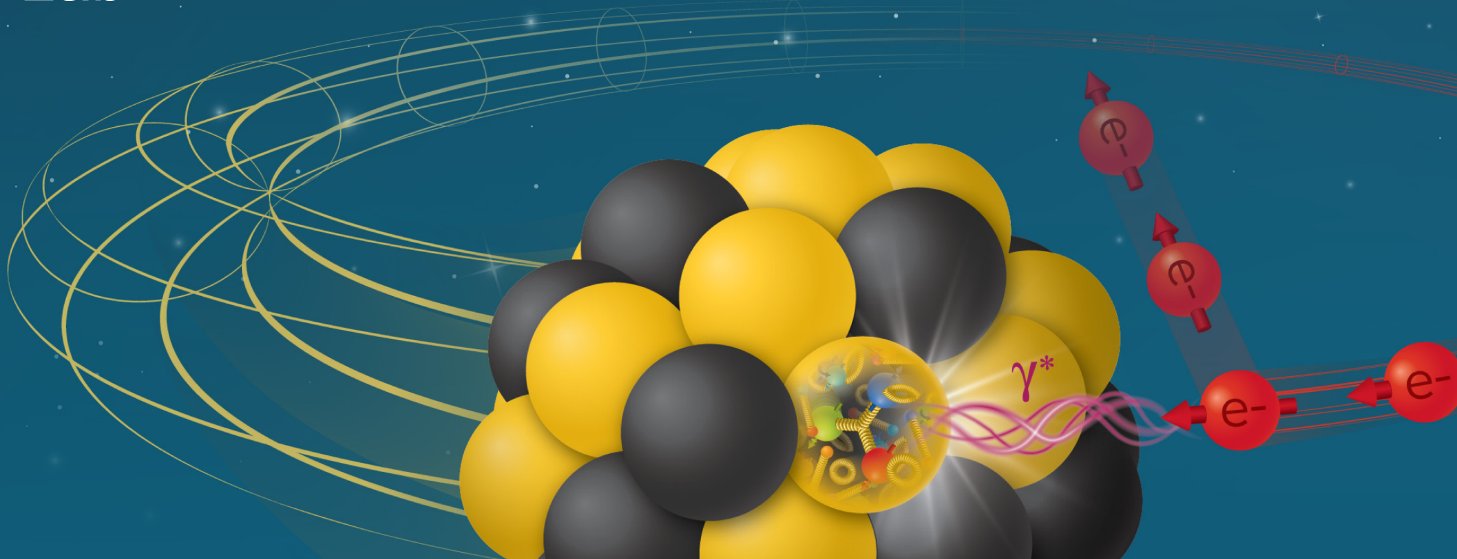
EIC Project Status

Report to the RHIC/AGS Annual User Meeting

James Fast, EIC Associate Project Manager

Special Staff Scientist, Jefferson Lab

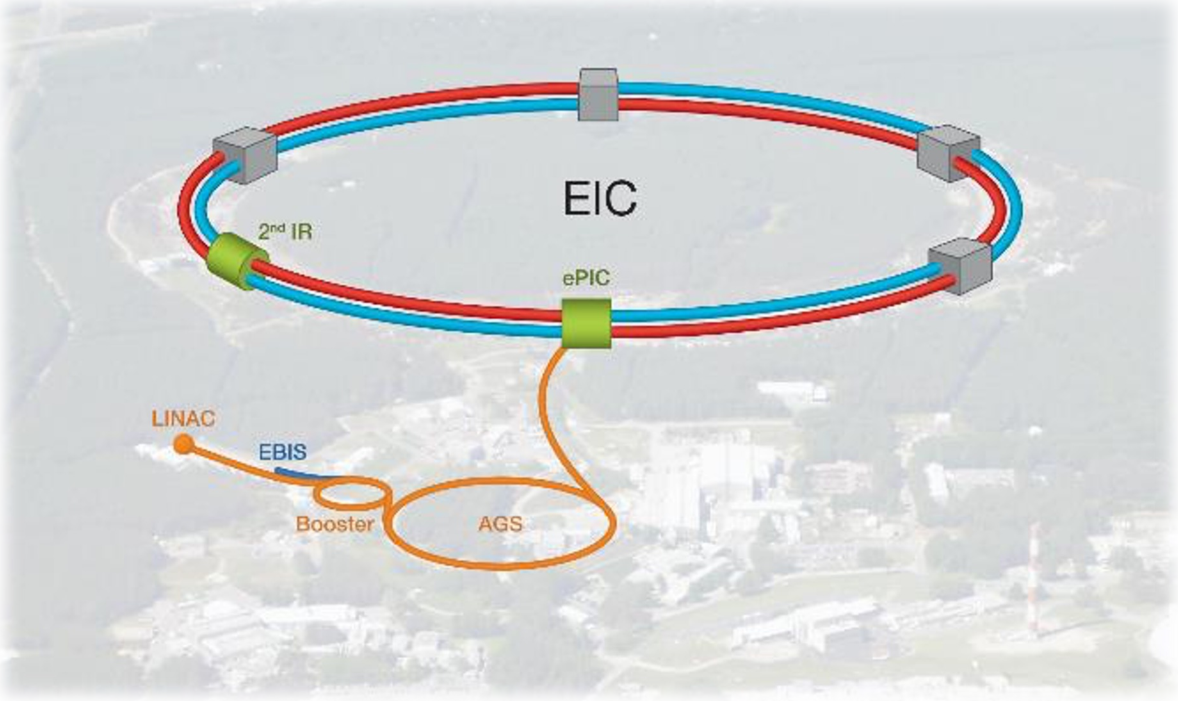
June 14, 2024



Electron-Ion Collider

Outline

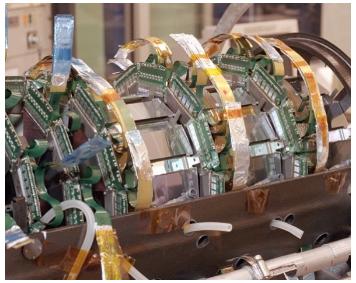
- Introduction
- EIC Project Organization
- International Participation
- EIC Science Goals
- EIC Performance Goals
- Project Status
- Summary



My career in a nutshell – I am not an expert in EIC science!

Engineering Physicist II at FNAL D0 silicon assembly and installation; SiDet engineering group lead; BTeV pixels, DECam design

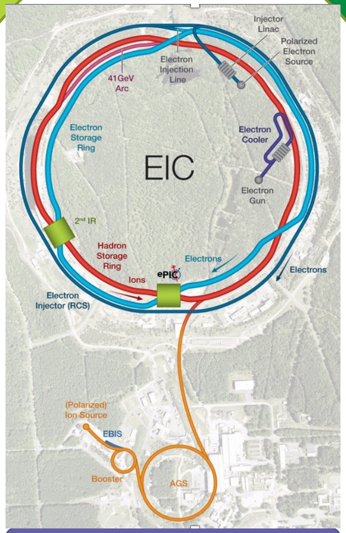
2000-2005



Changed direction

Staff Scientist at PNNL hired primarily for National Security detector R&D

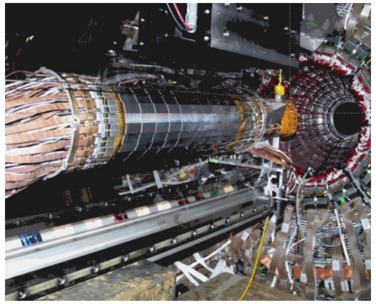
2005-2008

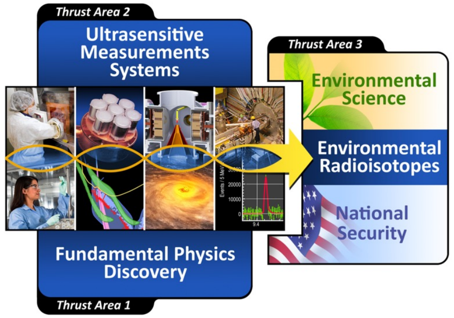


1 year on EIC

Research Associate with Purdue University on CLEO II/II.V/III Designed/built Silicon

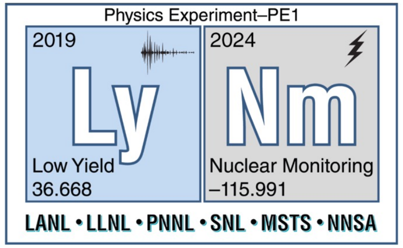
1992-2000





Senior Scientist at PNNL; Lead for $15M+ LDRD program; NNSA work and **Belle II PM**

2008-2019

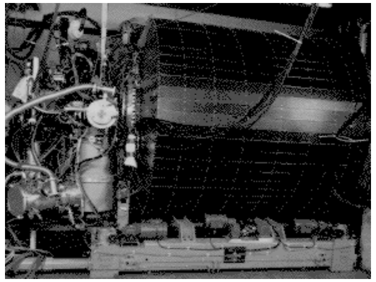


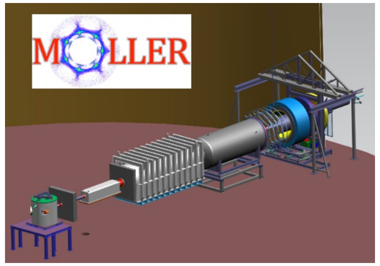
PNNL Laboratory Fellow; Ongoing NNSA work; **HEP Program Manager**

2019-2020

PhD from UC Irvine on FNAL E-760 Built Pb-glass ECAL

1987-1992





JLab – **MOLLER MIE Project Manager**; some ongoing NNSA work

2020-2023

Electron-Ion Collider

An Integrated BNL/JLAB Leadership Team

Jim Yeck
Project Director

Luisella Lari
Project Manager

Sergei Nagaitsev
Technical Director

Elke Aschenauer
Co-Associate. Director of Experimental Program

Rolf Ent, JLab
Co-Associate. Director of Experimental Program

Jim Fast, JLab
Ass. Project Manager

- Integrated BNL/JLab organization established in 2020
- Continues to evolve and strengthen with the support of the host labs
- An effective framework for developing execution strategies and identifying and resolving issues
- Executive Management Team meetings include additional participants

