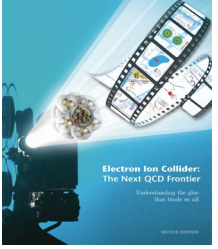
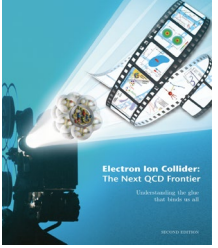


STATUS OF THE EIC PROJECT

- Introductory considerations
- The Project and its Status
- 2020 EIC activities
- INFN & EIC

S. Dalla Torre



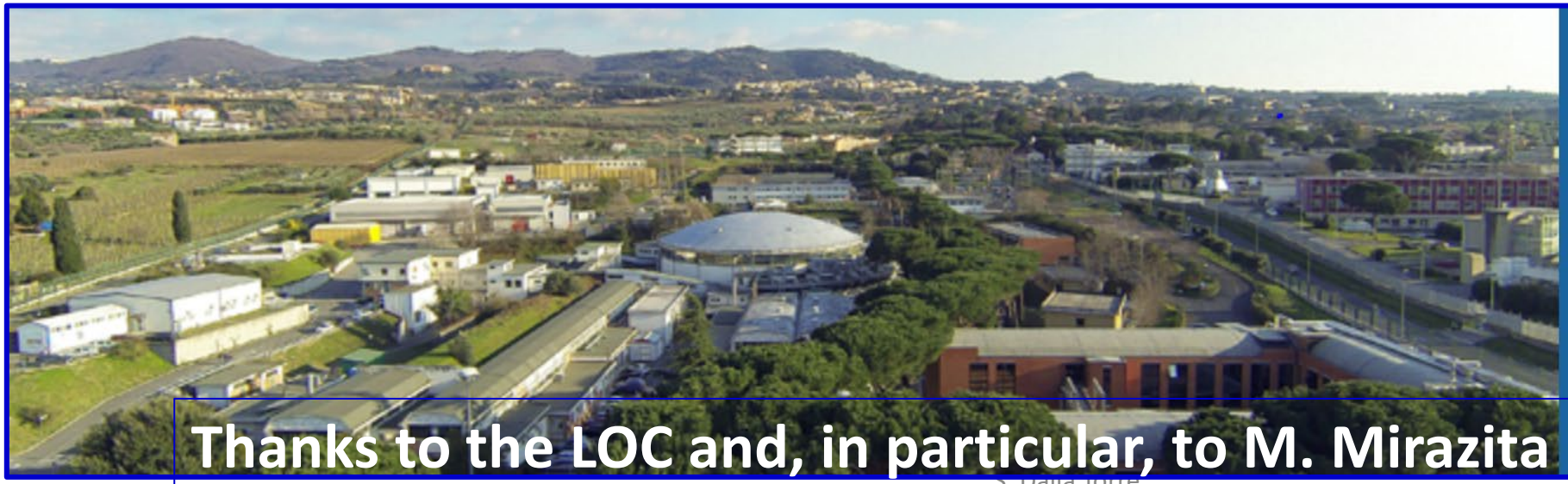
ESTABLISHING A TRADITION

Giornata Nazionale EIC_NET

(https://agenda.infn.it/event/20360/overview)

Bari, 7-8/11/2019

Giornata nazionale EIC_NET 2019

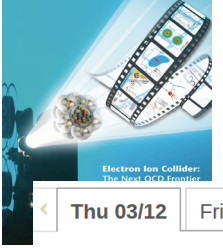


Giornata nazionale EIC_NET 2020

on-line by LNF

Please, register !

Thanks to the LOC and, in particular, to M. Mirazita



THE AGENDA

Information update, not only for EIC_NET members :
All interested colleagues invited

Matters of interest for the INFN EIC_NET collaboration

Thu 03/12 | Fri 04/12 | All days

Open session

14:00
- **Welcome address** — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 14:00 - 14:10
- **Status of the EIC project** — *Silvia Dalla Torre* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 14:10 - 14:40
- **The Italian theoretical contribution to the PWG of the EIC Yellow Report** — *Matteo Rinaldi* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF*

The fruitful collaboration of the theorists continues

15:00
- **Complementary at EIC** — *Elke-Caroline Aschenauer* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF*

We thank Elke (EIC co-associate director for the experimental program) for accepting our invitation

- **Coffee break** — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 15:40 - 16:00

16:00
- **EIC and Italian Accelerator experts: possible perspectives** — *Alessandro Gallo* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF*

EIC & INFN accelerator experts

- **The EoI by INFN** — *Domenico Elia* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 16:20 - 16:50

INFN EoI

17:00
- **EIC EoIs: an overview** — *Marco Contalbrigo* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 16:50 - 17:20

EoIs: an overview

- **Overview of the EIC_NET software and simulation activity** — *Andrea Bressan* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 17:20 - 17:50

EIC_NET activities

18:00
- **Overview of the EIC_NET R&D activity** — *Pietro Antonioli* — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 17:50 - 18:20

Thu 03/12 | Fri 04/12 | All days

Print | PDF | Full screen | Detailed view | Filter

Session legend

Closed session

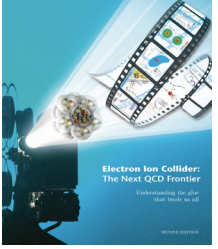
14:00
- **Incontro comunita' INFN teorica e sperimentale** — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 14:00 - 15:00

15:00
- **Coffee break** — *Virtual room, Online by Laboratori Nazionali di Frascati LNF* 15:00 - 15:30
- **Discussione interna EIC_NET**

16:00

17:00

Virtual room, Online by Laboratori Nazionali di Frascati LNF 15:30 - 17:30



STATUS OF THE EIC PROJECT

- Introductory considerations
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S. Dalla Torre

EIC – TOWARDS APPROVAL

- NEXT STEP: CD0

(Critical Decision 0)

- CD0 in 2019 ? A realistic option

https://www.energy.gov/cfo/downloads/fy-2020-budget-justification

Volume 4 - DOE/CF-0154: EIC development part of the most recent DOE FY2020 Congressional Budget Request:

Pg. 10: "Funding is requested in FY 2020 for the start of R&D and conceptual design for a proposed U.S.-based Electron Ion Collider."

slide shown 1 y ago

…ject
…funding to
…port high priority, critically needed accelerator R&D to retire high risk technical challenges for the proposed U.S.-based EIC. Subsequent to the FY 2018 National Academy of Science Report confirming the importance of a domestic EIC to sustain U.S. world leadership in nuclear science and accelerator R&D core competencies. Critical Decision-0, Approve Mission Need, is planned for FY 2019."

- NEXT STEP: CD0

(Critical Decision 0)

- …0 in 2019 ? A realistic option

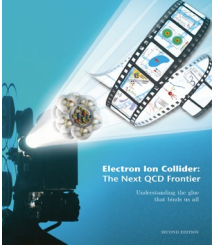
Today both chambers in US indicate the same budget:

- **$1M for a TEC start (project start) and**
- **$10M for OPC or "Other Project Costs" such a pre-conceptual R&D**

The final budget comes from the comparison between the two: →

CDO is at hand

Physics in 10 y from now!



BREAKING NEWS, 9 January 2020

Department of Energy

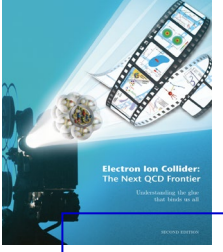
U.S. Department of Energy Selects Brookhaven National Laboratory to Host Major New Nuclear Physics Facility

JANUARY 9, 2020

The Electron Ion Collider (EIC), to be designed and constructed over ten years at an estimated cost between $1.6 and $2.6 billion, will smash electrons into protons and heavier atomic nuclei in an effort to penetrate the mysteries of the "strong force" that binds the atomic nucleus together.

