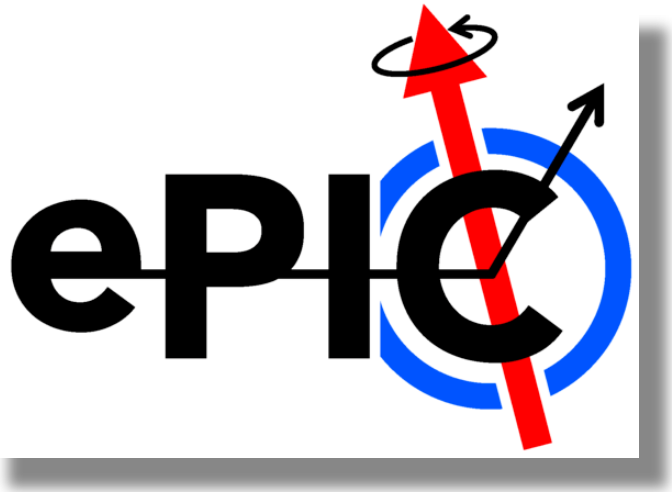
ePIC
(electron-Proton/Ion Collider)
Detector and Collaboration

Bernd Surrow

TEMPLE UNIVERSITY

On behalf of the ePIC Steering Committee (SC)

Silvia Dalla Torre, Or Hen, Tanja Horn, John Lajoie, and Bernd Surrow

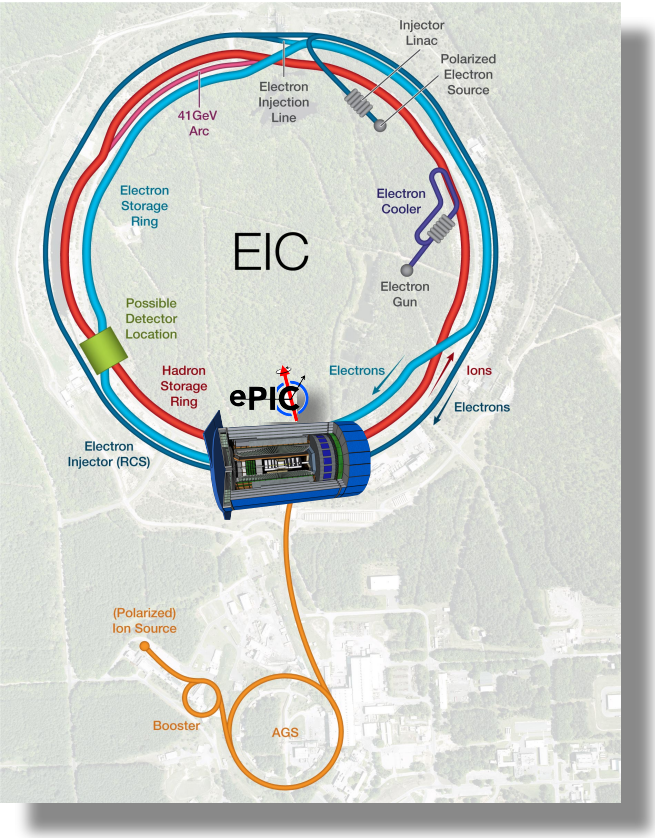


U.S. DEPARTMENT OF ENERGY | Office of Science

DOE NP contract: DE-SC0013405

Outline

- ePIC Detector Overview
- Timeline of Collaboration Organization
- Collaboration Organization and Structure
- Collaboration Size and Portfolio
- Summary



1. Is risk planning comprehensive given the project's current stage of development? Are R&D and design efforts yielding sufficiently advanced designs and mitigating technical risks, particularly in strong hadron cooling? Are technical issues appropriately and proactively being addressed?
2. Is the project properly managed? Is the plan to attain CD-3A and CD-2 thereafter clear, justified, and credible and is the project team effectively executing the plan? Are roles and responsibilities understood? Does the project have sufficient staff?
3. Is the project on a path to successfully realize the expected international in-kind contributions to both the accelerator and detector?
4. Is the project making adequate progress developing the performance baseline? Is the scope defined well and logically? Are the proposed CD-3A long-lead procurements appropriate and progressing adequately toward final design?
5. Are the cost and schedule estimates credible given the project's current stage of development? Do they include adequate scope, cost, and schedule contingency?
6. Is environment, safety, and health (ES&H) and quality being properly addressed given the project's current stage of development?
7. Has the project satisfactorily addressed recommendations from previous reviews?