ELECTRON-ION COLLIDER PROJECT

J. Yeck

PROJECT DIRECTOR

A. Petrone

CHIEF OF STAFF

EIC PROJECT MANAGER	**L. Lari**
TECHNICAL DIRECTOR	**S. Nagaitsev**
ASSOCIATE PROJECT MANAGER	**J. Fast**
CO-ASSOCIATE DIRECTOR EXPERIMENTAL PGM	**R. Ent**
CO-ASSOCIATE DIRECTOR EXPERIMENTAL PGM	**E. Aschenauer**
SENIOR ADVISOR	**F. Willeke**
ASSOCIATE DIRECTOR FOR ACC. INTL. PARTNERSHIPS	**A. Seryi**
ENVIRONMENTAL, SAFETY AND HEALTH	**C. Schaefer**
	W. Rainey

New Technical Director, Sergei Nagaitsev, on leave from JLab to serve in that capacity at BNL

Project Organization- Level 1

- BNL/JLab Partnership
- Science & Collaboration Advice and Input
- International Governance
- Technical and Project Support

BROOKHAVEN NATIONAL LABORATORY
J. Hewett
LABORATORY DIRECTOR

J. Hill
DEPUTY DIRECTOR FOR SCIENCE & TECHNOLOGY

A. Emrick
DEPUTY DIRECTOR FOR OPERATIONS

BOARDS

EIC ADVISORY BOARD	**S. Henderson (JLAB)** **D. Bettoni (INFN)** **M. Grasso (IN2P3)** **P. Kearns (ANL)** **M. Lamont (CERN)**	**L. Merminga (FNAL)** **F. Sabatie (IRFU-Saclay)** **N. Smith (TRIUMF)** **M. Thomson (STFC)** **M. Witherell (LBNL)**
RESOURCE REVIEW BOARD	**H. Gao (BNL)** **D. Dean (JLAB)**	**D. Bettoni (INFN)** **Funding Agencies**

SCIENCE & TECHNOLOGY

EIC SCIENCE DIRECTOR	**A. Deshpande (SBU/BNL)**
USER GROUP STEERING COMMITTEE	**M. Radici (INFN)** **O. Hen (MIT)**
ePIC COLLABORATION	**J. Lajoie (ORNL)** **S. Dalla Torre (INFN)**
EIC ACCELERATOR COLLABORATION	**C. Welsch (Liverpool)** **A. Seryi (JLAB)**

TECHNICAL SUPPORT & INTEGRATION
K. Smith

DEPUTY TECHNICAL DIRECTOR	**K. Smith**
CHIEF ENGINEER	**J. Tuozzolo**
CHIEF SYSTEMS ENGINEER	**T. Russo**
ASSOCIATE PROJECT ENGINEER	**K. Wilson (JLAB)**

ELECTRON-ION COLLIDER PROJECT
J. Yeck
PROJECT DIRECTOR
A. Petrone
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ENVIRONMENTAL, SAFETY AND HEALTH	**C. Schaefer** **W. Rainey (JLAB)**

ADVISORY COMMITTEES

PROJECT	**T. Glasmacher (MSU), Chair**
MACHINE	**T. Raubenheimer (SLAC). Chair**
DETECTOR	**E. Kinney (UC), Chair**
INFRASTRUCTURE CONSTRUCTION	**M. Fallier (BNL Retired), Chair**

STEERING GROUP

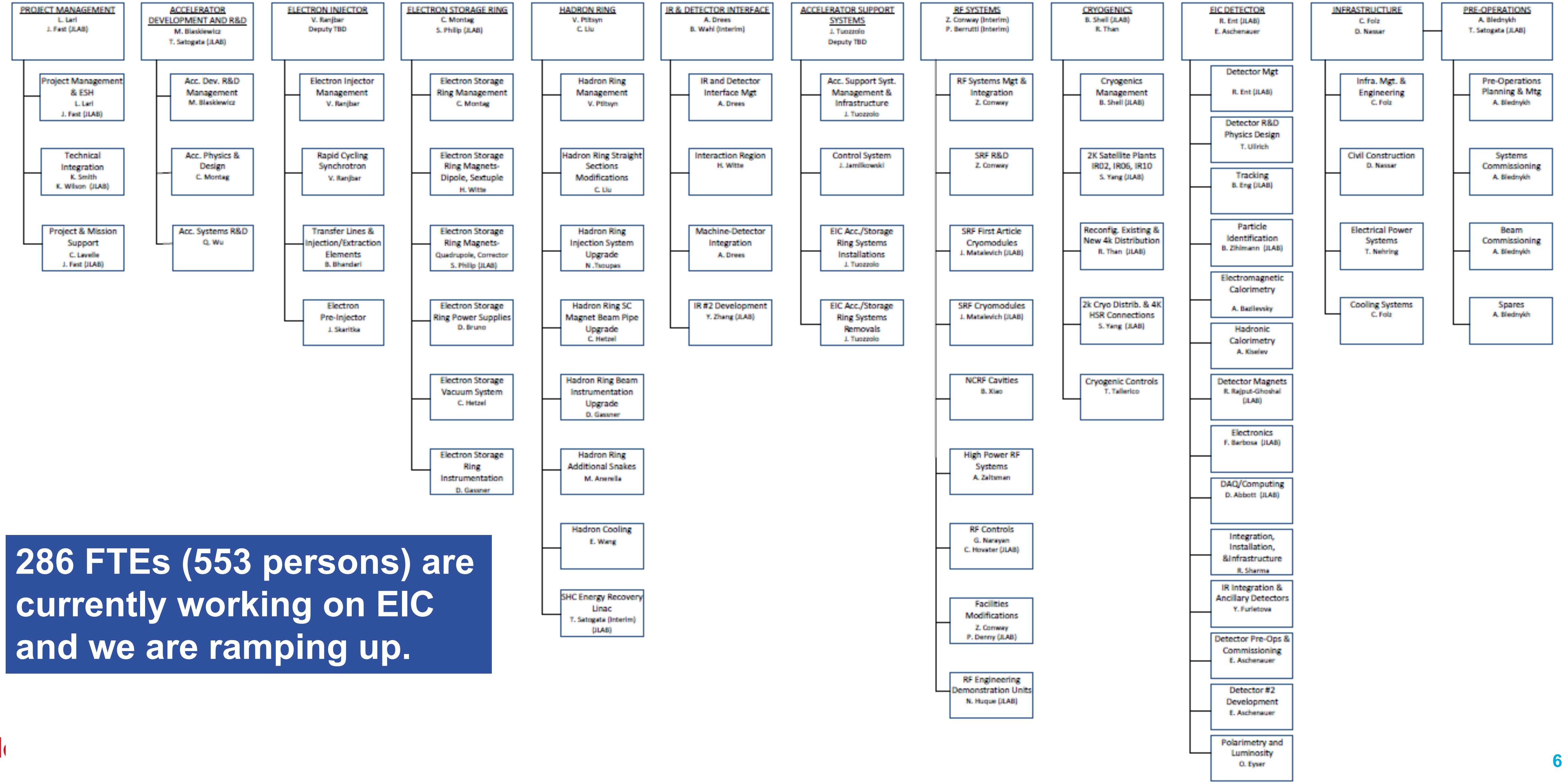
SUPERCONDUCTING MAGNETS	**G. Apollinari (FNAL), Chair**

PROJECT OFFICE & IN-KIND SUPPORT
L. Lari

TJNAF PROJECT SUPPORT	**J. Fast (JLAB)**
PROJECT CONTROLS	**P. Kessler (JLAB)**
PROCUREMENT	**M. Laney (JLAB)**
PROJECT SUPPORT	**C. Lavelle**
PROJECT CONTROLS	**K. Krug**
BUSINESS OPERATIONS	**H. Turbush**
PROCUREMENT	**K. Kirkendall (Interim)**
RISK MANAGER	**I. Sourikova**
ADMIN SUPPORT SERVICES	**C. Hoffman**
QUALITY ASSURANCE & CONFIG. MGMT	**C. Porretto/J. Harris (JLAB)**
IN-KIND CONTRIBUTIONS SUPPORT	**P. Berrutti/ J. Fast (JLAB)**

Area	L2 Manager	Deputy
ACCELERATOR DEVELOPMENT & R&D	**M. Blaskiewicz** L2 Manager	**T. Satogata (JLAB)** Deputy L2 Manager
ELECTRON INJECTOR	**V. Ranjbar** L2 Manager	**TBD** Deputy L2 Manager
ELECTRON STORAGE RING	**C. Montag** L2 Manager	**S. Philip (JLAB)** Deputy L2 Manager
HADRON RING	**V. Ptitsyn** L2 Manager	**C. Liu** Deputy L2 Manager
INTERACTION REGIONS & DETECTOR INTERFACE	**A. Drees** L2 Manager	**W. Wahl (Interim)** Deputy L2 Manager
ACCELERATOR SUPPORT SYSTEMS	**J. Tuozzolo** L2 Manager	**TBD** Deputy L2 Manager
RF SYSTEMS	**Z. Conway (JLAB)** L2 Manager	**P. Berrutti (Interim)** Deputy L2 Manager
CRYOGENICS	**B. Shell (JLAB)** Level 2 Manager	**R. Than** Deputy L2 Manager
EIC DETECTOR	**R. Ent (JLAB)** Level 2 Manager	**E. Aschenauer** Deputy Level 2 Manager
INFRASTRUCTURE	**C. Folz** Level 2 Manager	**D. Nassar** Deputy L2 Manager
PRE-OPERATIONS	**A. Blednykh** L2 Manager	**T. Satogata (JLAB)** Deputy Level 2 Manager

Project Organization Level 2 & 3…Project Delivery



286 FTEs (553 persons) are currently working on EIC and we are ramping up.

Governance, Advice & Support

- **Strong connections to the S&T communities**
- **DOE, BNL, and JLab envision an EIC facility that is "fully international in character."**

SCIENCE & TECHNOLOGY

EIC SCIENCE DIRECTOR	**A. Deshpande**
USER GROUP STEERING COMMITTEE	**M. Raidci (INFN)**
	O. Hen (MIT)
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	S. Dalla Torre (INFN)
EIC ACCELERATOR COLLABORATION	**C. Welsh (Liverpool)**
	A. Seryi (JLAB)

STEERING GROUP

SUPERCONDUCTING MAGNETS	**G. Apollinari (FNAL), Chair**

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DETECTOR	**E. Kinney (UC), Chair**
INFRASTRUCTURE CONSTRUCTION	**M. Fallier (BNL Retired), Chair**