Secretary Brouillette approved Critical Decision-0, "Approve Mission Need," for the EIC on December 19, 2019.

https://www.energy.gov/articles/us-department-energy-selects-brookhaven-national-laboratory-host-major-new-nuclear-physics



BREAKING NEWS, January 202

Department of Energy

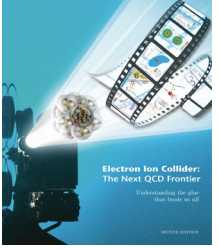
U.S. Department of Energy S
Brookhaven National Lab
Major New Nucle

The Electron Ion C ted cost
between $1 ic nuclei in an
eff ic nucleus together.

Mission Need," for the EIC on December

https: us-department-energy-selects-brookhaven-national-laborat -nuclear-physics

A FUNDAMENTAL PHASE TRANSITION
FROM A DREAM
TO A RUNNING PROJECT !



THE EIC, SPECIFICATIONS

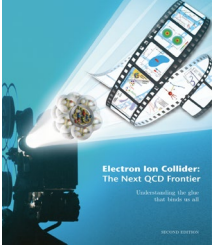
World First
- eA collider
- polarized e-p/light A collider

"SPECIFICATIONS":

- spanning a wide kinematical range
  - ECM: 20 – 141 GeV
- High luminosity
  - up to 10^{34} cm^{-2} s^{-1}
- highly polarized e (~ 80%) beams
- highly polarized light A (~80%) beams
- wide variety of ions: from H to U
- Number of interaction regions: up to 2
- True 4π-coverage
  - Fully integrated detector-IR
- Experiments with high acceptance
- PID systems (e/h, h identification)
- Tagging all nuclear fragments & very forward detectors

collider design

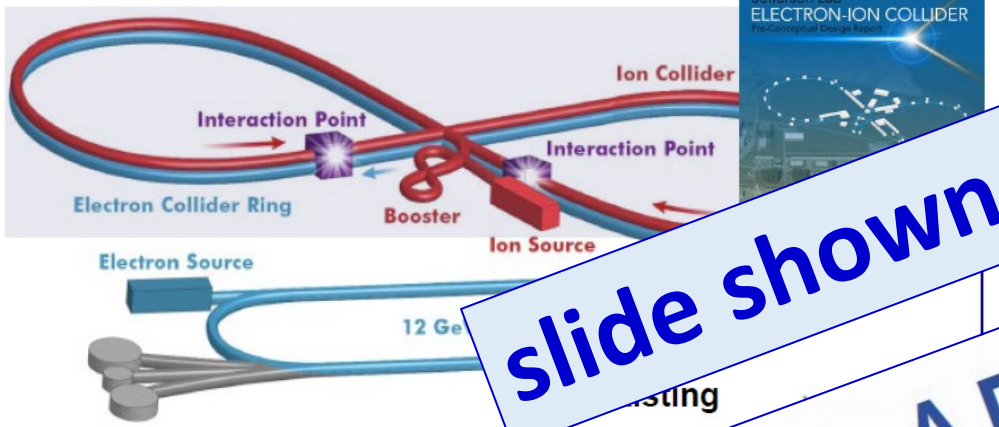
experiment design



2 COMPLETE OPTIONS elaborated

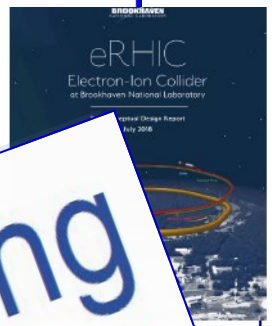
PRE-CONCEPTUAL DESIGN REPORTS, 2018

JLEIC @ Jlab



- Use existing CEBAF as po
- Figure 8
polar
- • Energ
to 140 G

eRHIC @ BNL → the EIC

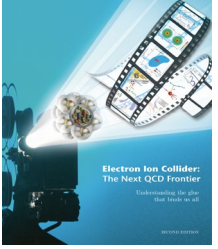


- Use existing RHIC as polarized p
- adron injector
- ooling needed for full luminosity
  - e- rapid cycling synchrotron at 1- 2 Hz
  - 2.5-18 GeV electron storage ring in the same RICH tunnel
- Energy range: √s 20-141 GeV

slide shown 1 y ago

BNL and JLAB are partnering in designing and building EIC

F. Willeke, "1st EIC YR workshop", March 2020



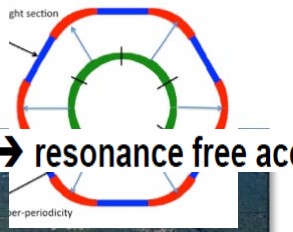
THE ACCELERATOR COMPLEX

EIC Overview

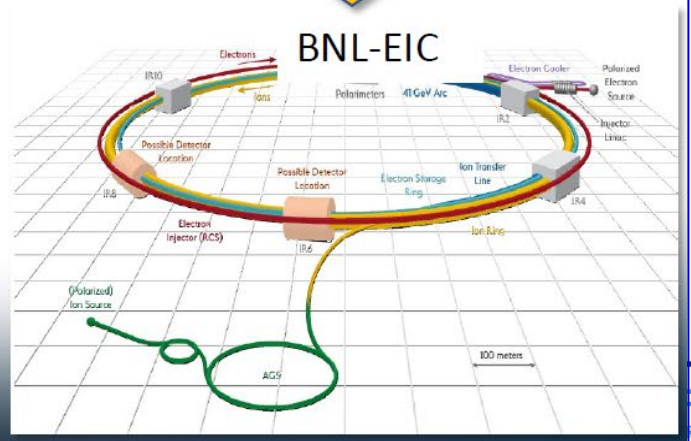
F. Willeke, "1st EIC YR workshop", March 2020

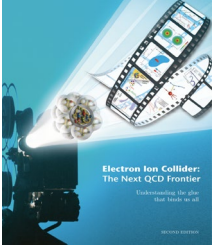
Design based on **existing** RHIC,
RHIC is well maintained, operating at its peak

- **Hadron storage ring 40-275 GeV** (existing)
  - many bunches
  - bright beam emittance
  - need strong cooling **or** frequent injections
- **Electron storage ring (2.5–18 GeV** (new))
  - many bunches,
  - large beam current (2.5 A)
- **Electron rapid cycling synchrotron** (new)
  - 1-2 Hz
  - Spin transparent due to high periodicity
- **High luminosity interaction region(s)** (new)
  - $L = 10^{34} cm^{-2} s^{-1}$
  - Superconducting magnets
  - Crossing angle with crab cavities
  - Spin Rotators (longitudinal spin)
  - Forward hadron instrumentation