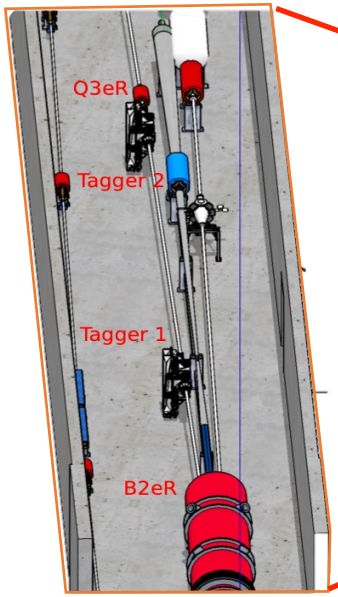
This presentation addresses in part questions 3/4!

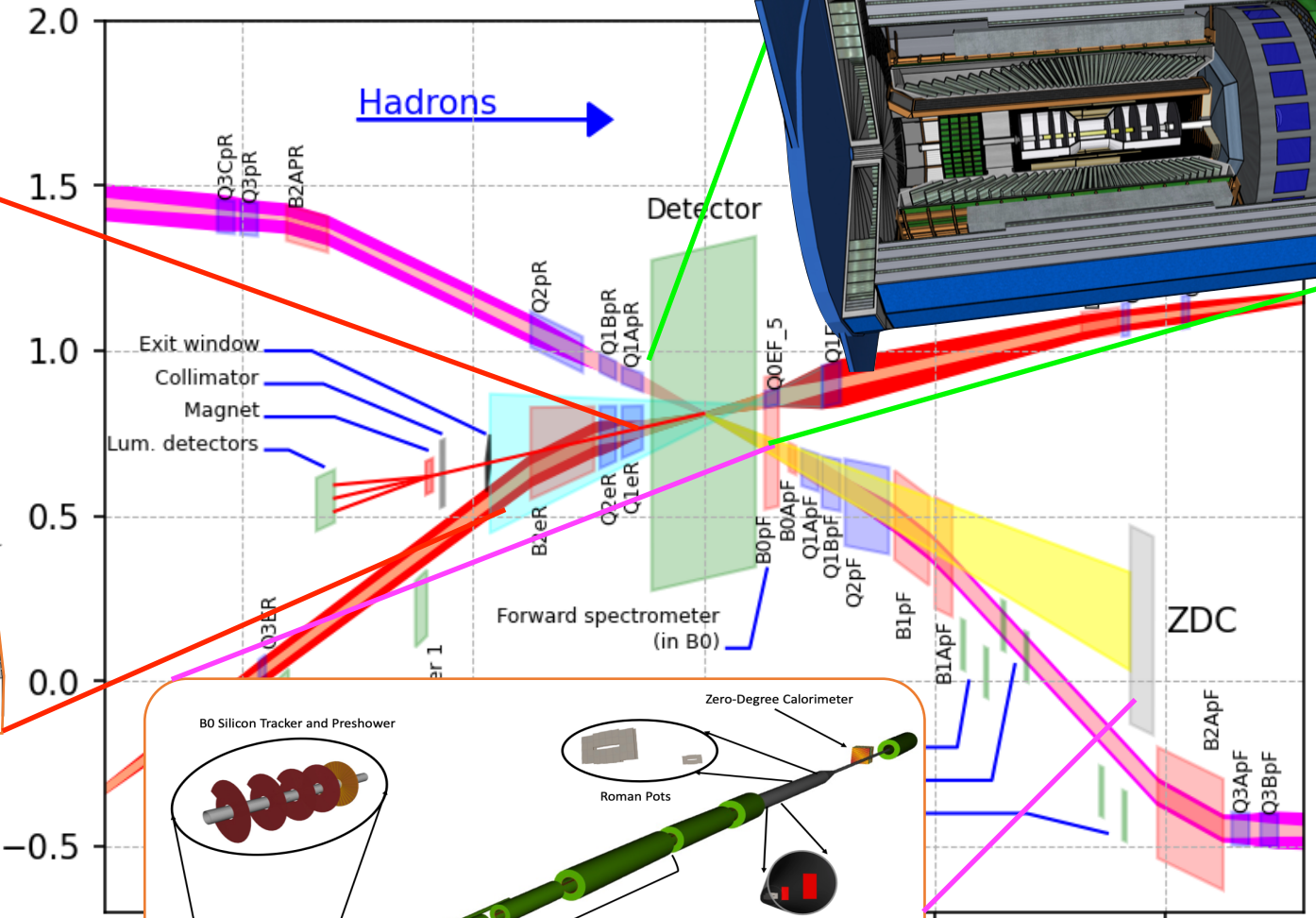
About Me

- Education:
  - Ph.D. in Physics - University of Hamburg / Thesis (F_2 at low x and low Q^2) at ZEUS at HERA (ep)
- Employment / Academic Leadership roles:
  - Professor of Physics at Temple University (Since 2012) / Assist. & Assoc. Professor of Physics at MIT (2004 - 2012)
  - Senior Assoc. Dean of Research and Operation (Since 2022) / Chair (2021 - 2022) / Vice-Chair (2016 - 2021) - College of Science and Technology
- Extensive experience in various collider-mode experiments worldwide: ZEUS at HERA (ep) / OPAL at LEP (ee) (Run coordinator) / STAR at RHIC (pp) (Deputy-Spokesperson)
- Serving the EIC community in various capacities, e.g.:
  - Vice-Chair (2016 - 2017) and Chair of the EICUG over two cycles 2017 - 2019 / 2019 - 2021: Before and after CD-0/CD-1 and site selection, shepherding the EIC development
  - Deputy-Spokesperson of ATHENA detector proposal
  - Member of ePIC Steering Committee

ePIC Detector Overview

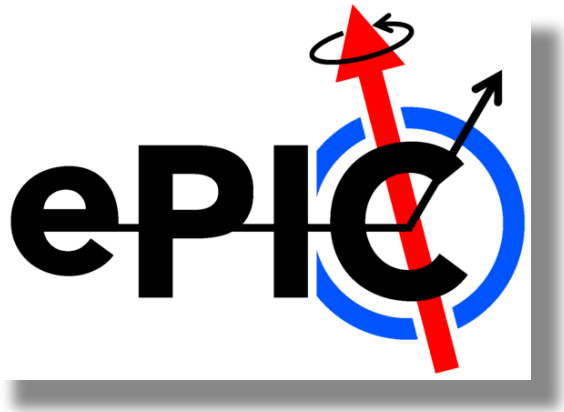
- Global ePIC design overview





Timeline of Collaboration Organization

- Snapshot of collaboration activities
  - April 2022: Formation of joint working groups and start of technological consolidation process, following EIC detector proposal closeout in March 2022
  - June 2022: Collaboration roster established via institutional survey
  - July 2022:
    - Name selection via members' vote
    - Collaboration council establishment and interim chairs appointment
