

Update from DOE-HEP

Regina Rameika

Office of Science - High Energy Physics

HEPAP Meeting

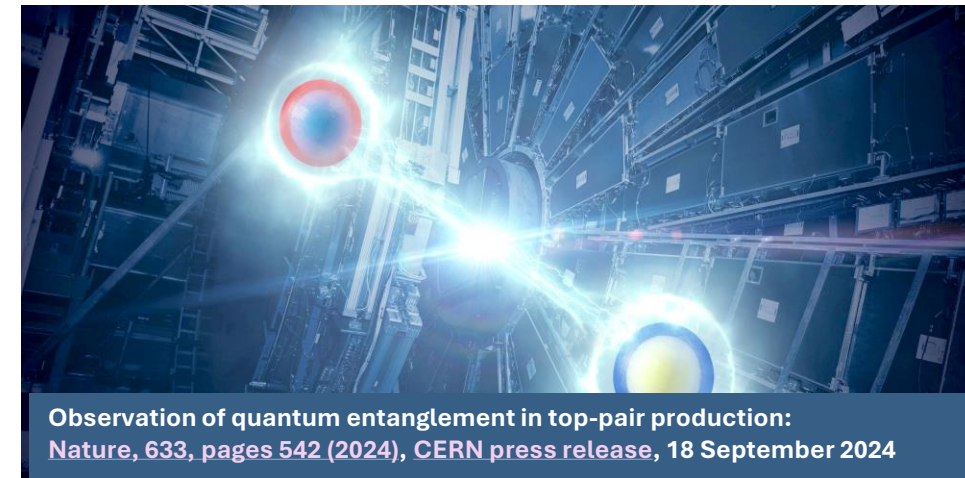
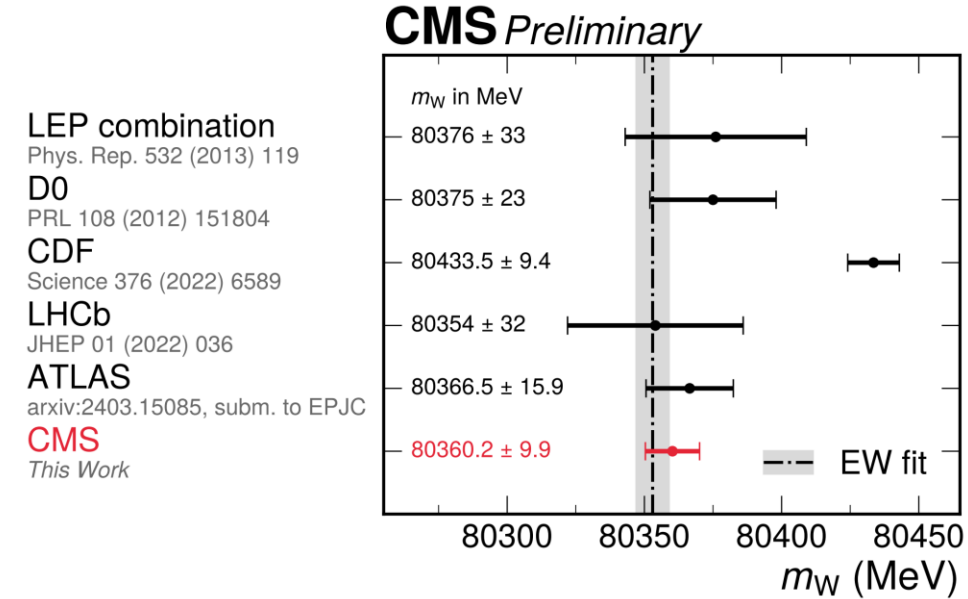
December 5-6, 2024

Outline

- Select Program and Project Highlights
- FY24-FY25 Budgets
- International Benchmarking Report

Energy Frontier Program: LHC Physics Highlights

- Excellent performance by the LHC and LHC experiments during calendar year 2024 for Run 3
 - ~124.7 fb⁻¹ of data delivered to ATLAS and CMS
- Over 100 papers released by ATLAS and CMS each in 2024; and >1,300 total papers with collision data thus far by each
- CMS measurement of the W boson mass
 - $m_W = 80,362.2 \pm 9.9$ MeV (Press Release, 17 Sept 2024)
 - Use well-understood subset of 13 TeV data: 16.8 fb⁻¹ from the latter part of 2016 run \Rightarrow focusing on muon channel
 - Measurement compatible with the Standard Model expectations and with other measurements
 - Clear tension with CDF measurement at the Tevatron
- ATLAS and CMS observation of quantum (spin) entanglement of top pair production
 - Inferred from the angle between direction of top decay products \Rightarrow observe spin entanglement larger than 5 σ