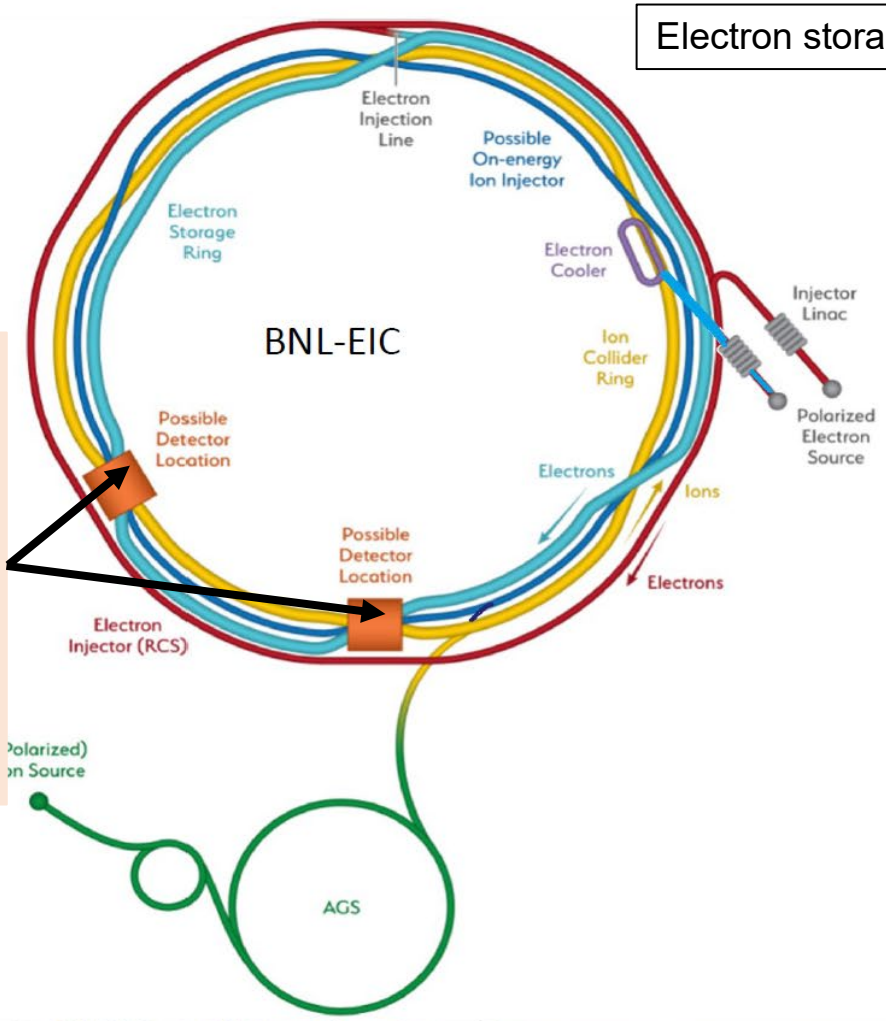
→ resonance free acceleration up >18 GeV





THE ACCELERATOR COMPLEX

From RHIC to the EIC



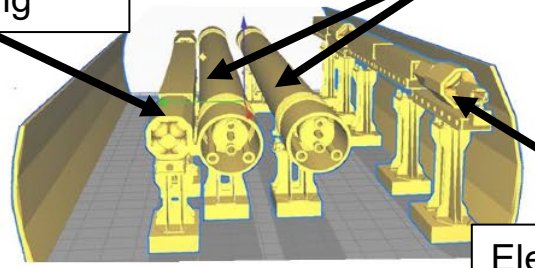
2 possible interaction points (large halls available);

Only a single detector included in the approved project

(talk ky E. Aschenhauer)

Yellow & Blue i rings

Electron storage ring



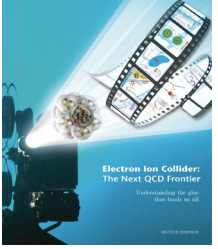
Electron injector synchrotron

The strong hadron cooling facility completes the facility

- Hadron Storage Ring
- Electron Storage Ring
- Electron Injector Synchrotron
- Possible on-energy Hadron injector ring
- Hadron injector complex

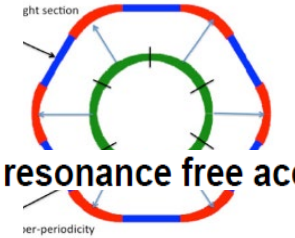
F. Willeke, "1st EIC YR workshop", March 2020

5



ABOUT THE BEAMS

ABOUT e POLARIZATION



➔ **resonance free acceleration up >18 GeV**

on average, every bunch refilled in 2.2 min

ABOUT p/ion POLARIZATION

presently

Measured RHIC Results:

- Proton Source Polarization 83 %
- Polarization at extraction from AGS 70%
- Polarization at RHIC collision energy 60%

empowerment

Planned near term improvements:

AGS: Stronger snake, skew quadrupoles, increased injection energy

➔expect 80% at extraction of AGS

RHIC: Add 2 snakes to 4 existing no polarization loss

➔ expect 80% in Polarization in RHIC and eRHIC

High polarization ^{3}He and D beams also possible

The existing RHIC ion sources & ion acceleration chain provides already **today** all ions needed for EIC

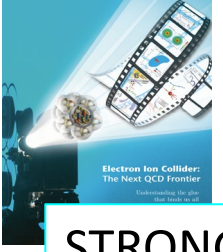
Ions from He to U have been already generated in the Electron-Beam-Ion-Source ion source (EBIS), accelerated and collided in RHIC

Existing EBIS provides the entire range of ion species from He to U in sufficient **quality** and **quantity** for the EIC

Enormous versatility! is a unique capability!

Ion Pairs in the RHIC Complex	
Zr-Zr, Ru-Ru	(2018)
Au-Au	(2016)
d-Au	(2016)
p-Al	(2015)
h-Au	(2015)
p-Au	(2015)
Cu-Au	(2012)
U-U	(2012)
Cu-Cu	(2012)
D-Au	(2008)
Cu-Cu	(2005)

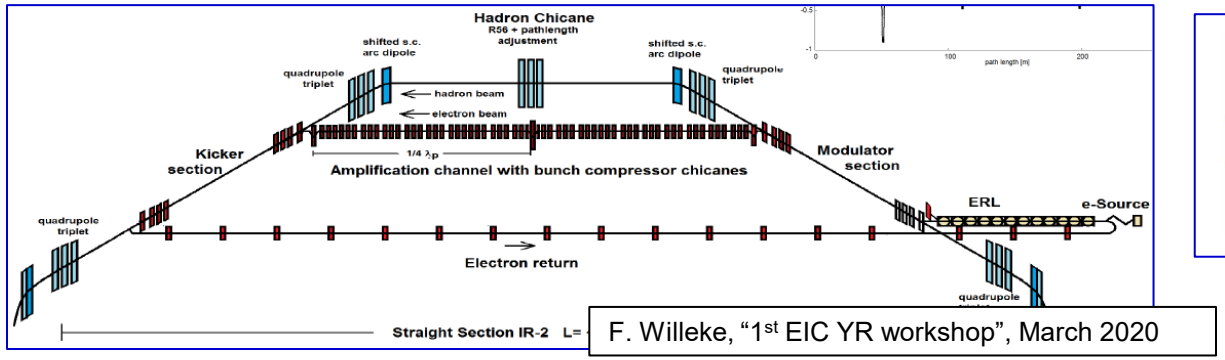
F. Willeke, "1st EIC YR workshop", March 2020



LUMINOSITY

STRONG COOLING & HIGH LUMINOSITY

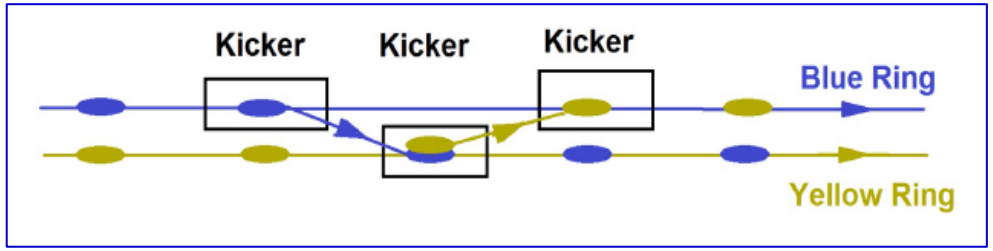
Coherent Electron Cooling (CeC) CeC not yet demonstrated