    - Collaboration formation meeting @ Stony Brook University (July 26th-28th)
  - August 2022: Formation of charter committee
  - October 2022:
    - 6th: Draft charter sent to collaboration
    - 14th: Collaboration council meeting to discuss draft charter
  - Late October – Mid December 2022: Feedback and adoption of charter
    - Comments and feedback collection of draft bylaws / Final bylaws circulated to collaboration members
    - Vote and adoption of collaboration charter on December 14
  - December 2022 - February 2023: Nomination process & Collaboration leadership election as defined in charter
    - Call for nominations!
    - January 9: Candidate presentations / January 15: Deadline for candidate statements
    - January/February: Elections and announcement of election results around mid of February!



Collaboration Organization and Structure

- Organization / Structure - Charter

Collaboration Council (CC)

Members: Institutional representatives

Spokesperson (SP)

& Deputy-Spokesperson(s)

Standing Committees

- Conference and Talks committee
- Diversity, Equity, and Inclusion committee
- Election committee
- Membership committee
- Publication committee

Ad-hoc committees

Executive Board

- SP & Deputy-Spokesperson(s) (Ex-officio members)
- 3 members elected by CC
- 1 member from DEI committee
- 1 member from early career group
- Additional members appointed by SP, endorsed by CC

Note: The charter describes the overall governance structure of the collaboration. The elected management team will establish the scientific management structure, not described in the charter!