EIC Boards, Committees, and Steering Group

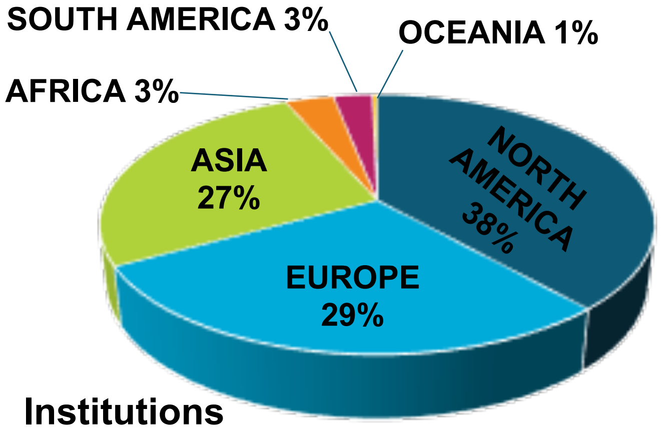
- **Advisory Board (AB)** – Advice to the BNL Director on the construction of the EIC accelerator facility. Meets ~ 3 times per year. Chaired by JLab Director.
- **EIC Resource Review Board (RRB)** – Oversight of the EIC Experimental Program. Meets ~ 2 times per year. Chaired by the BNL/JLab and International Partner.
- **Project Advisory Committee (PAC)** – Advice to the BNL Director on the delivery of the EIC Project and organized by the Project Director. Meets 2-3 times per year. Chaired by FRIB Director.
- **Machine Advisory Committee (MAC)** – Provides advice on EIC accelerator science and technology. The MAC reports to the EIC Project Director and is organized by the EIC Technical Director. Meets 2-3 times per year.
- **Detector Advisory Committee (DAC)** – Provides advice on detector science and technology. The DAC reports to the EIC Project Director and organized by the EIC Co-Associate Directors for the EIC Experimental Program. Meets 2-3 times per year.
- **Infrastructure Construction Advisory Committee (ICAC) –** Provides advice on infrastructure plans. The ICAC reports to the EIC Project Director and organized by EIC Infrastructure Division Director. Technical experts with rotating terms. Meets 2-3 times per year.
- **SC Magnet Steering Group (MSG)** – Charged to guide the development of an EIC SC Magnet Design, Production, and Testing Plan. The MSG reports to the EIC Project Director. Meets at least monthly over the next 1-2 years.

World-Wide Interest in EIC and ePIC

The EIC Users Group: EICUG.ORG

Formed 2016 400 Users → Now

>1,529 collaborators, 40 countries, 294 institutions
(Experimentalists ~65%, Theory ~25%, Acc. Sci. ~10%)



Institutions

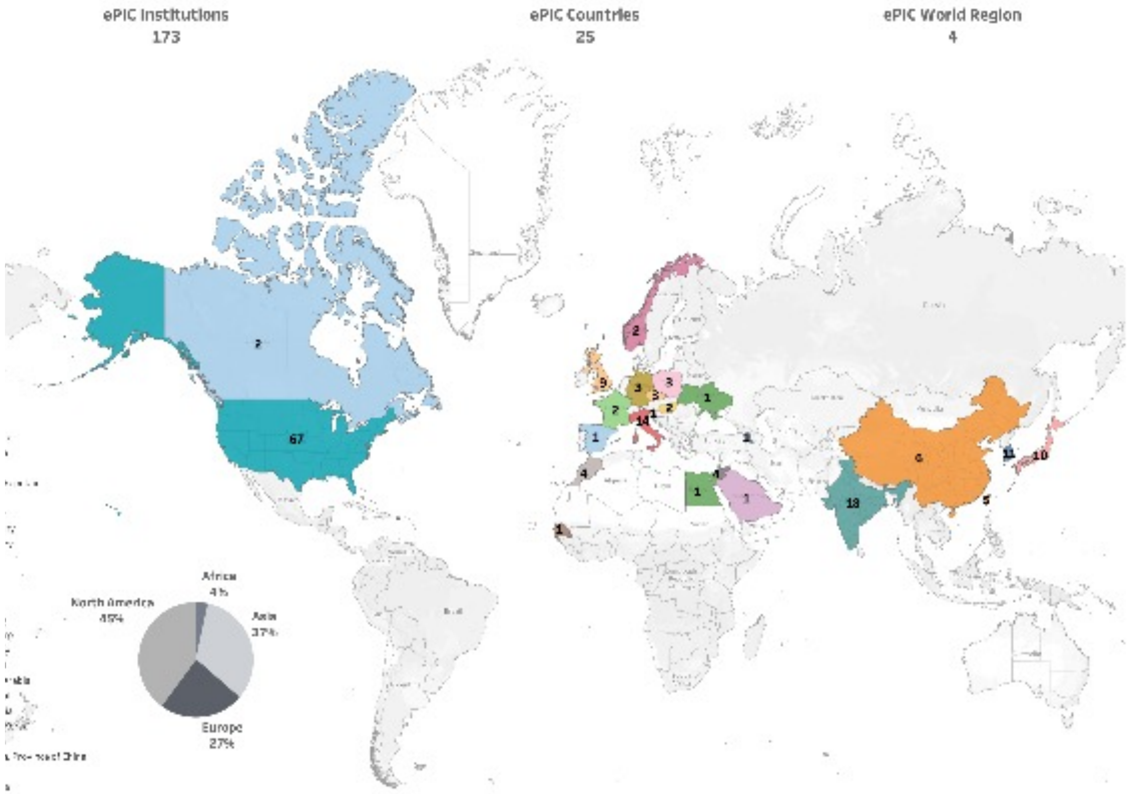
BNL-TJNAF partnership agreement signed in May 2020.
US Labs
1. Argonne National Laboratory
2. Brookhaven National Laboratory
3. Fermi National Accelerator Laboratory
4. Lawrence Berkeley National Laboratory
5. Los Alamos National Laboratory
6. Oak Ridge National Laboratory
7. SLAC National Accelerator Laboratory
8. Thomas Jefferson National Accelerator Facility
US Universities
Over 80 US universities are participating in the EICUG.

ePIC Collaboration

https://wiki.bnl.gov/EPIC/index.php?title=Main_Page

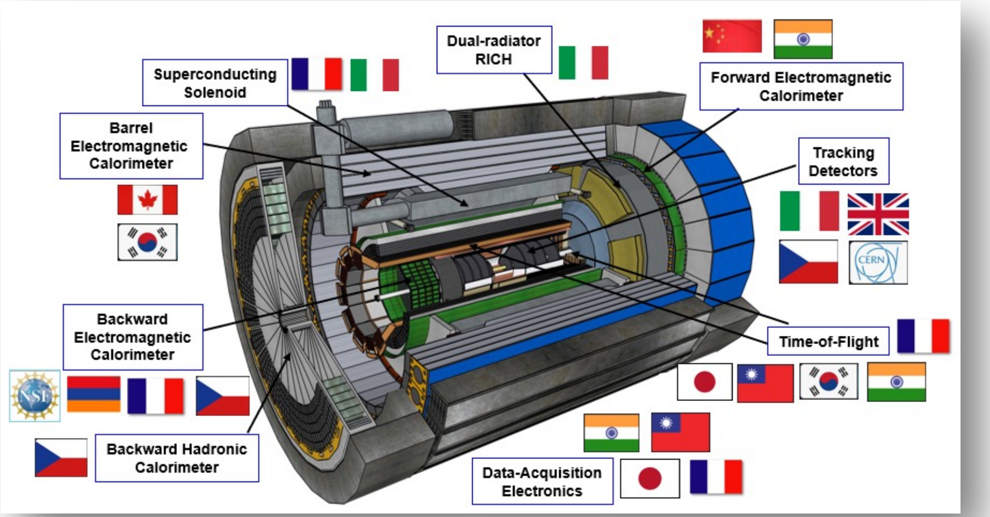
Formed in 2022 → Now

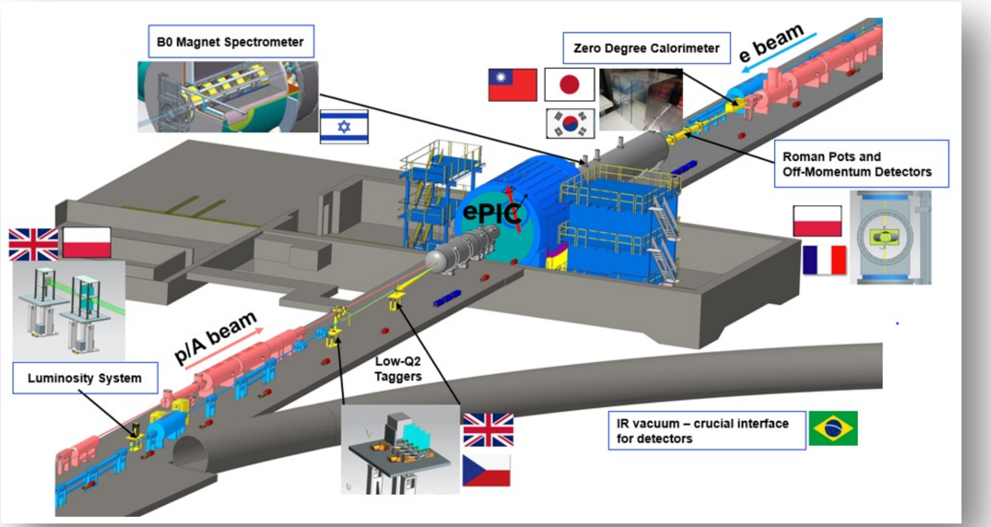
~850 (650 active) collaborators, 25 countries, 173 institutions
(10 new institutions just in 2024)



