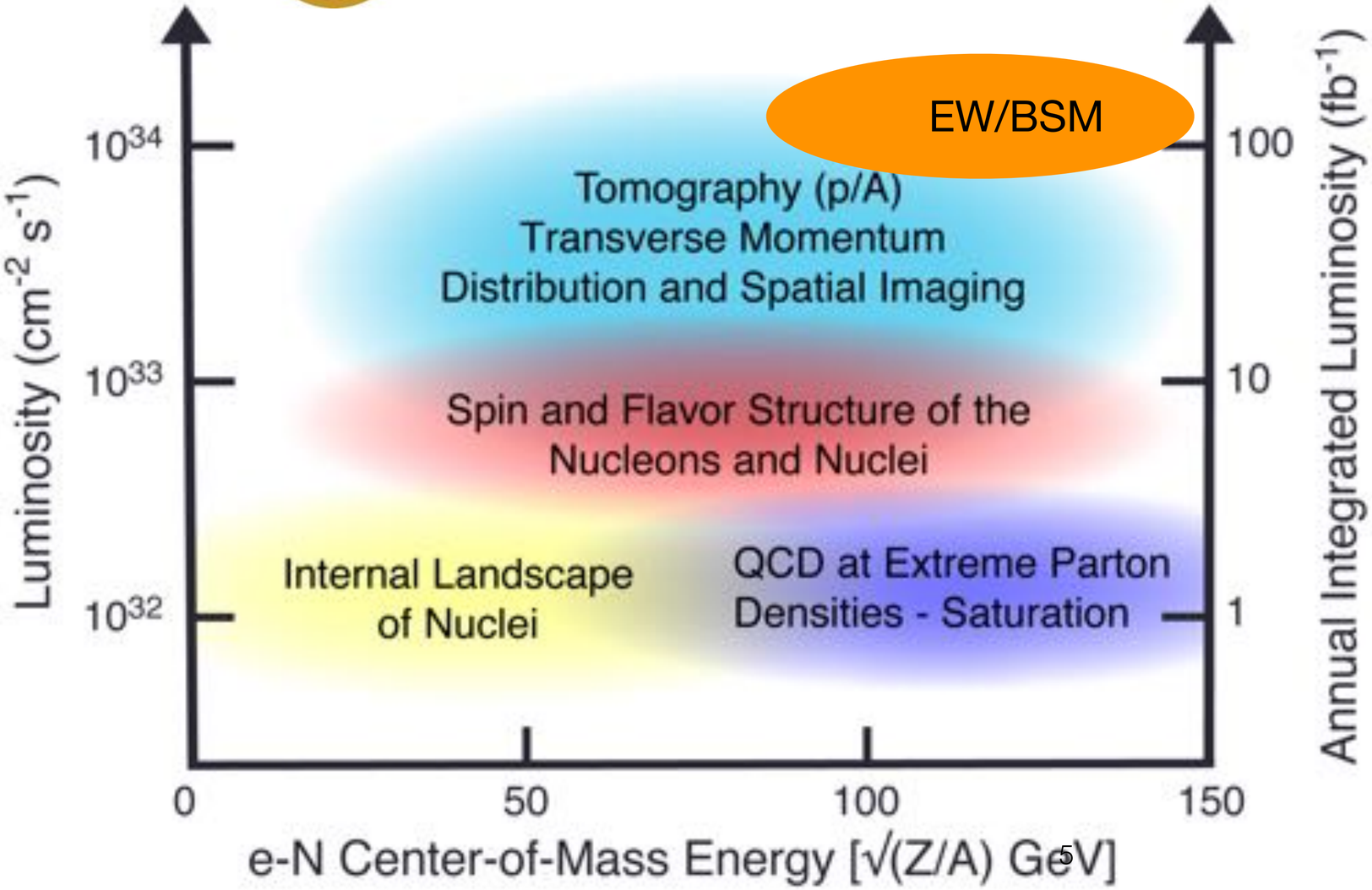


EIC Physics



NAS Consensus Report

EIC Science Compelling, fundamental & timely



The *main thrust* of EIC science on QCD: Role of Gluons

- Structure & dynamics (including spin) inside hadrons: Origin of mass & spin: Imaging
- Interaction of color in cold QCD matter (nuclei): color neutralizatio & hadronization
- Partons in nuclei: modification w.r.t. free nucleons & search for novel saturated gluons matter