Collaboration Size and Portfolio

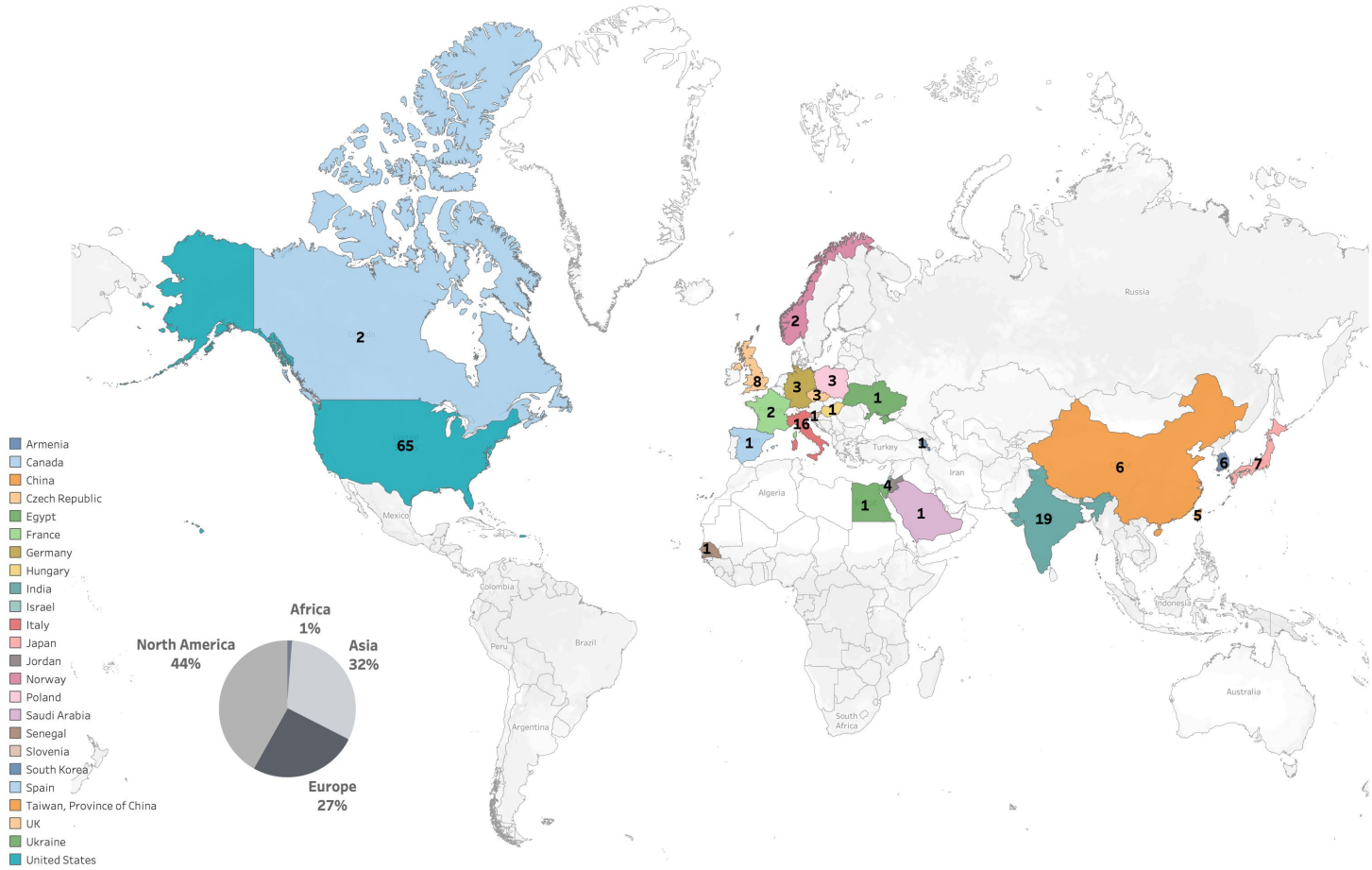
World Map - Institutions

ePIC - A global pursuit for a new EIC experiment at IP6 at BNL

ePIC Institutions
160

ePIC Countries
24

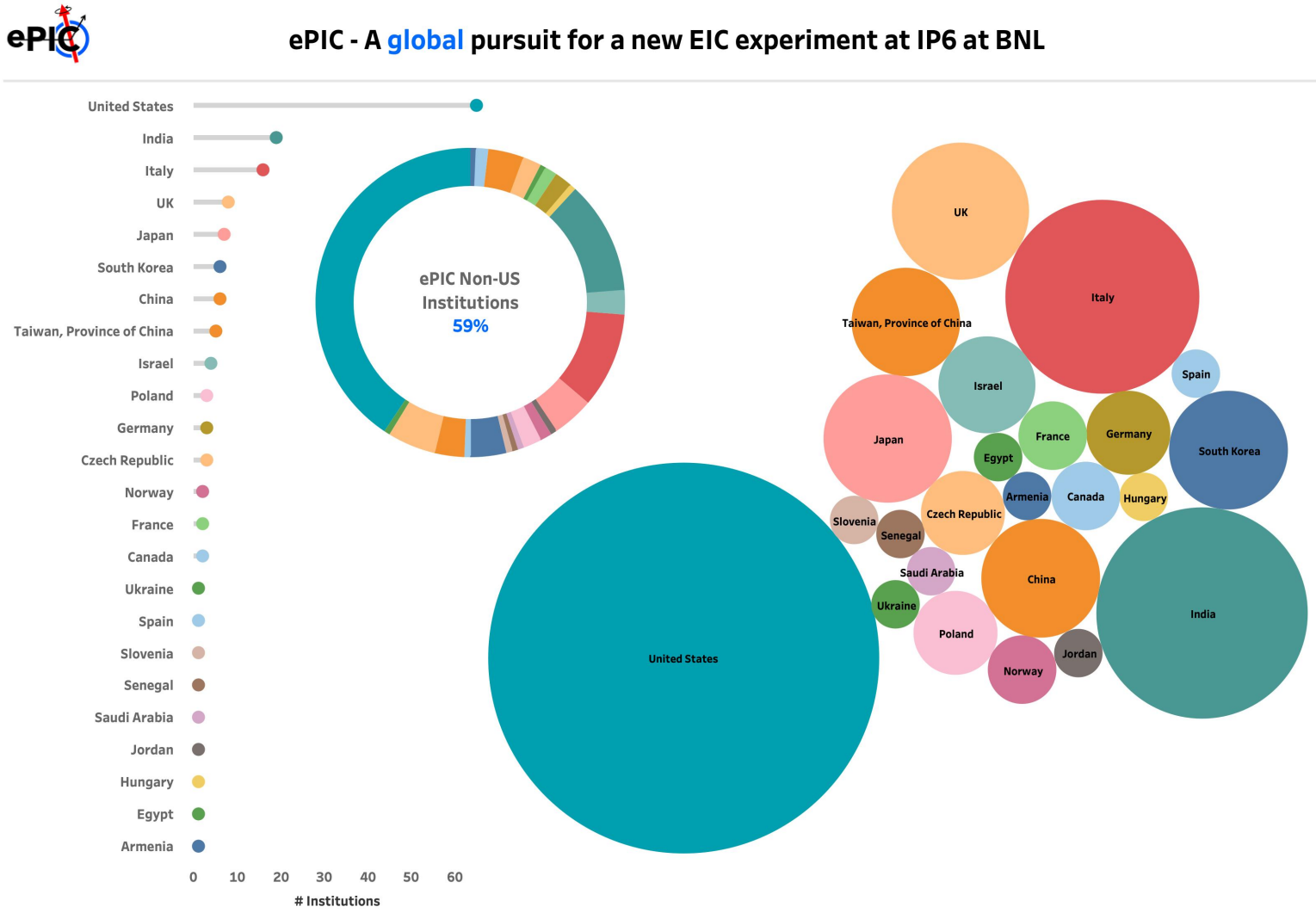
ePIC World Region
4



Interactive Tableau link

Collaboration Size and Portfolio

- Number of Institutions



Interactive Tableau link

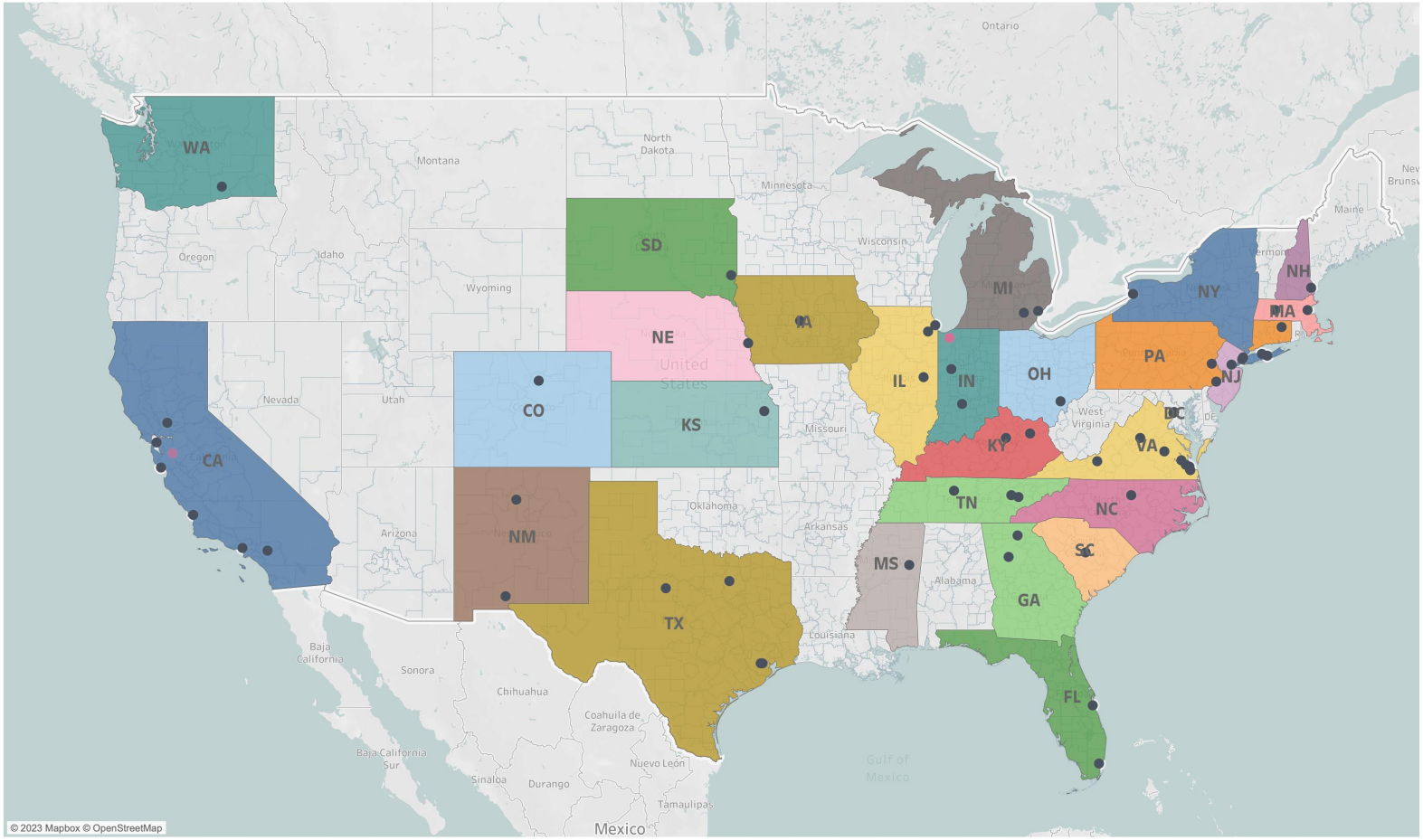
Collaboration Size and Portfolio

- US map - Institutions