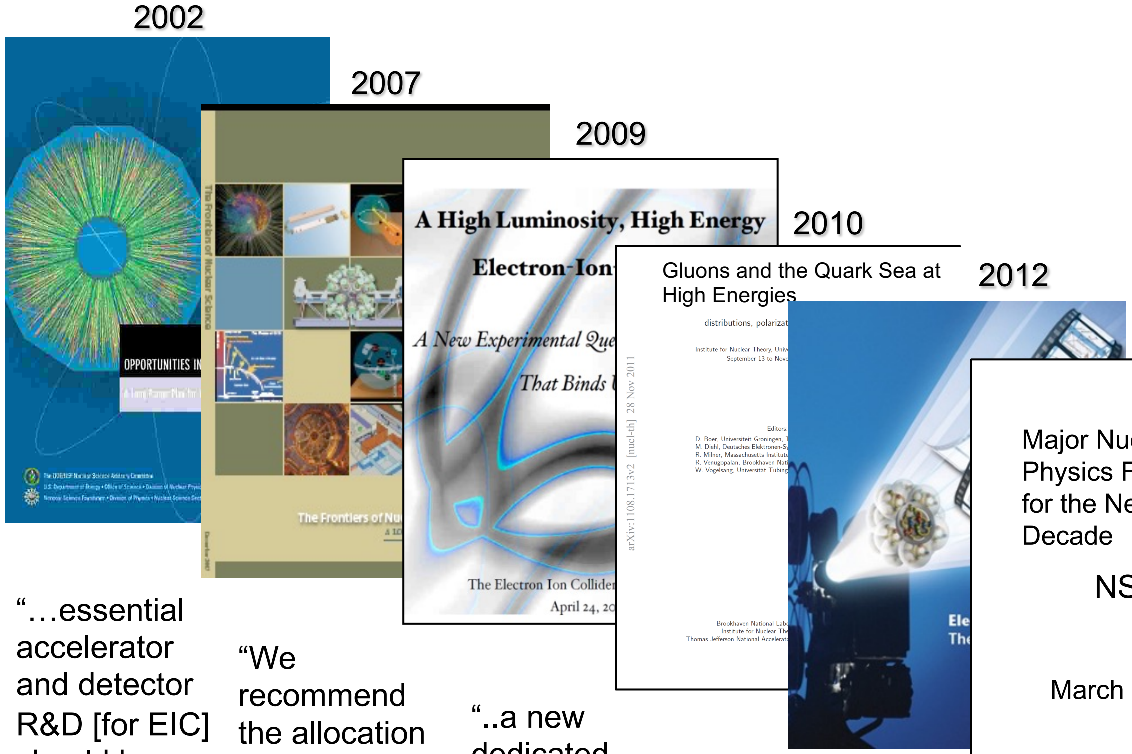
Large world-wide participation

- Worldwide endorsement of EIC science
  - NSAC Long-Range Plan
  - Canada Long-Range Plan
  - India MegaScience Vision Plan
  - ePIC approved as CERN-recognized experiment
  - NuPECC recommendation
- Much emphasis on international engagement
  - 1st and 2nd Resource Review Board meetings were a success; 3rd meeting hosted by INFN last month in Rome
  - Multiple international meetings and visits
    - France's CNRS and DOE signed a new "Statement of Interest" in future cooperation on the EIC
    - UKRI infrastructure grant approval (~$74M USD)
    - Detector proposals ongoing for NSF, Italy/INFN, France/CEA & France/IN2P3, Korea/MSIT – scope known
    - Japan, Canada and India are working on proposals to funding agencies
  - Canada, France, Italy and UK all interested in accelerator also
    - SRF cryomodules (elliptical and crab cavities)
    - Spin rotators





The Scientific Foundation for an EIC was Built Over Two Decades



"…essential accelerator and detector R&D [for EIC] should be given very high priority in the short term."

"We recommend the allocation of resources …to lay the foundation for a polarized Electron-Ion Collider…"

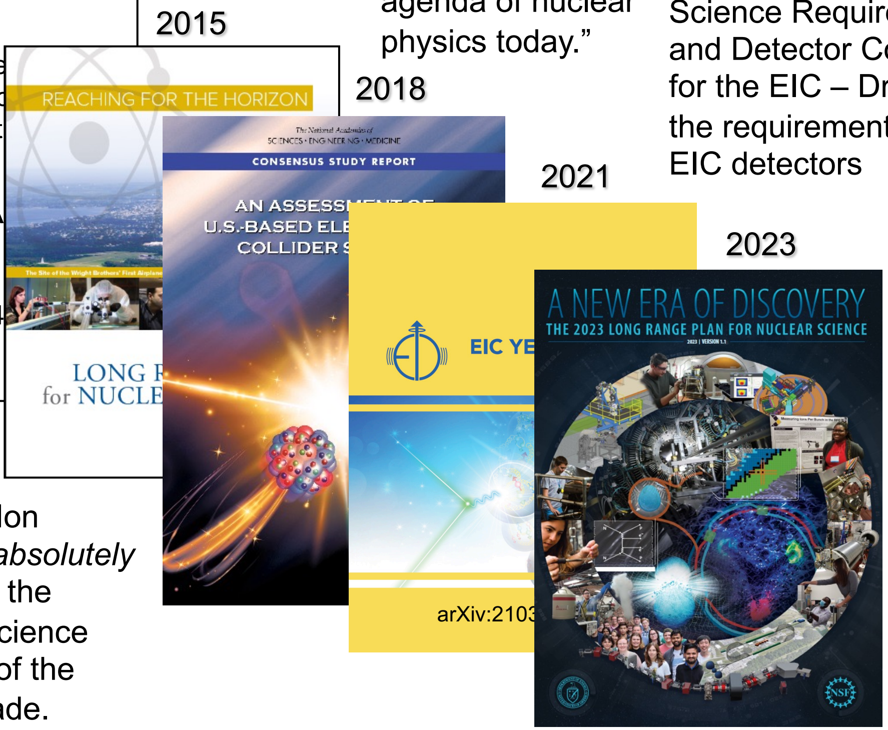
"..a new dedicated facility will be essential for answering some of the most central questions."

"The quantitative study of matter in this new regime [where abundant gluons dominate] requires a new experimental facility: an Electron Ion Collider.."

Electron-Ion Collider..*absolutely central* to the nuclear science program of the next decade.

"a high-energy high-luminosity polarized EIC [is] the highest priority for new facility construction following the completion of FRIB."

The science questions that an EIC will answer are central to completing an understanding of atoms as well as being integral to the agenda of nuclear physics today."



Science Requirements and Detector Concepts for the EIC – Drives the requirements of EIC detectors

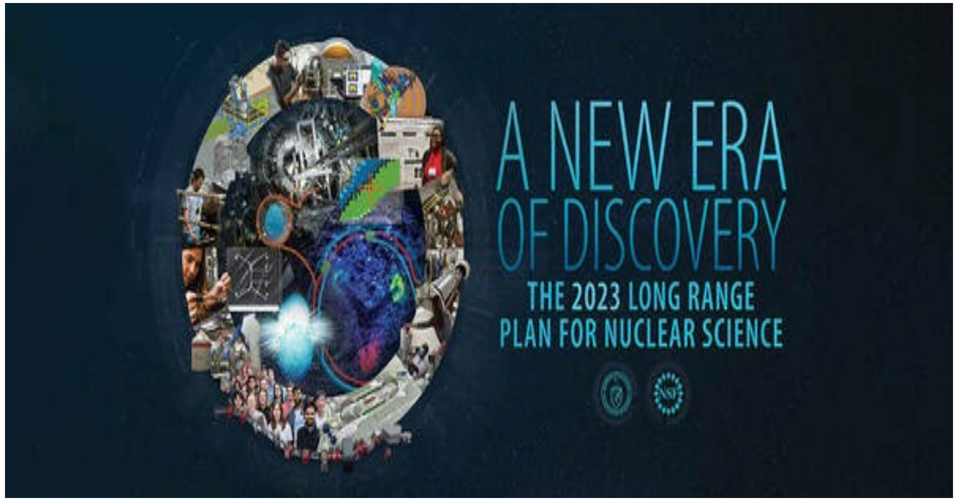
We recommend the expeditious completion of the EIC as the highest priority for facility construction.

Electron-Ion Collider: Leading the Era of New Discovery

Technical progress and scientific advances have led us to the EIC: A discovery machine that will allow us to explore undiscovered nuclear territory and further human understanding and technological advancements.

U.S. Nuclear Science Advisory Committee (NSAC) Long Range Plan for Nuclear Science (2023):

- The Electron–Ion Collider will elucidate the origin of visible matter in the universe and significantly **advance** accelerator technology as the **first** new particle collider to be constructed since the Large Hadron Collider.
- [NSAC recommends] the expeditious completion of the EIC as the **highest priority** for facility construction.



National Academy of Sciences (2018):

- EIC is **timely** and the science it will achieve is **unique** and **world-leading** and will ensure **global U.S. leadership** in nuclear science, accelerator science, and the technology of colliders.
- EIC's questions regarding the building blocks of matter are **fundamental** and **compelling**; EIC is **essential** to answering these questions.
- EIC innovations will **benefit** all accelerator-based sciences.

EIC is the only new collider to be designed and built in the world in the next decade.

EIC NAS Science Highlights

How do quarks, gluons, and orbital angular momentum contribute to proton spin?

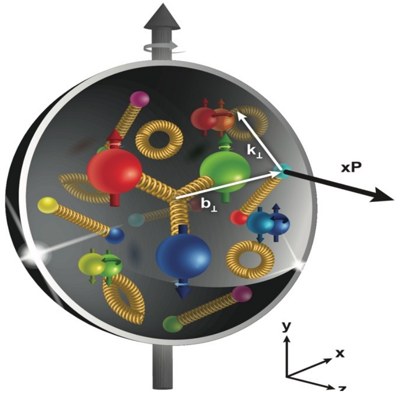
Spin is a fundamental property of matter. All elementary particles, but the Higgs, carry spin.

Spin cannot be explained by a static picture, rather the interplay between the properties and interactions of quarks and gluons inside the proton.

Does the mass of visible matter emerge from quark-gluon interactions?

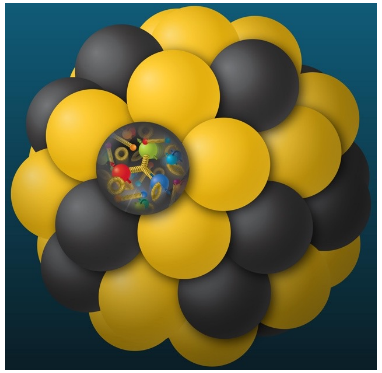
Atom: Binding/Mass = 0.00000001
Nucleus: Binding/Mass = 0.01
Proton: Binding/Mass = 100

The EIC will determine an important term contributing to the proton mass, the so-called "QCD trace anomaly."



How can we understand Quantum Chromodynamics and the relation to Confinement?

EIC will image quarks and gluons in 3D in space and momentum inside the nucleon and nuclei and uncover how the nucleon properties emerge from quarks and gluons and their interactions.