F. Willeke, "1st EIC YR workshop", March 2020

ALTERNATIVE

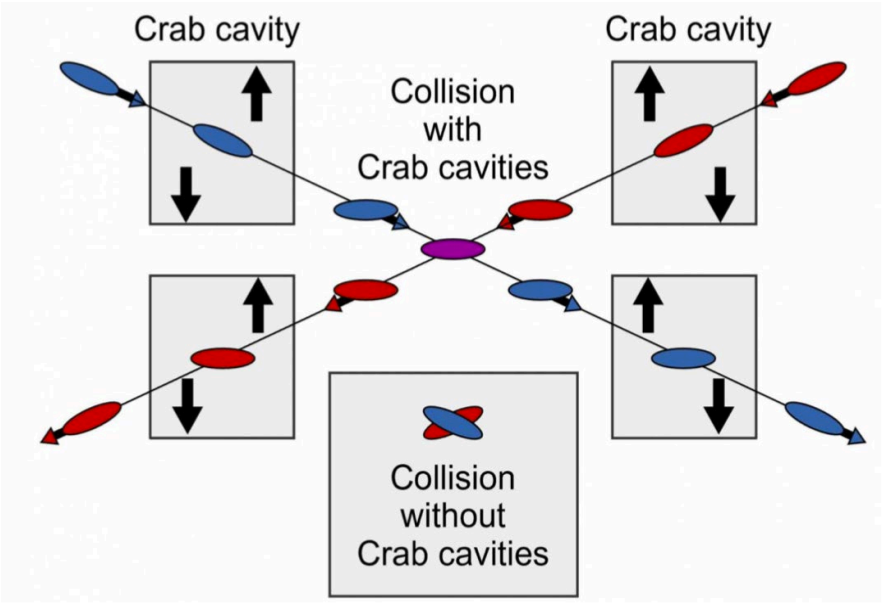
frequent on-energy injections using existing Blue Ring

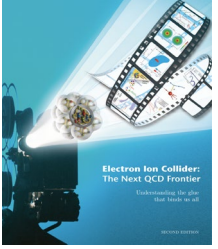


Transfer takes 13 μs,
preserves the total charge stored in both machines,
avoiding transient injection effects

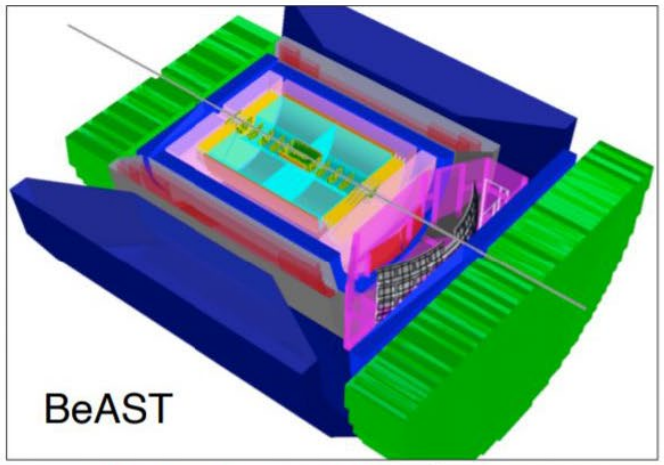
HIGH LUMINOSITY and CROSSING ANGLE

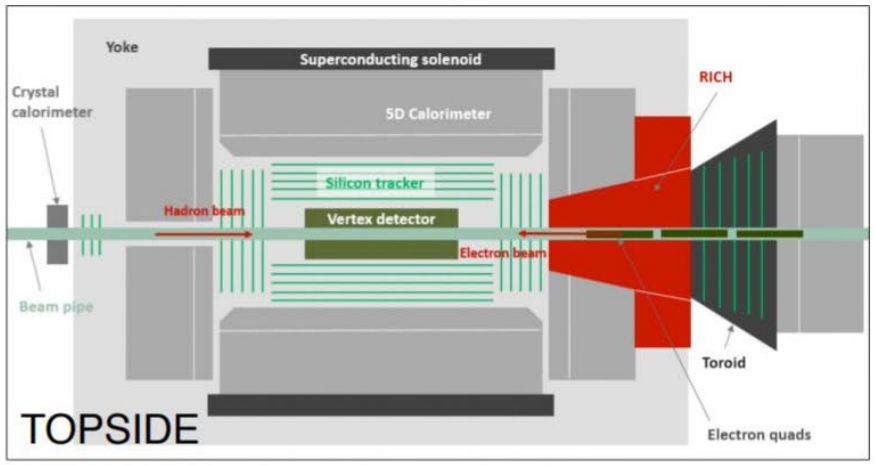
- Head-on collision geometry is restored by rotating the bunches before colliding ("crab crossing")
- First application of crab crossing at large angle: 25 mrad





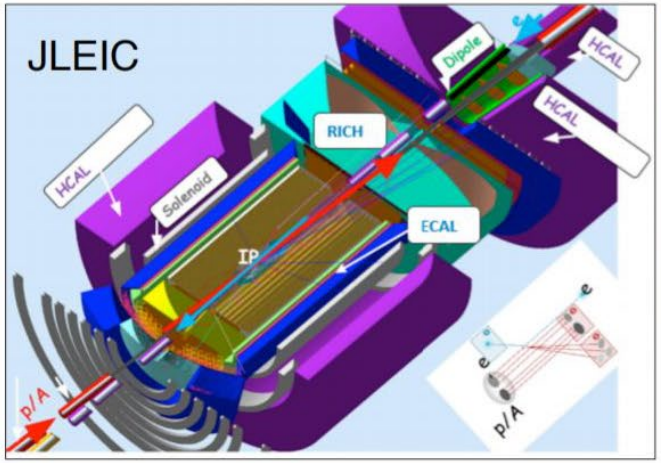
GALLERY OF DETECTOR CONCEPTS proposed over time