ePIC - A global pursuit for a new EIC experiment at IP6 at BNL

ePIC US Institutions
65

ePIC US States
28

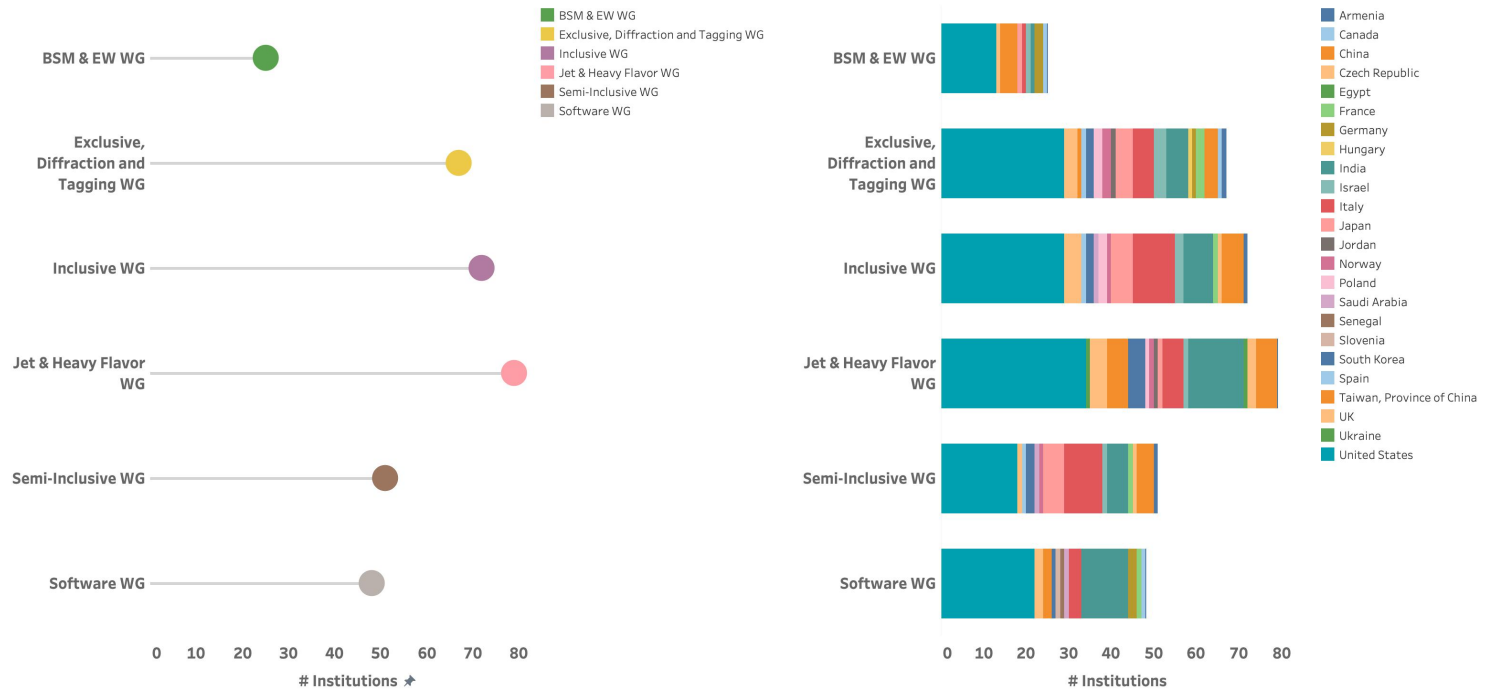


Interactive Tableau link

Collaboration Size and Portfolio

Physics Interests - Institutions

ePIC - A global pursuit for a new EIC experiment at IP6 at BNL / Physics Interests



Select category (Detector WG / Country / Institution) from pull-down menu. Institutions fullfilling the chosen category are highlighted in the last column!

WG / Sub-system: Inclusive WG

Country: All