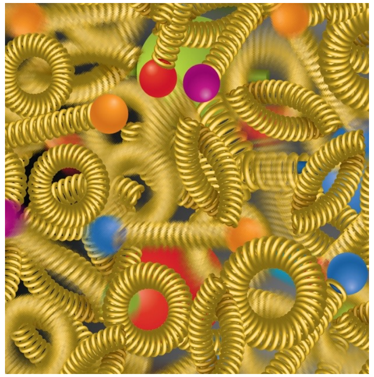


How do the quark-gluon interactions create nuclear binding?

Is the structure of a free and bound nucleon the same?

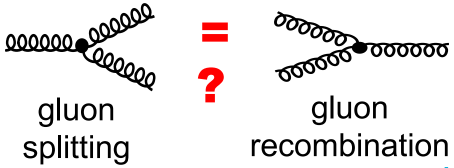
How do quarks and gluons interact with a nuclear medium?

How do the confined hadronic states emerge from these quarks and gluons?



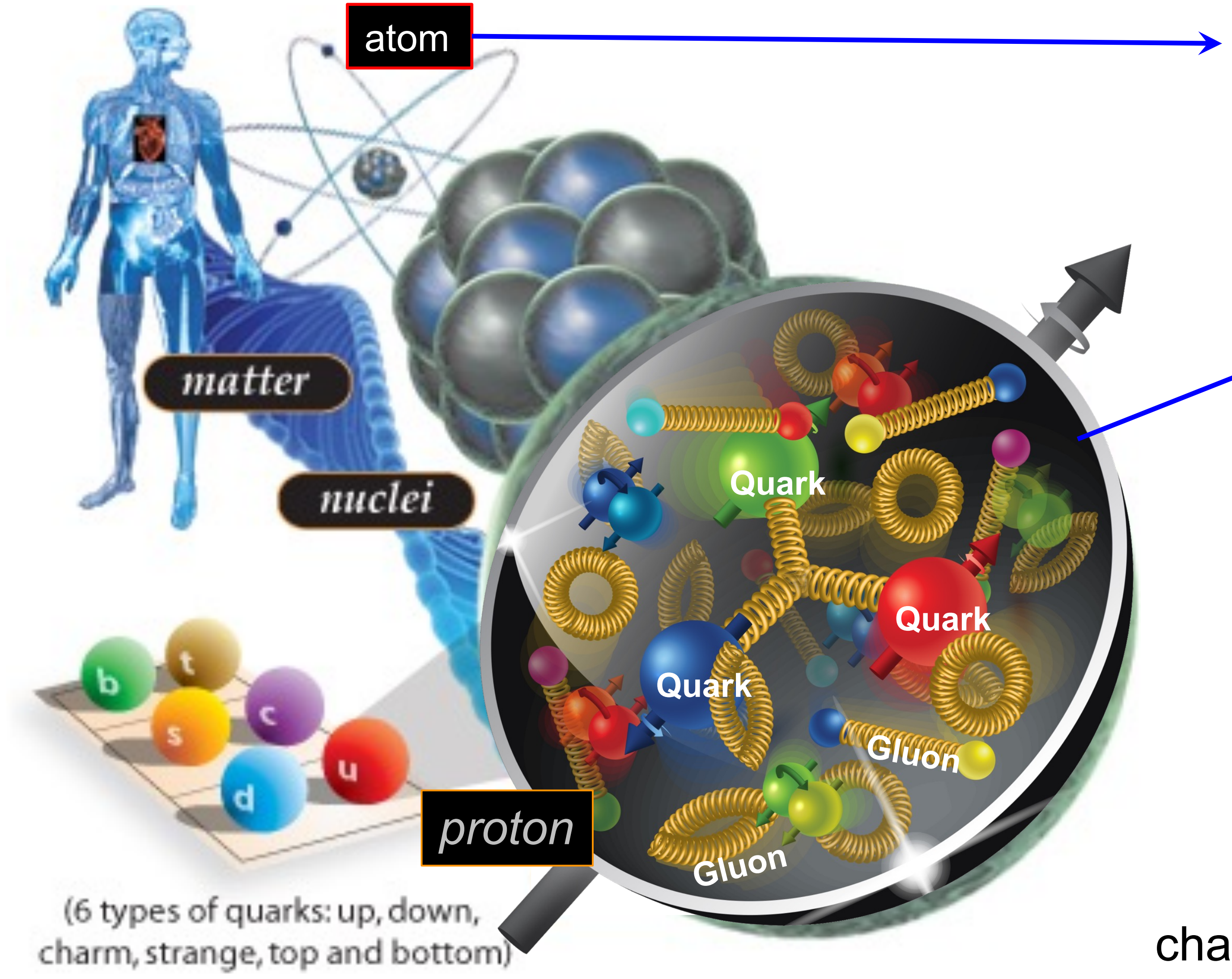
Does gluon density in nuclei saturate at high energy?

How many gluons can fit in a proton?
How does a dense nuclear environment affect the quarks and gluons and their correlations and interactions?



All Nobel-Worthy questions…

What composes visible matter?



if you look through a
higher and higher
resolution microscope
you discover a
femto Universe
size scale
3.2 10^{-15} feet = 1 femtometer (fm)

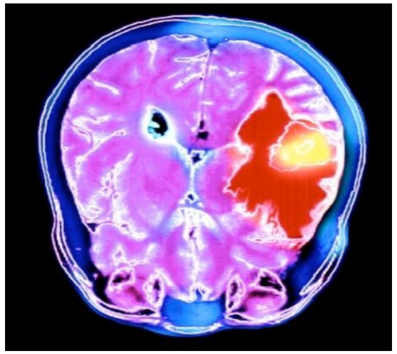
Big Question:

Can we understand
how the visible matter is formed
from the smallest
elementary building blocks
quarks and gluons?

All elementary building blocks can be characterized by their mass, spin and charge

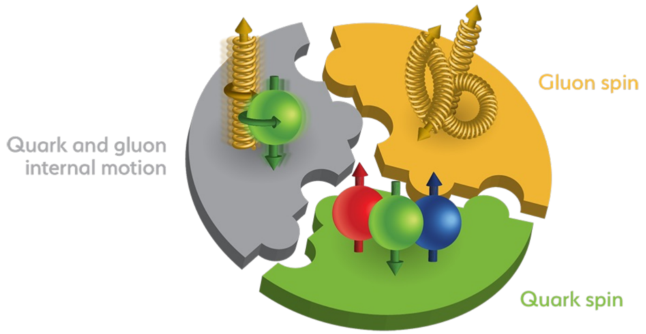
Understanding proton spin and gluon saturation

Proton spins are used to image the structure and function of the human body using the technique of *magnetic resonance imaging*

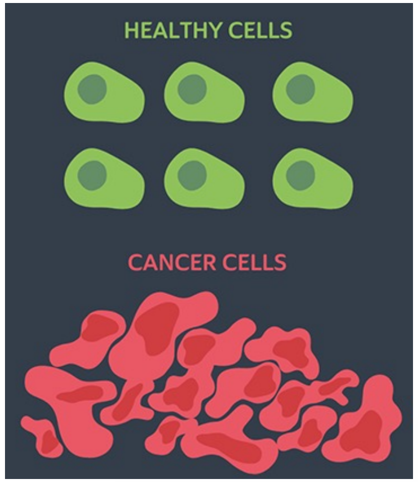



Nobel Prize 2003:
Paul C. Lauterbur & Sir Peter Mansfield
for discovery concerning magnetic resonance imaging

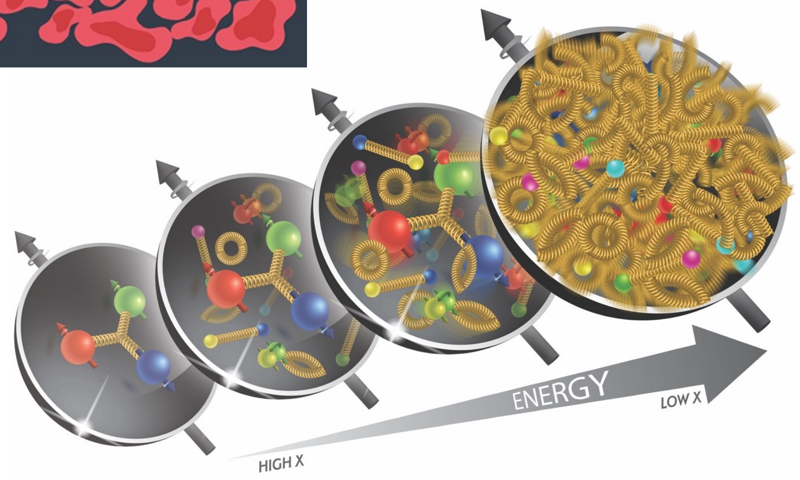
What makes up the spin of the Proton?



EIC should tell us



Are gluons in the proton like cancer cells in an organism ?
Their number is growing – growing – growing…