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EIC Status & Evolution

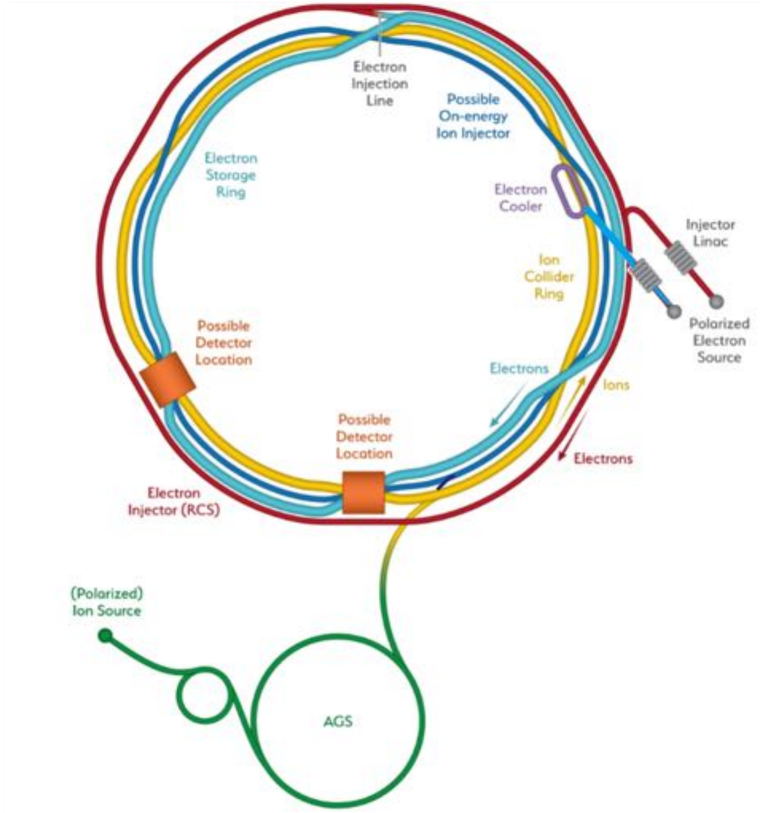
- CD0 : December 19, 2019
- Site BNL : January 9, 2020
- BNL and JLab realize EIC as partners

- A formal EIC project is now setup at BNL
- BNL+Jlab management & scientists are working together to realize it on a fast timeline.

- CD1 anticipated March 2021
- CD2 September 2022 (final design)
- CD3 4th Quarter FY2023 (start construction)

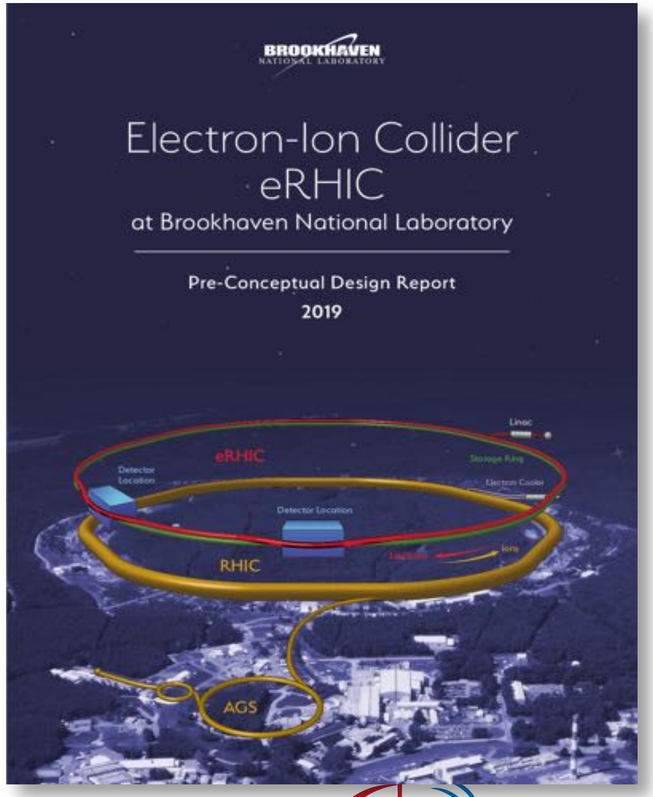
- EIC Early Finish 4th Q FY2029
- EIC CD4 4th Q FY 2030

The Electron Ion Collider Project moves forward



Electron Ion Collider (EIC) remains on a fast track moving forward through various technical , organizational and administrative.

Science program broadens and deepens



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This workshop is timely & important

- Polarization of hadrons (light ions) and electron (positrons?) critically important for the project.
- *Polarimetry will i*nfluence on the machine, IR and detector design.
- A Yellow Report initiative by the EIC Users Group: The Yellow Reports expected to inform the **Technical Design Report (TDR)** for the detector & IR

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