Institutions: All

Inclusive WG

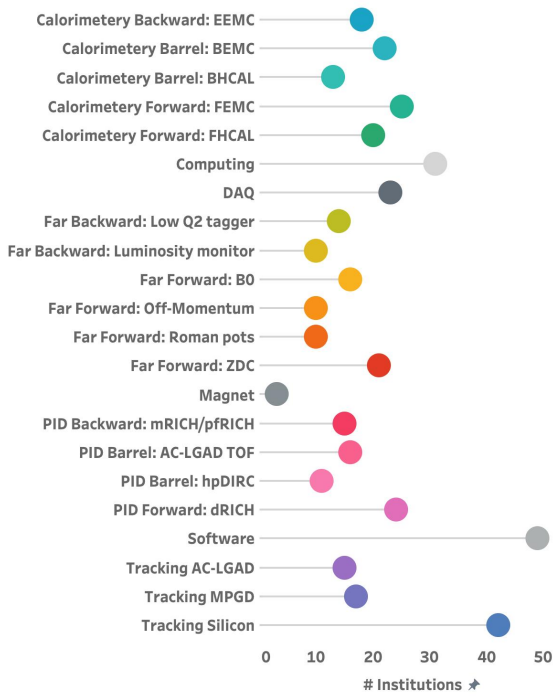
Institutions	City	Country	Contact Name	Email
A. I. Alikhantan National Science Laboratory	Yerevan	Armenia	Mkrtchyan, Hamlet	mkrtchyan@yerphi.am
Abilene Christian University	Abilene	United States	Daugherity, Michael	mike.daugherity@acu.edu
AGH University of Science and Technology	Krakow	Poland	Przybycien, Mariusz	mariusz.przybycien@agh.edu.pl
Aligarh Muslim University	Aligarh	India	Abir, Raktim	raktim.ph@amu.ac.in
Argonne National Laboratory	Lemont	United States	Meziani, Zein-Eddine	zmeziani@anl.gov
Augustana University	Sioux Falls	United States	Grau, Nathan	ngrau@augie.edu
Banaras Hindu University	Ajagara	India	Singh, B. K.	bksingh@bhu.ac.in
Baruch College, City University of New York	New York	United States	Bathe, Stefan	stefan.bathe@baruch.cuny.edu
Ben Gurion University of the Negev	Beer Sheva	Israel	Citron, Zvi	zhcitron@bgu.ac.il
Brookhaven National Laboratory	Upton	United States	Steinberg, Peter	peter.steinberg@bnl.gov