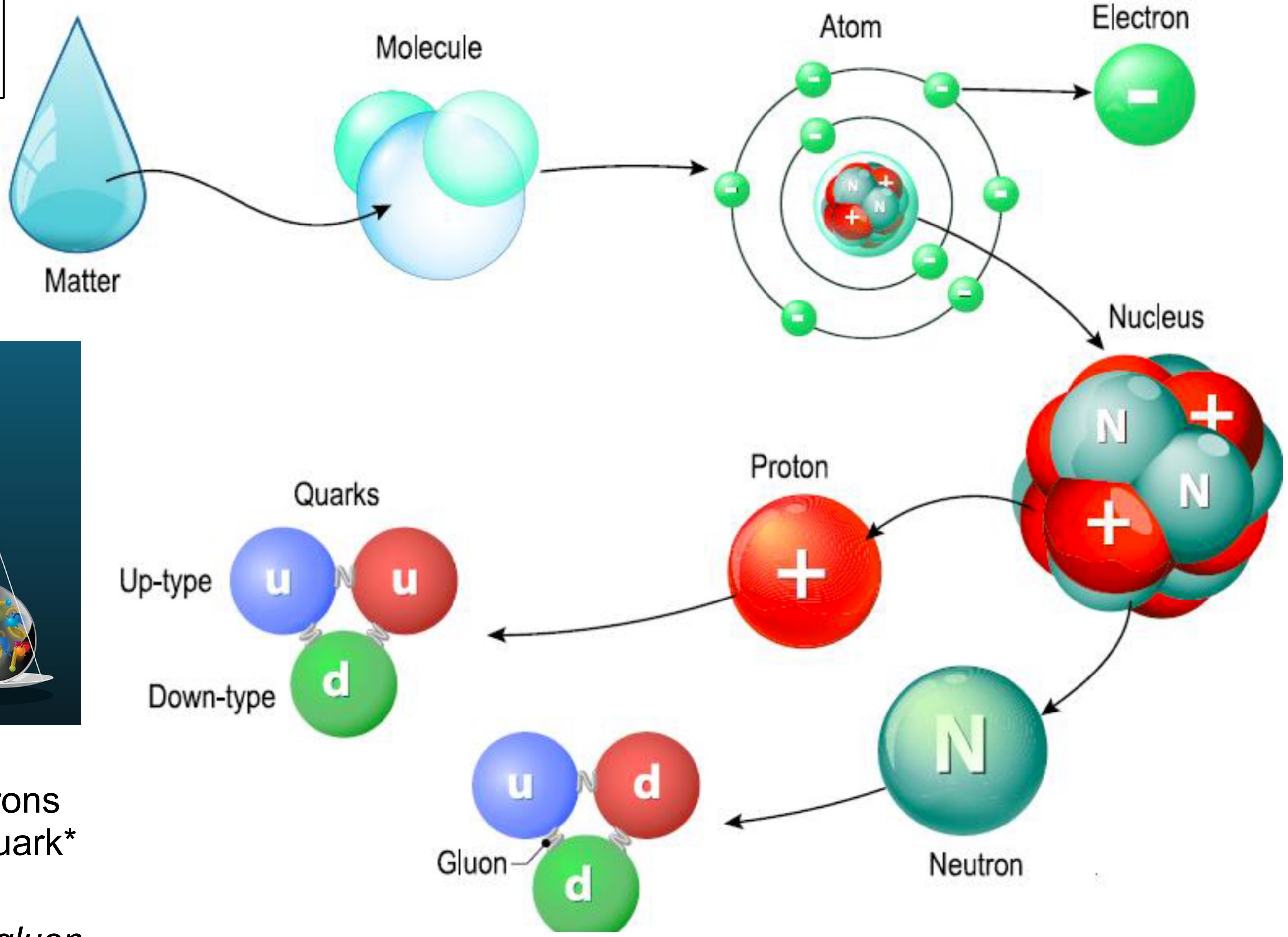


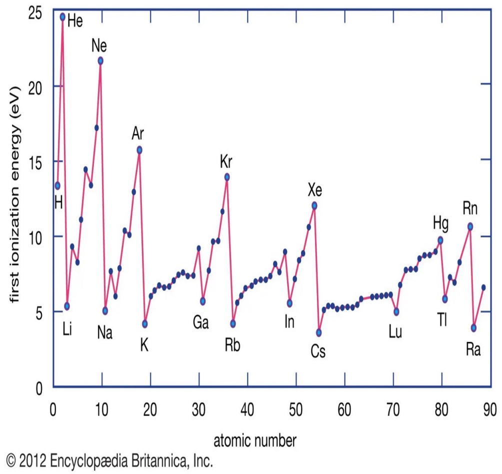
EIC
will tell us if the growth gets tamed
and if gluons saturate into a new state of matter
The Color Glass Condensate

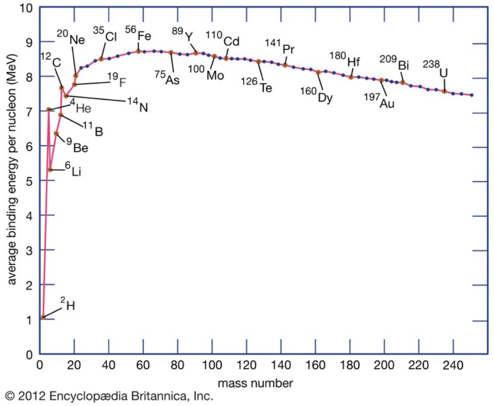
The Mystery about Visible Matter

Atom	10^{-10} m
Nucleus	few x 10^{-15} m
Proton	$<10^{-15}$ m

Iron atom
Ionization Energy = 7.9 eV/electron
Binding/Mass = 0.00000001





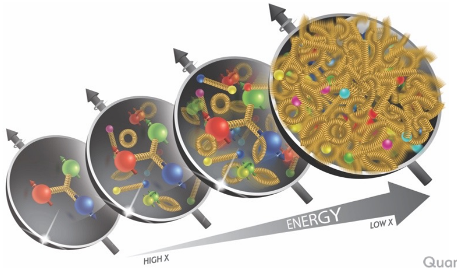


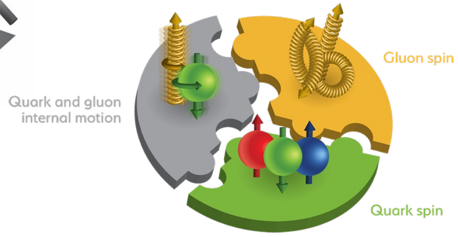
Iron = Set of 56 protons/neutrons
Binding Energy = 310 MeV/quark*
Binding/Mass = 100

**Binding Energy = ∞/gluon*

Iron nucleus
Binding Energy = 8.8 MeV/nucleon
Binding/Mass = 0.01

NAS Science Goals Drive EIC Facility Requirements





wide center-of-mass energy √s: 20 – 140 GeV :

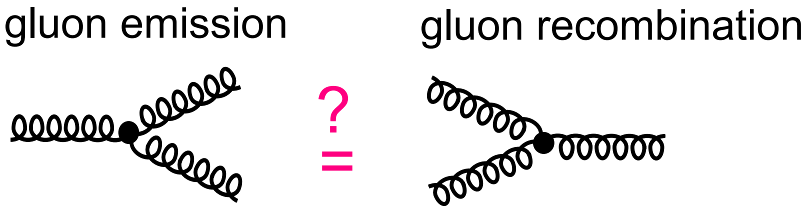
- ➢ map the out nucleon and nuclei structure from high to low x

polarized electron and hadron (p, He-3) beams:

- ➢ access to spin structure of nucleons and nuclei
- ➢ Spin vehicle to access the spatial and momentum structure of the nucleon in 3d
- ➢ Full specification of initial and final states to probe q-g structure of NN and NNN interaction in light nuclei

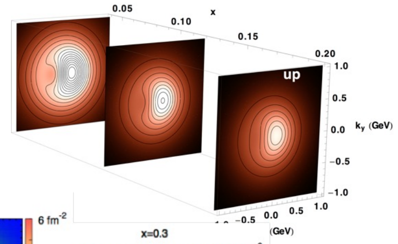
nuclear beams: d to Pb

- ➢ accessing the highest gluon densities → saturation
- ➢ quark and gluon interact with a nuclear medium



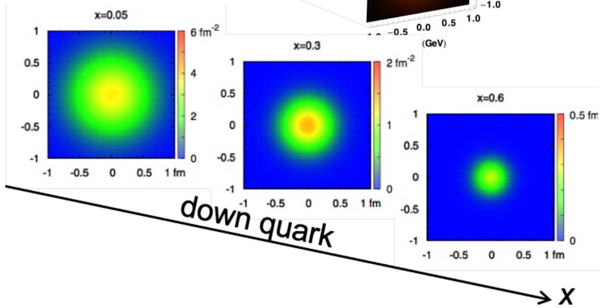
high luminosity 10^{33}-10^{34} $cm^{-2}s^{-1}$:

- ➢ mapping the spatial and momentum structure of nucleons and nuclei in 3d
- ➢ access to rare probes, i.e. Ws



large acceptance (0.2 – 1.3 GeV) through forward focusing IR magnets

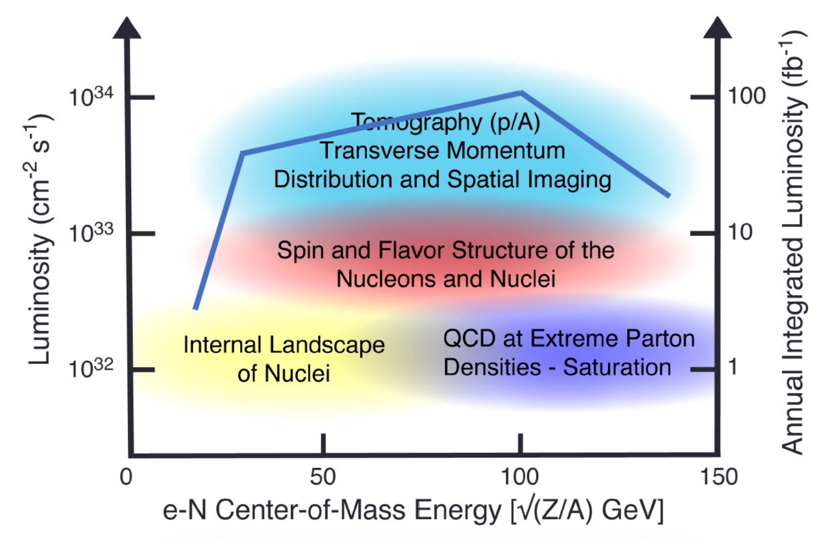
- ➢ spatial imaging of nucleons and nuclei



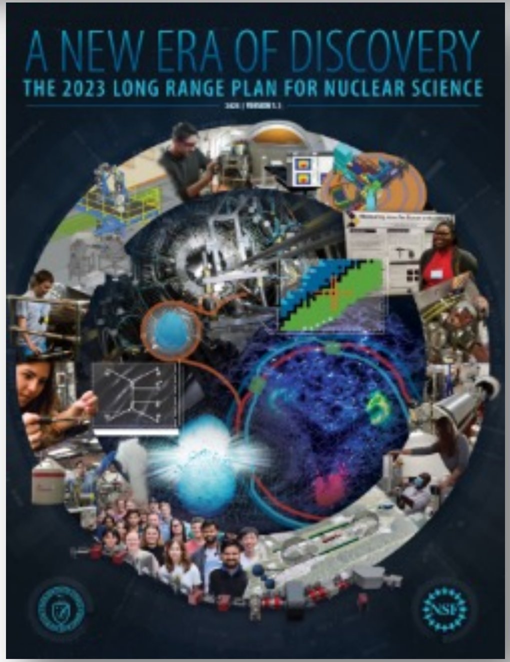
Facility Performance Needed to achieve NAS Science Goals

Performance Goals:

- High luminosity: L= 10^{33} – 10^{34} $cm^{-2}sec^{-1}$, 10 – 100 fb^{-1}/year
- Highly polarized beams: 70%
- Large center of mass energy range: E_{cm} = 20 – 140 GeV
- Large ion species range: protons – Uranium
- Large detector acceptance and good background conditions
- Ability to accommodate a complementary second interaction region and detector



Conceptual design scope and expected performance satisfy NSAC Long Range Plans (2015 & 2023) and the requirements endorsed by the U.S. National Academy of Sciences (2018).