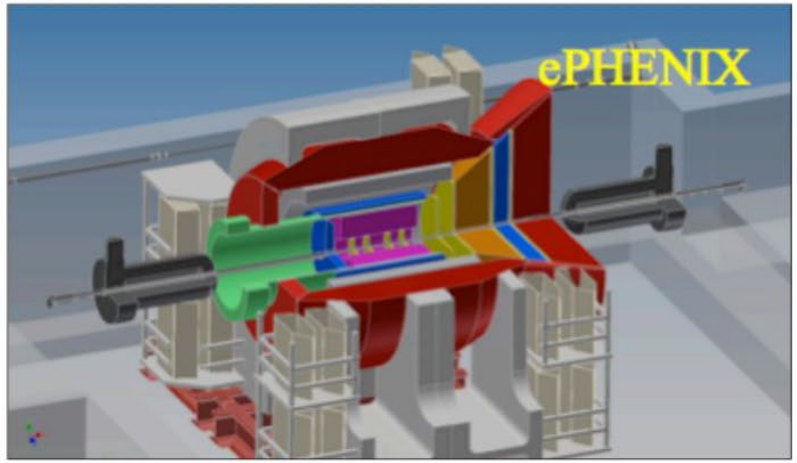


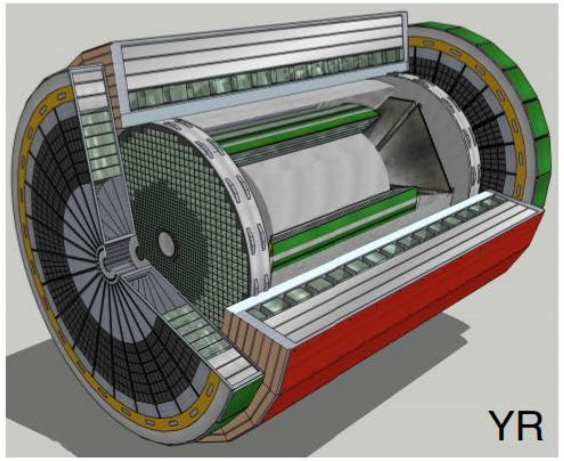


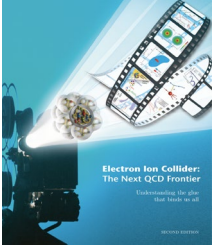
Several key elements
are present in common

this previous activity is at the basis of the present central reference detector discussed in the following

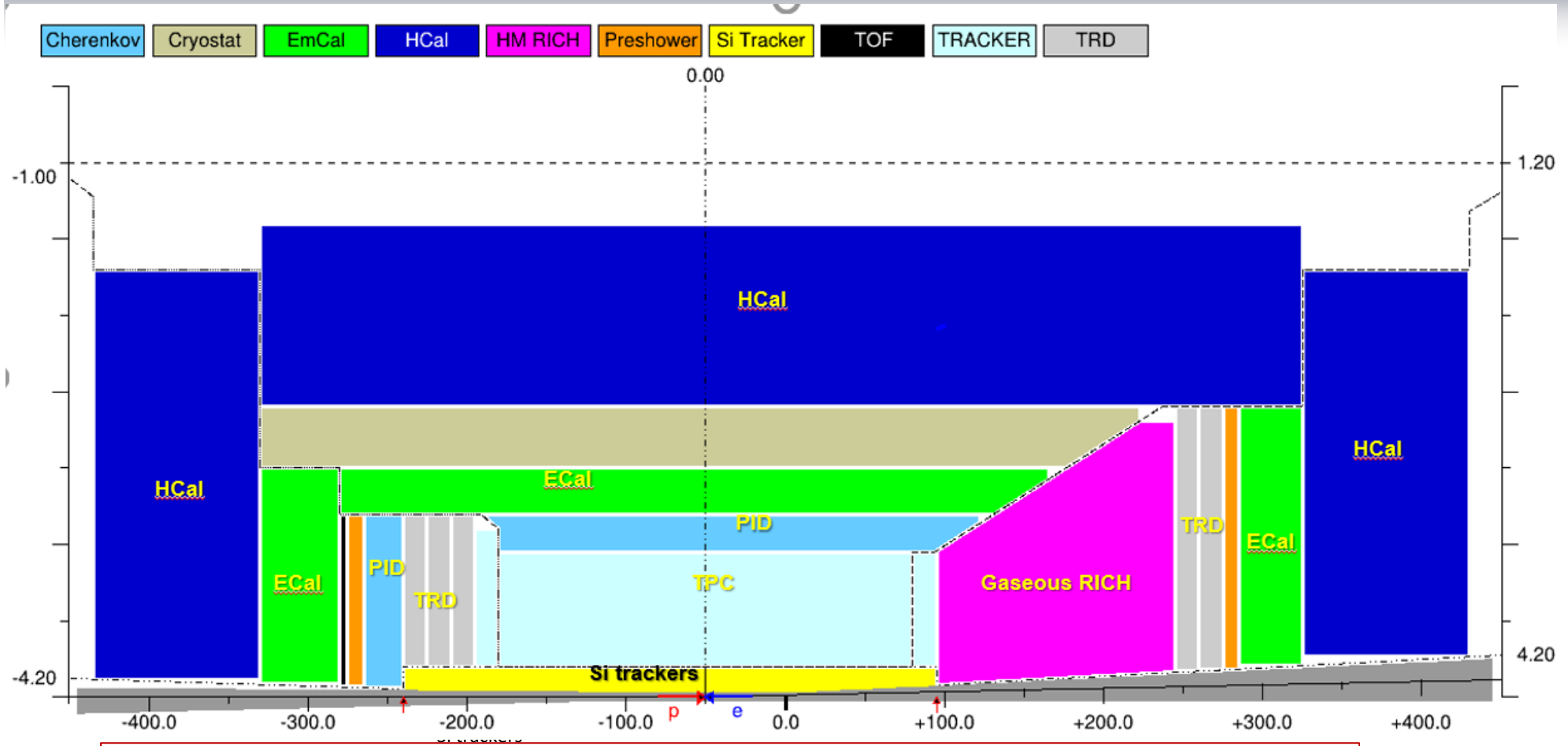






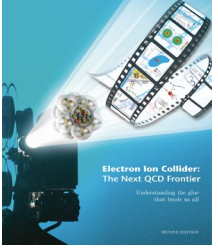


REFERENCE DETECTOR IN A CARTOON



and

- Very forward detectors : ZDC, Roman Pots, off momentum taggers
- LUMINOSITY, POLARIMETRY



PROJECT INTERNAZIONALIZATION

in-camera meetings organized by DOE

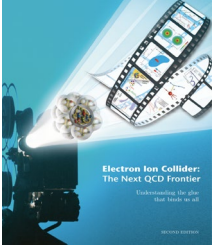
- reminder: E. Nappi at the in-camera meeting, London, August 3, 2019:
  - INFN is ready for collaboration, when CD0 is announced
- new: D. Bettoni and E. Nappi at the in-camera meeting, remote, July 31, 2020:
  - INFN (E. Nappi):
    - Need to progress since the beginning towards instrumenting the 2 IRs, also to keep international interest focused
  - IMPORTANT: no request of contribution for the facility operation will be requested from the foreigner participants
  - The exact internationalization model still to be defined
    - Italy already advanced towards future specific agreement; in fact, these documents have been already signed:

✓ general framework agreement (Minister signs)
✓ PROJECT ANNEX (…) CONCERNING NUCLEAR PHYSICS RESEARCH

- Third-level document has to come: it will be similar to the Jlab one:

Addendum 1

CONCERNING NUCLEAR PHYSICS RESEARCH AT THE THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY



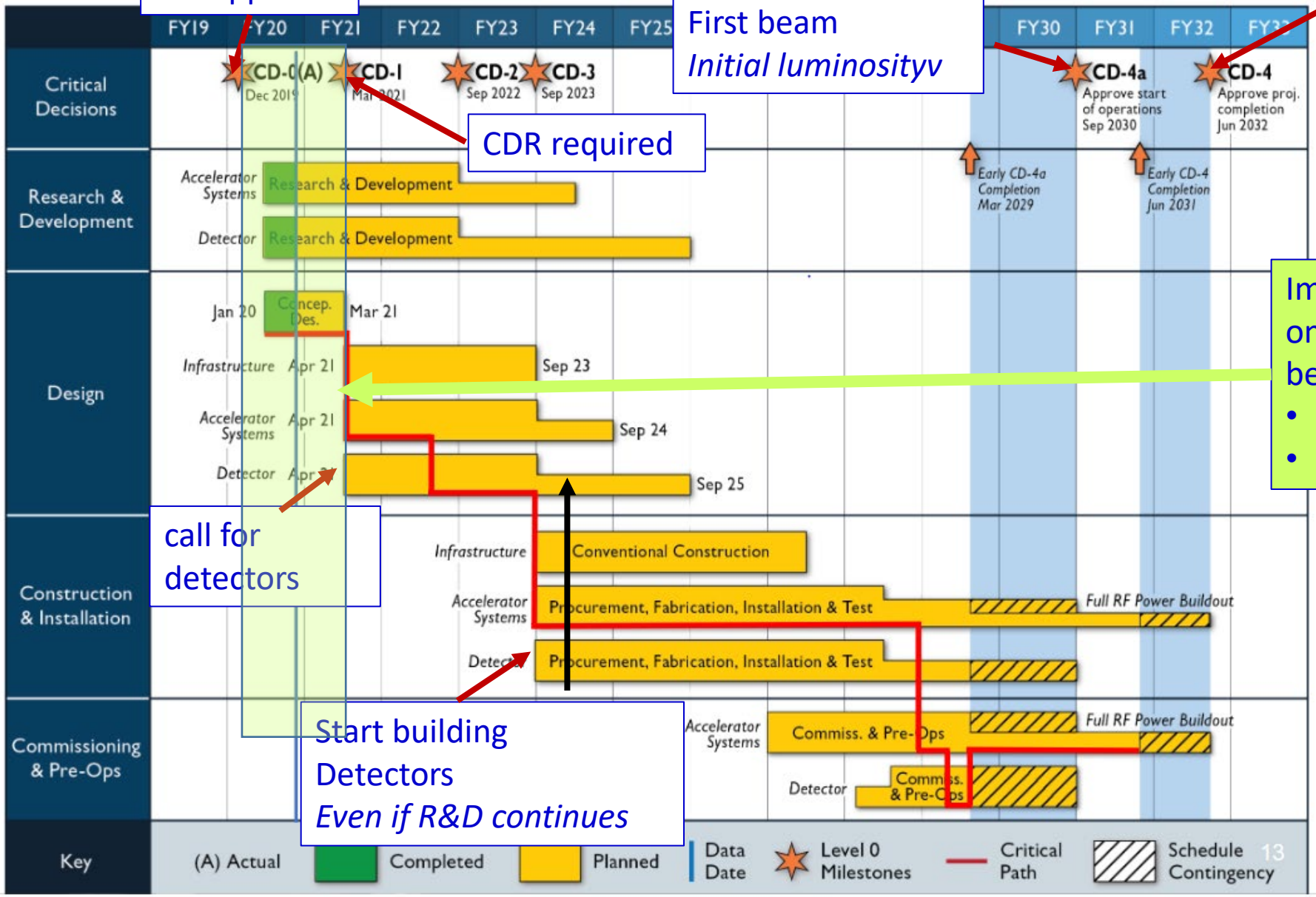
PROJECT TIME-LINES

the approval

First beam
Initial luminosityv

First beam
full luminosity

CDR required



call for detectors

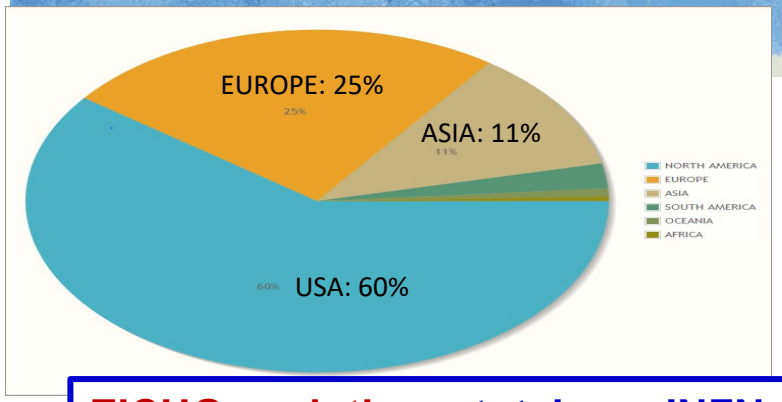
Start building Detectors
Even if R&D continues

Important activity ongoing in 2020, between

- *Approval and*
- *Call for detectors*

EICUG – A STRONG INTERNATIONAL COMMUNITY

The EICUG (User Group)



EICUG evolution: **total** **INFN**

- Sept. 2018 788 63
- Sept. 2019 873 85
- Sept. 2020 1157 92 (8 % !)

An active community

- **EICUG Annual Meeting annual**
- **The dedicated conference (POETIC - Physics Opportunities at an ElecTron-Ion Collider)**
- **The working groups**
- **And more …**

…YELLOW REPORT INITIATIVE

INFN-EICUG members serving on EICUG:

- The 15 members of the IB
- IB deputy-chair: A. Bressan
- Member of the SC: M. Radici
- Chair of the Elections and Nominating Committee: M. Ruspa
- Member of the Conference & Talks Committee: M. Chiosso
- Representing EICUG in the Committee for the EoI assessment: M. Contalbrigo

EIC AND THE EPPSU process

- EIC several times positively cited in the documents summarizing the process, which have been summarized by H. Abramovicz at CERN Council (19/6/2020); from Halina's slides
- From Halina's slides:

4. Other essential scientific activities for particle physics

- Improvements in the knowledge of the proton structure needed to fully exploit the potential of present and future hadron colliders - added value from fixed target experiments and from Electron Ion Collider (CD0) in BNL

A diverse programme that is complementary to the energy frontier is an essential part of the European particle physics Strategy. *Experiments in such diverse areas that offer potential high-impact particle physics programmes at laboratories in Europe should be supported, as well as participation in such experiments in other regions of the world.*

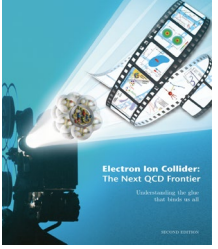
5. Synergies with neighbouring fields

- Future European facilities such as FAIR, NICA and ESS or EIC in the US envisage research programmes that are of interest to particle physics

a) A variety of research lines at the boundary between particle and nuclear physics require dedicated experiments and facilities. Europe has a vibrant nuclear physics programme at CERN, including the heavy-ion programme, and at other European facilities. In the global context, a new electron-ion collider, EIC, is foreseen in the United States to study the partonic structure of the proton and nuclei, in which there is interest among European researchers. *Europe should maintain its capability to perform innovative experiments at the boundary between particle and nuclear physics, and CERN should continue to coordinate with NuPECC on topics of mutual interest.*

Slide 21

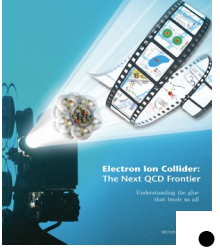
Slide 26



STATUS OF THE EIC PROJECT

- Introductory considerations
- The Project and its Status
- 2020 EIC activities
- INFN & EIC

S. Dalla Torre



2020: a year of intense activity

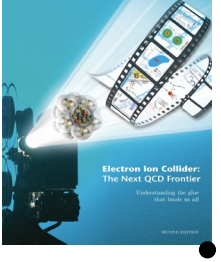
- Preparatory activities continue within EIC_NET (R&D, software & MC)
  - activity in EIC_NET, we will learn about in the talks by
    - Andrea Bressan
    - Pietro Antonioli
- Writing the CDR, needed to get CD1
  - This also mean the first consistent financial support
- The EICUG has launched the Yellow Report Initiative
  - Information included in this report
- The Project management has called for the Expressions of Interest (EoI)
  - Introduction in this report
  - Details in the talks by
    - Domenico Elia
    - Marco Contalbrigo