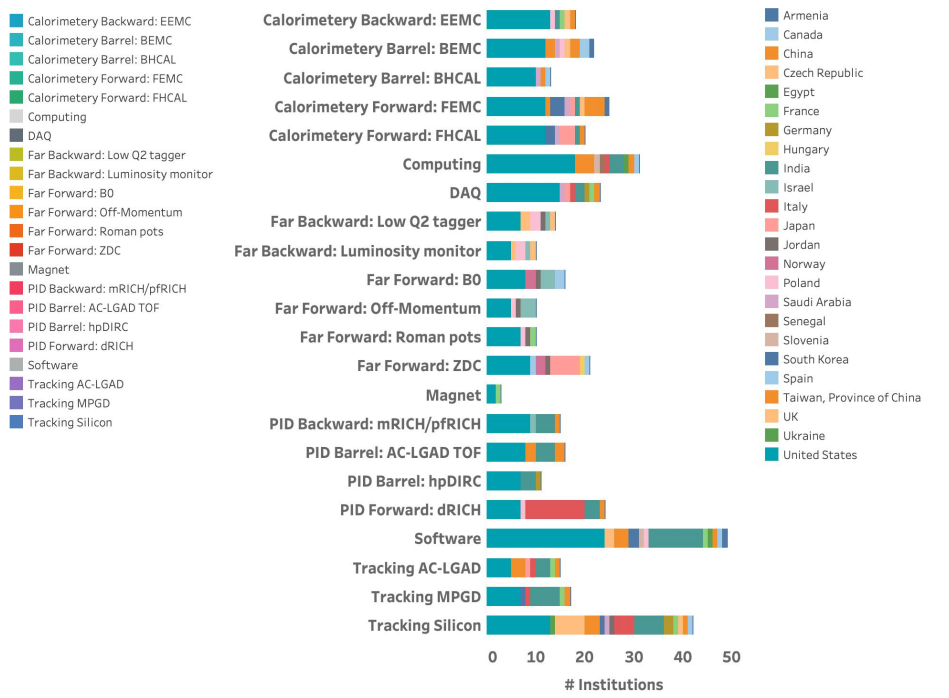
Interactive Tableau link

Collaboration Size and Portfolio

Sub-system Interests - Institutions

ePIC - A global pursuit for a new EIC experiment at IP6 at BNL / Sub-System Interests





Select category (Physics WG / Country/Institution) from pull-down menu. Institutions fullfilling the chosen category are highlighted in the last column!

WG / Sub-system: Inclusive WG

Country: All

Institutions: All

Inclusive WG

Institutions	City	Country	Contact Name	Email
A. I. Alikhantan National Science Laboratory	Yerevan	Armenia	Mkrtchyan, Hamlet	mkrtchyan@yerphi.am
Abilene Christian University	Abilene	United States	Daugherity, Michael	mike.daugherity@acu.edu
AGH University of Science and Technology	Krakow	Poland	Przybycien, Mariusz	mariusz.przybycien@agh.edu.pl
Aligarh Muslim University	Aligarh	India	Abir, Raktim	raktim.ph@amu.ac.in
Argonne National Laboratory	Lemont	United States	Meziani, Zein-Eddine	zmeziani@anl.gov
Augustana University	Sioux Falls	United States	Grau, Nathan	ngrau@augie.edu
Banaras Hindu University	Ajagara	India	Singh, B. K.	bksingh@bhu.ac.in
Baruch College, City University of New York	New York	United States	Bathe, Stefan	stefan.bathe@baruch.cuny.edu
Ben Gurion University of the Negev	Beer Sheva	Israel	Citron, Zvi	zhcitron@bgu.ac.il
Brookhaven National Laboratory	Upton	United States	Steinberg, Peter	peter.steinberg@bnl.gov

Interactive Tableau link

Summary and Next Steps

- Successful merging of the ATHENA and ECCE proposal efforts forming a new ePIC collaboration in 2022/2023!
- Formal adoption of ePIC charter on 12/14/2022, followed by nomination (Completed!) and election process (Ongoing!) of ePIC leadership!
- The ePIC detector is maturing into a detailed technical design: EIC detectors are an enormous undertaking that will require participation and expertise from both the BNL and JLab user communities and international contributions!
- The detector consolidation and optimization is the result of the combined effort by the ePIC collaboration and the EIC project management team!
- ePIC collaboration meeting at JLab, January 9-11, 2023:

  https://www.jlab.org/conference/EPIC
- A very exciting time is ahead of us to explore the structure and dynamics of matter at a new ep/eA collider facility following years of preparation!