AGS → RHIC → EIC

DOE Secretary of Energy Visit
February 1991

DOE Secretary of Energy Visit
April 2024

Leveraging existing infrastructure to deliver a new facility
Enabling the next generation of scientific exploration

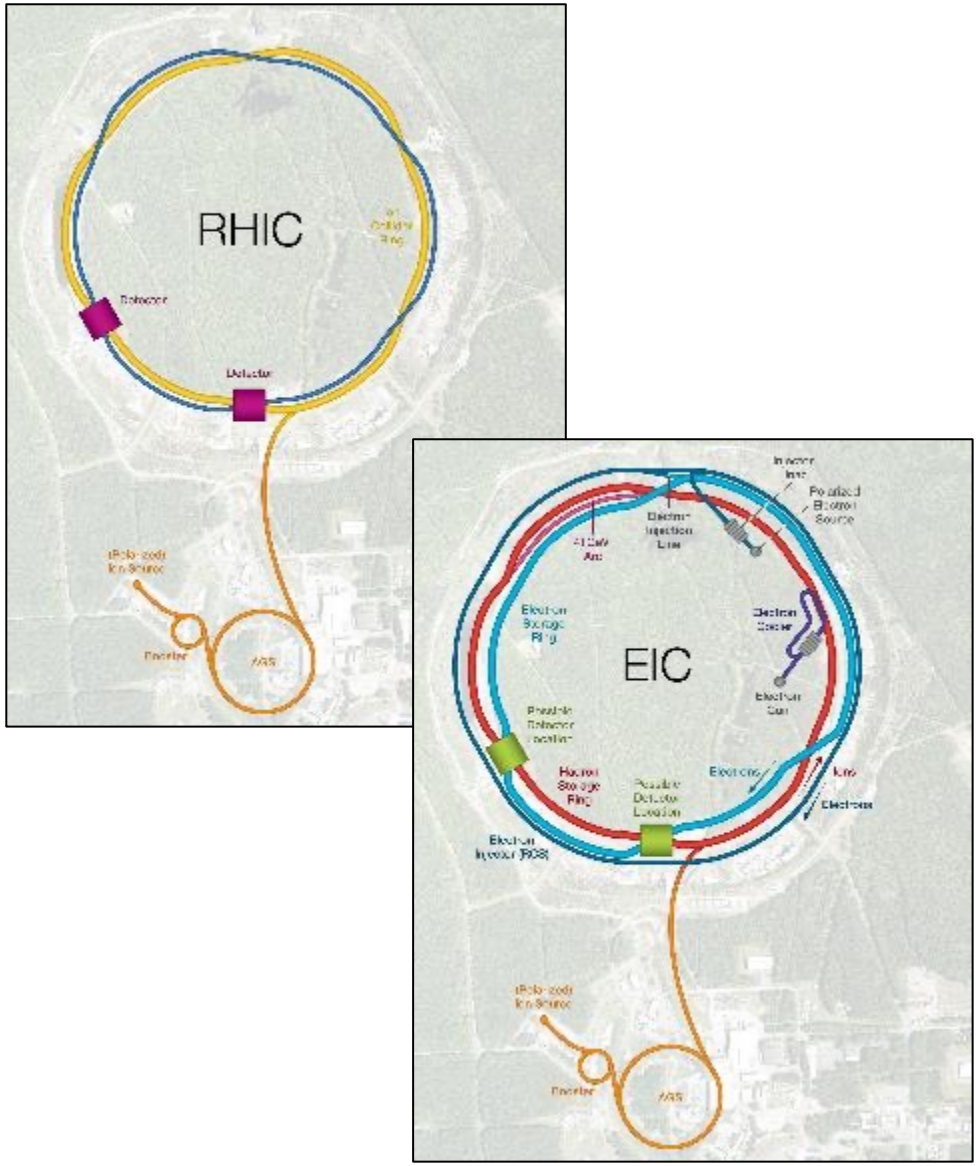
EIC Design Overview

- **Hadron Storage Ring (RHIC Rings) 40-275 GeV**
  - Superconducting magnets (existing)
  - 1160 bunches, 1A beam current (3x RHIC)
  - Bright vertical beam emittance 1.5 nm ("flat beams")
  - Strong cooling (coherent electron cooling)

- **Electron Storage Ring 5–18 GeV**
  - Large beam current, 2.5 A, 9 MW S.R. power, S.C. RF
  - Need to inject polarized bunches

- **Electron rapid cycling synchrotron, 1Hz, 3-18 GeV**
  - Spin transparent due to high quasi-periodicity

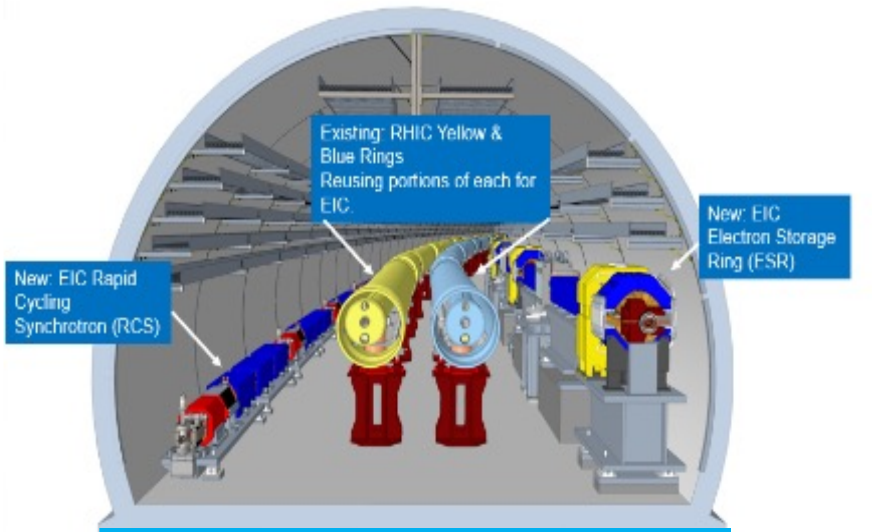
- **High luminosity Interaction Region(s)**
  - Superconducting final focus magnets
  - 25 mrad crossing angle with crab cavities
  - Spin Rotators (longitudinal spin)
  - Forward hadron instrumentation



EIC Project – Delivery of the NAS Science Program

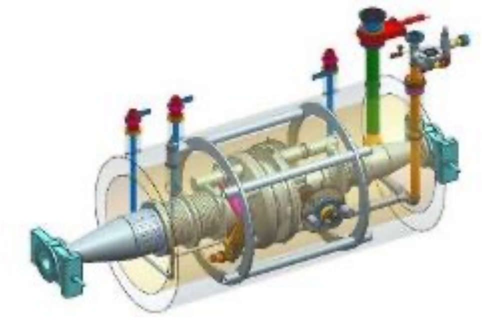
- Working on consistent project plan for delivery of full NAS science plan
  - Achievable funding profile will ultimately drive project planning
  - May require phasing project to achieve early science operations in 2034 while remaining machine elements are being completed
  - Considering both expected early accelerator performance (luminosity, backgrounds, energy) and low hanging fruit for physics to arrive at early operation concept around which project phasing can be developed

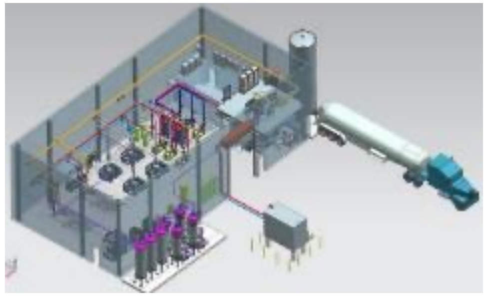
The plan remains to deliver the accelerator and detector required for the full NAS science program with the EIC project

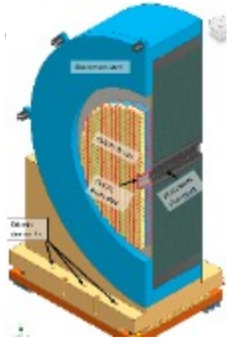


EIC Machine in the RHIC Tunnel

CD-3A, Long-Lead Procurement (LLP)







•The EIC project is approved to execute **~$90M** in LLPs.

•IRA funds will support ~**$60M.**

L3 WBS	L4 WBS	LLP Item	CAM / ESTIMATOR	LAB	Budget Request (Burd&Esc)
6.05.04	6.05.04.01	HSR Vacuum Beam Screen Profile Material	B. Gallagher	BNL	921,716
6.05.05	6.05.05.01	Cryo BPM Buttons and Cables	D. Gassner	BNL	2,810,585
6.06.02	6.06.02.07	Superconducting Strand for Collared & Direct Wire Magnet	H. Witte	BNL	4,133,118
6.08.03	6.08.03.02	591 MHz 1-Cell Cryomodule First Article Components	J. Matalevich	JLAB	3,658,828
6.09.02	6.09.02.02	Satellite Plant IR10	S. Yang	JLAB	13,872,735
6.10.05	6.10.05.01	Backward EMCal PbWO4 Crystals	A. Bazilevsky	BNL	3,117,484
6.10.05	6.10.05.02	Barrel & Hadron EMCal Fibers	A. Bazilevsky	BNL	1,769,385
6.10.06	6.10.06.03	Forward HCal SiPMs	A. Kiselev	BNL	2,302,584
6.10.06	6.10.06.03	Forward HCal Absorber Plates & Module Casing Steel	A. Kiselev	BNL	3,151,976
6.10.07	6.10.07	Detector Magnets & Solenoid Conductor	R. Rajput-Ghoshal	JLAB	13,971,290
6.11.03	6.11.03.03	Unit Substation Transformers for Buildings	T. Nehring	BNL	16,948,209
Total CD-3a Request (Burd&Esc)					66,657,910
Total CD-3a Request w/ 35% contingency					**89,988,179**

- **CD-3B** LLP items are being prepared and prioritized
- Prominent items include normal conducting magnets for the Rapid Cycling Synchrotron (RCS)

EIC is gaining momentum in the U.S. and internationally

- Consolidated Appropriations Act 2024 included **$97.85M for EIC in FY2024** ($95M TEC, $2.85M for OPC). This is consistent with expectations.
- U.S. DOE Under Secretary for Science and Innovation **approved the CD-3A package for $89.988M in long-lead procurements!** This will use Inflation Reduction Act funding.
- New York State awarded a **$100M grant for constructing EIC buildings.** EIC conventional construction is underway.