INFN heavily involved

Contributing to main steps of the overall Project Time Lines:

Yellow Report → **Collaboration formation**
CDR for CD1

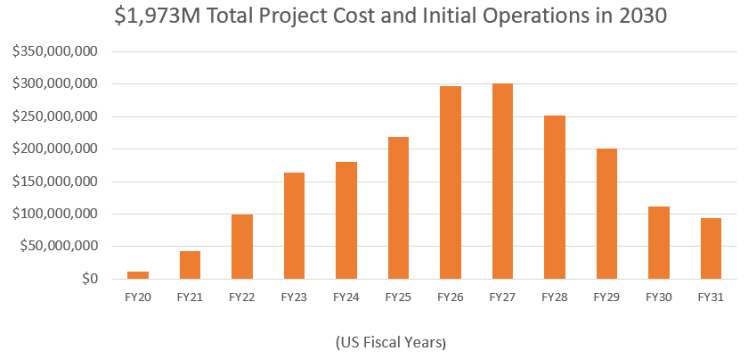
EoIs → shaping the
Call for Detectors



CDR

- Needed to obtain CD1
  - The first relevant money flow start only when CD1 is signed
- Concerning the detector, CDR presents a so called “reference detector” that can match the main requirements for the overall physics programme → not binding the detector design
- Two of us contributing to the chapter dedicated to the experimental equipment
  - A. Bressan, S. Dalla Torre

Reference Funding Profile

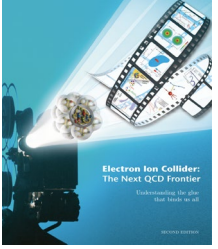


- CD-1: March 2021
- CD-2: September 2022
- CD-3: September 2023
- CD-4a: September 2030
- CD-4: June 2032

- Staged CD-4
  - Operations Start - CD-4a
  - Install full RF Power - CD-4
- $100M from New York State toward infrastructure

EIC Project Status and Next Steps
Jim Yeck, EIC Project Director
September 16, 2020

Electron Ion Collider
Conceptual Design Report
Experimental Equipment



THE YELLOW REPORT INITIATIVE

EICUG YELLOW REPORT (YR)

- The purpose of the Yellow Report Initiative is to advance the state and detail of the documented physics studies and detector concepts in preparation for the realization of the EIC.
- Time scale : ~ 1 y
- **STRATEGY :**
- Quantify physics measurements for detector design ("Physics Working Group")
- Study detector concepts based on the requirements defined above ("Detector Working Group")
- Software group: support to PWG & DWG

An aggressive calendar

Workshop series

all , a part kick-off, became remote meetings!

Kick-off meeting: December 12-13, 2019, MIT, Boston, MA

March 19-21, 2020, Temple U., Philadelphia, PA (*)

May 20-22, 2020, University of Pavia, Pavia (Italy) (*)

Status reports at Summer EICUG Meeting: July 15-17, 2020, FIU, Miami, FL (*)

September 17-19, 2020 CUA, Washington, DC

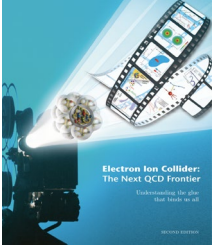
November 19-21, 2020, UC Berkeley, Berkeley, CA

&

weekly meetings of the conveners and be-weekly meetings of the different subgroups

GOAL: YR published in Feb. 2020

Work progressing intensively even if from remote:
Never less than 150 people connected during the workshop plenary sessions !



THE YELLOW REPORT INITIATIVE

Human effort

- **Physics Group**
  - *4 conveners*
  - *5 subgroups and 23 sub-conveners*
- **Detector Group**
  - *5 conveners*
  - *11 subgroups and 21 sub-conveners*
- **SOFTWARE Group** (support for PWG & DWG)
  - *3 conveners*

& **contributors to the different subgroups**

→ In total ~ 150-200 physicists at work

INFN physicists at work for the YR

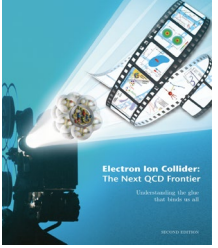
- **Physics Group**
  - *1 sub-convener:*
    - **Barbara Pasquini (Pavia, Italy)**
- **Detector Group**
  - *1 convener:*
    - **Silvia Dalla Torre (Trieste, Italy)**
  - *2 sub-conveners:*
    - **Andrea Celentano (Genova, Italy) – electronics and DAQ**
    - **Domenico Elia (Bari, Italy) – tracking**
- **SOFTWARE Group** (support for PWG & DWG)
  - *1 convener:*
    - **Andrea Bressan (Trieste, Italy)**

& a number of contributors active in the different subgroups

In total:

- **15 experimentalists (from EIC_NET)**
- **16 theorists (from NIMPHA)**

INFN contribution



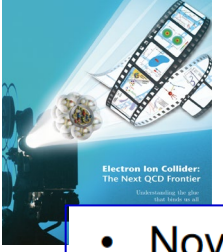
THE YELLOW REPORT
PRESENT STATUS

Contents

658 pages

- I Executive Summary
- II Physics
  - Introduction
  - The EIC Physics Case
  - The EIC Measurements and Studies
  - Detector Requirements

- III Detectors
  - Introduction
  - Detector Challenges and Performance Requirements
  - Detector Aspects
  - The Case for Two Detectors
  - Integrated EIC Detector Concepts
  - Detector Technology
  - Appendix Deep Inelastic Scattering Kinematics
  - References



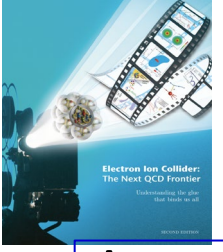
THE YELLOW REPORT TIME-LINES

- November 1 - November 18 — SC starts assembly of independent review team (readers)
- November 19 — Full Yellow Report draft available
- November 19-21 — 4th Yellow Report Workshop
- November 22 - December 20 — Editing by Steering Committee, Conveners and Sub-conveners
  Divide into periods (to be organized by the conveners)
- December 21 - January 6 — Period of web-based EICUG community input
- January 6 - January 13 — Editing of Yellow Report(s) folding in community input
  Release draft Yellow Report on eicug web pages
- January 13 - January 31 — Independent team reads and comments
- January 12 — Post YR draft and CDR as pre-brief material for CD-1 review
- February 1 - February 15 — Final editing of Yellow Report(s) to fold in reader comments
- February 22 — Release of Yellow Report(s) including putting on arXiv

Timeline for completing the Yellow Report

Thomas Ullrich and Rolf Ent
on behalf of the SC

November 21, 2020

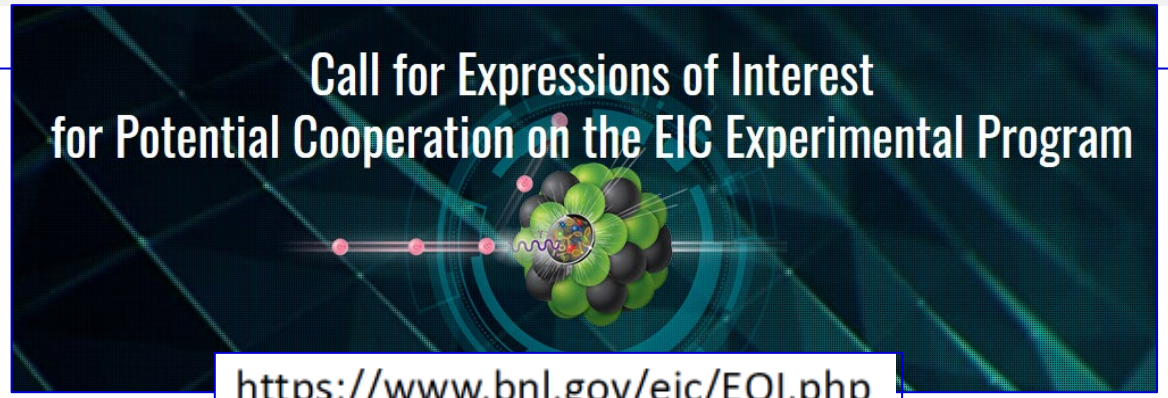


CALL FOR EoIs

Announced in March,

Published on 2 June 2020

dead-line 1/11/2020



- About the call

Process management

- CALL by BNL, in association with Jlab

What about?