UK announced £58 million will go towards the EIC project in March. IKC also developing with Canada, France, and Italy. Statements of Interest recently signed by the DOE and French agencies.

EIC Resource Review Board (RRB) Meeting at INFN in May.
Strong international participation including: Canada, Czech Republic, France, India, Israel, Italy, Japan, South Korea, United Kingdom, and Taiwan.

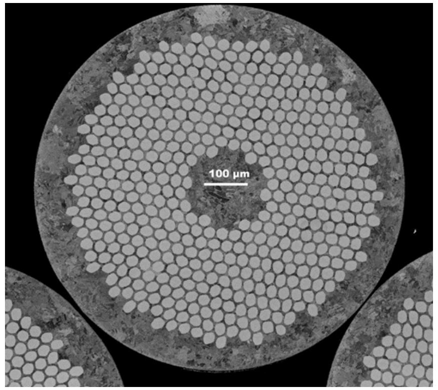
EIC Accelerator Collaboration Kick-Off Meeting at IPAC'24.
Over 150 participants attended and expressed interest in contributing to the global EIC effort.

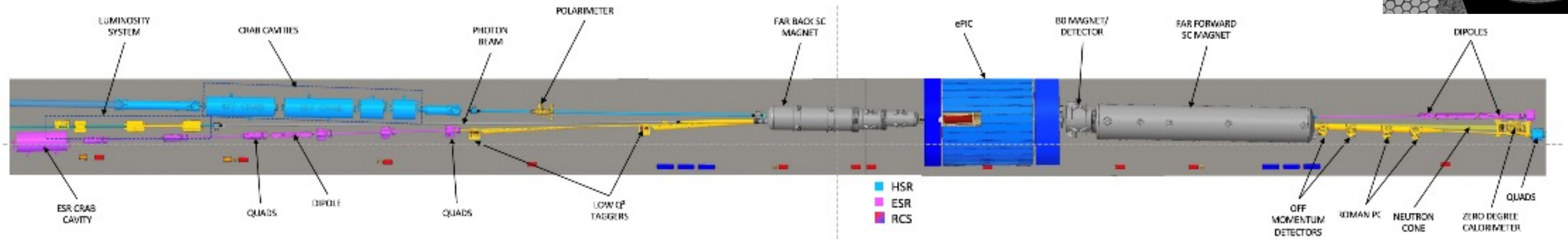
Accelerator Highlight

- Repurposing APS magnets for EIC ESR ring
  - APS consisted of:
    - 400 quadrupoles [blue], plus a few spares
    - 280 sextupoles [yellow], plus a few spares
    - (318 dual-plane correctors –not useful for EIC)
    - (80 dipoles [red] – not useful for ESR, maybe transfer lines)
    - Recycling beam position monitors (TBD is usable in EIC)
  - ESR needs:
    - ~400 quadrupoles
    - ~320 sextupoles
    - ~400 single-plane correctors
    - ~700 dipoles

Progress of EIC Experimental Program

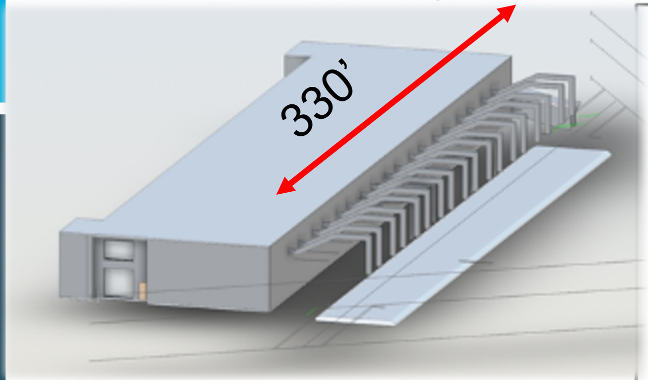
- ePIC Collaboration fully integrated in Project EIC Detector WBS
- Project detector R&D started Q3/FY22. Benefits from large in-kind component.
  - Generic EIC Detector R&D program (2011 – 2021) reduced the overall risk level of EIC detector technology
  - Project R&D is largely winding down in FY24 apart from Silicon and ASIC development
  - Detector Advisory Committee reviews annual progress.
- Excellent progress on PED – designs maturing with strong contributions from ePIC collaboration.
- Preparing for detector CD-3A item contracts.
  - **Detector solenoid is a high-risk item. Initial conductor tests look beautiful.**
  - CD-3B for detector includes a phase continuation for CD-3A scope and select other items.
- Experimental equipment well integrated in accelerator lattice

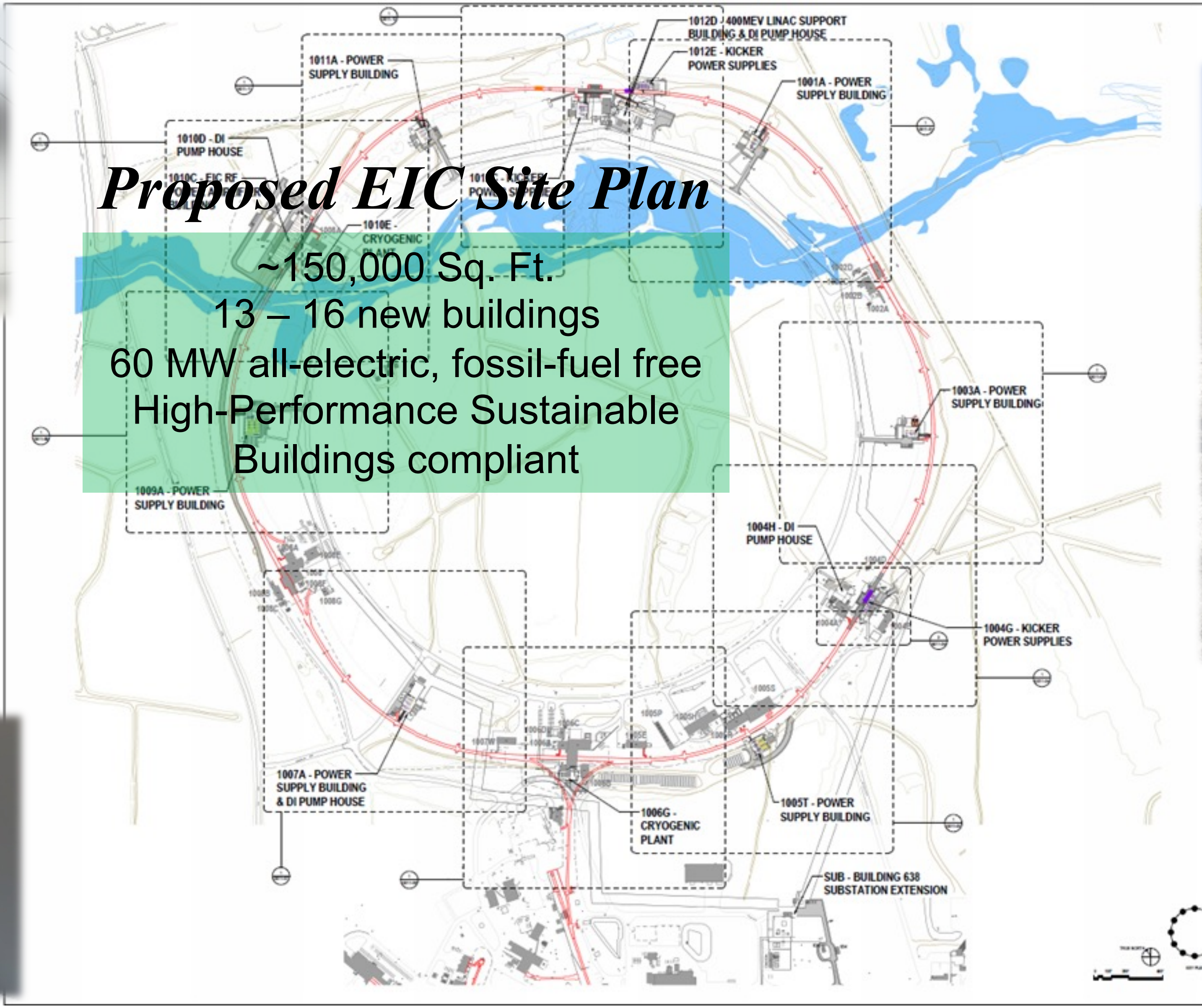




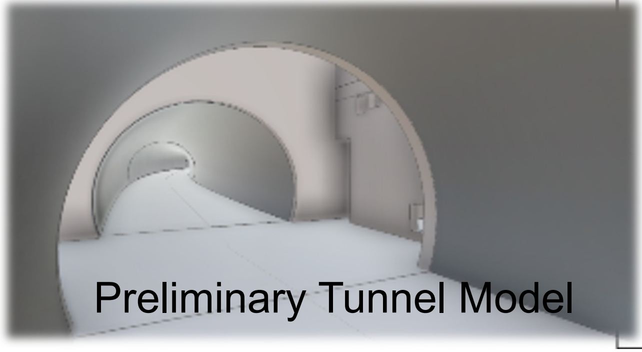
Infrastructure work is progressing well

Proposed RF Building at 1010





Geoprobe for soils characterization, multiple locations



Preliminary Tunnel Model

Summary

- EIC is a unique, high-energy, high-luminosity, polarized beam collider that will be one of the most challenging and exciting accelerator complexes ever built -- **only new collider in the next decades.**
- DOE approved CD-3A and supports the preparation of CD-3B procurements.
- Strong support for EIC in the scientific community and increasing international engagement.
  - Partners participated in preparing the EIC governance model
- The priorities this year include:
  - Execution of the CD-3A baseline;
  - Preparing the CD-3B procurements for approval;
  - Preliminary design (final design for CD-3B items);
  - Review of all project dependencies;
  - Preparation of the technical, cost, schedule, and baseline.