- EOI for potential cooperation on the experimental equipment as required for a successful science program at the EIC

GOAL

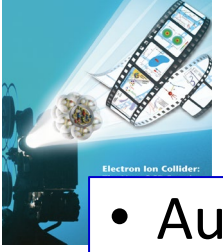
- EOI will give the EIC Project guidance on current interest for participating in the EIC experimental program, including an initial understanding of the full scope of the experimental equipment; EoI main purpose is guide expectations and to better understand the potential EIC experimental equipment scope

Who ?

- interested groups to work together within their country, their geographical region, or as a general consortium

OBBLIGATIONS

- An EOI is non-binding



EIC - EoI INFN

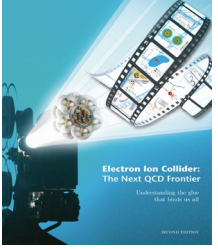
- Authors EIC_NET & some colleagues from ALICE (from TO & TS)
- In close contact with INFN management INFN (Bettoni, Nappi, Nania)
  - Dedicated meetings EIC_NET: 19/5/2020 17/6/2020 20/7/2020 26/8/2020
- Details in D. Elia's talk
- Here I underline about **timescale & manpower**

TABLE 1 – Labor and investment for R&D and construction in period 2021-2029.

Years	Labor, scientists	Labor, technical personnel	In-kind investment R&D	In-kind investment constructions	Travelling	Manpower	Investment, TOTAL
	(FTE)	(FTE)	(USD)	(USD)	(USD)	(USD)	(USD)
2021	10 /45		minimal		minimal	0.4 M	0.4 M
2022-2023	10		1 M		0.3 M	1.6 M	2.9 M
2024	20						
2025-2029	50 /100	10		7-8 M	0.7 M	12 M	19.7 - 20.7 M
Investment 2021-2029, TOTAL			**1 M**	**7-8 M**	**1 M**	**14 M**	**23-24 M**

R&D

construction



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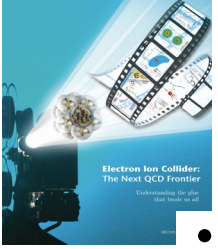
S. Dalla Torre



INFN & EIC : the fields of contribution

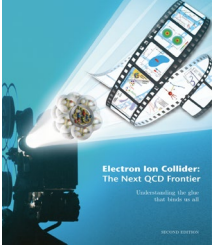
- The ongoing research activity of the preparatory phase
  - Physics studies, simulations, R&D *(talks by M. Rinaldi, A. Bressan, P. Antonioli)*
  - Participation in the program "Generic R&D for EIC"
    - eRD 1 "Calorimetry"
    - eRD 6 "Tracking & PID detector R&D towards an EIC detector"
    - eRD 14 "ID Consortium for an integrated program for Particle Identification (PID) at a future EIC"
    - eRD 20 "Developing Simulation and Analysis Tools for the EIC"
    - eRD 23 "Streaming Readout for EIC Detectors"

- ~ 1/ 5 of the colleagues active in the Yellow Report Initiative are from INFN:

  ~ 30/150
  - Also several coordination roles

- Writing the INFN Expressions of Interest (EoI)
  - 14 of us actively involved in the writing process
  - Many more if considering the R&D and simulation work behind our EoI

- interest of the INFN accelerator commuty
  - Participation and contributions to the recent "EIC Workshop - Promoting Collaboration on the Electron-Ion Collider"
  - More? (talk by A. Gallo)

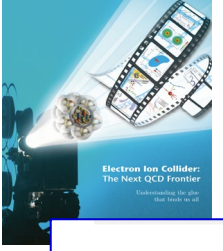


INFN & EIC : a house for INFN EIC enthusiasts

- Experimentalistists
  - The project **EIC_NET (CSN 3)** is operative since 1/1/2019
  - In 2022 or 2023 transition from propaedeutic phase to operative phase, namely from EIC_NET to EIC

- Theorists
  - Activity within the project **NINPHA (CSN 4)**, groups from 5 INFN sites
  - Hadron physics and QCD

- Accelerator experts
  - Contacts with the EIC accelkerator community starting
  - A house within INFN presently not yet established



EIC_NET: support beyond INFN one

From USA

In collaboration with Colleagues from USA within the program:

"Generic R&D for EIC"

STATUS: **On-going support**

- **eRD1** "Calorimeter Consortium"
  - **Genova, Roma 2**
- **eRD6** "Tracking & PID detector R&D towards an EIC detector"
  - **Trieste**
- **eRD14** "ID Consortium for an integrated program for Particle Identification (PID) at a future Electron-Ion Collider"
  - **Ferrara, Roma 1**
- **eRD20** "Developing Simulation and Analysis Tools for the EIC"
  - **Trieste**
- **eRD23** "Streaming Readout for EIC Detectors"
  - **Contact persons:** M. Battaglieri (from INFN) and J.C. Bernauer
  - **Genova, Roma 2**

From EC

STRONG-2020

- project **STRONG-2020 financed by the EU community**, 2 WPs:
  - JRA4 "3D structure of the nucleon in momentum space" (Cagliari, Pavia, Torino, Trieste) *[Theorists & Experimentalists]*
  - JRA14 "Micropattern Gaseous Detectors for Hadron Physics " (Trieste)

STATUS: **APPROVED**

AIDAinnova

- Proposal being assembled for a new EC call (following AIDA, AIDA2020):
- EoI 24 " ***Photon detectors for hadron particle identification at high momenta wi compact RICHes*** " (Bari, Bologna, Trieste)

STATUS: **APPROVED**

From ITALY

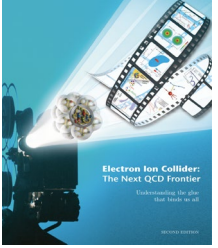
- PROGETTI GRANDE RILEVANZA (Projects of Large Relevance) 2018

  (Ministry of Foreign Affairs)

"A triggerless DAQ for the Electron Ion Collider (EIC)"

- **INFN Participants**: Genova, Roma1, Roma2
- **Participants from abroad** : MIT
- **STATUS: APPROVED !**

STATUS: **APPROVED**



CONCLUSIONS

- The EIC
  - An approved project
  - First beams in 2030
- The EIC-UG
  - Growing and growing
  - Extremely active community
- 2020: a busy year
  - Continuation of preparatory activities
  - CDR, Yellow Report, EoIs
- INFN & EIC
  - All INFN potentialities involved (theorists, experimentalists, accelerator experts)
  - INFN involvement progressing in connection with and supported by the INFN management

MAIN FACTS