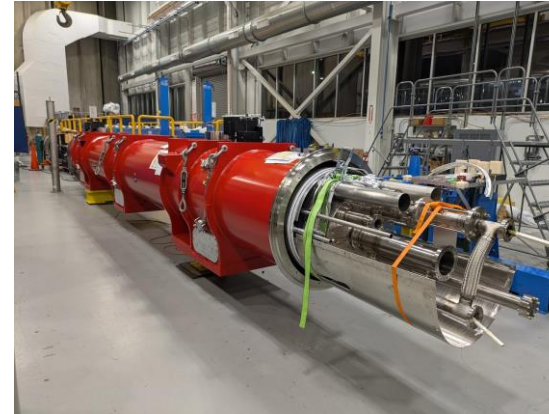
HL-LHC Accelerator Upgrade Project



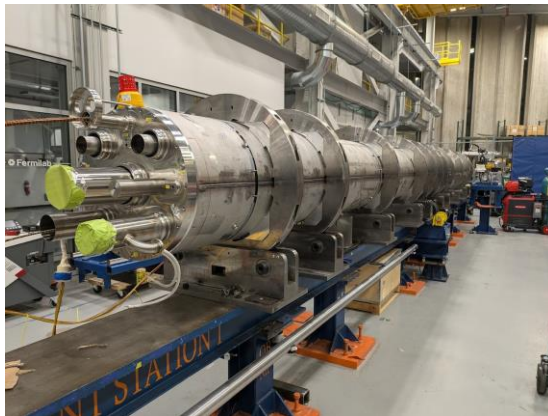
Cryo-Assembly (CA)-01 is at CERN



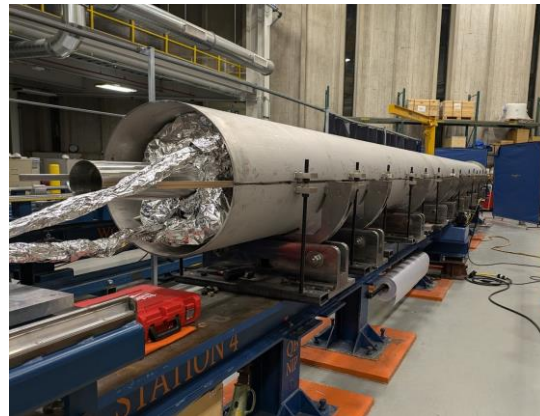
CA-02 prepared for shipping from FNAL.



CA-03 in vacuum vessel tested at FNAL



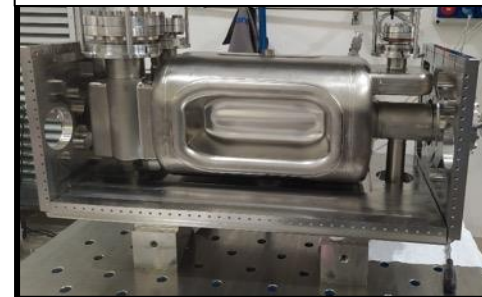
CA-04 cryomass built at FNAL



CA-05 cryomass built at FNAL

RF Crab Cavity assemblies tested at FNAL and JLAB.

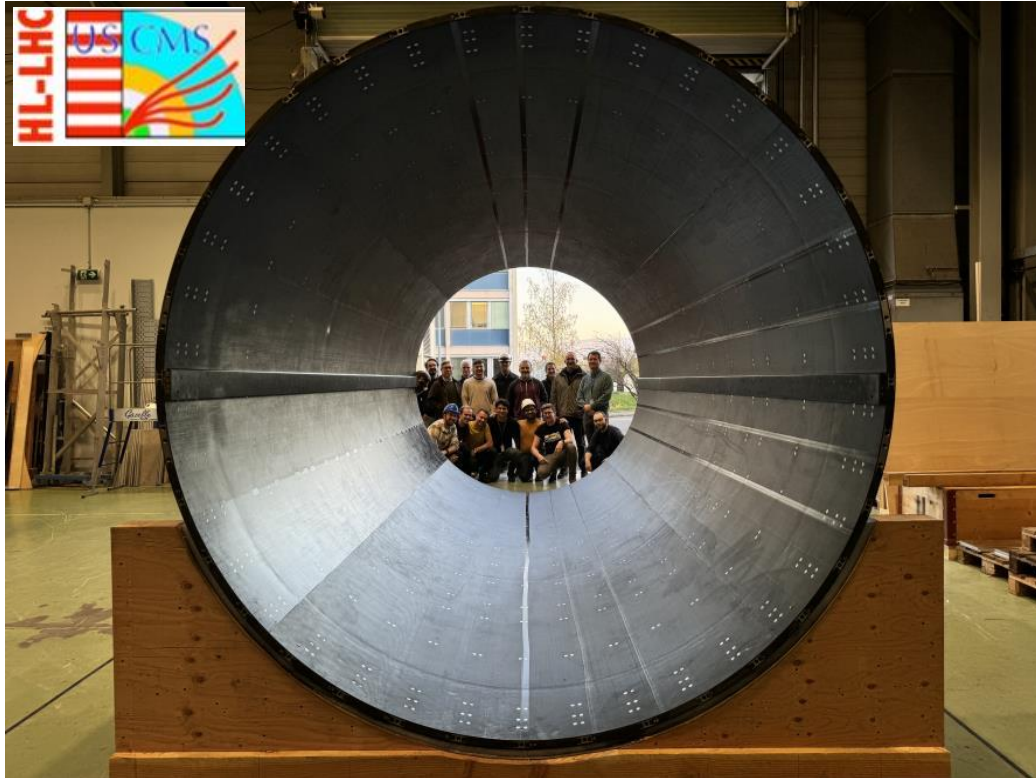
Cavity jacketed in its Helium-vessel. Prototype.



HL-LHC CMS and ATLAS Detector Upgrades

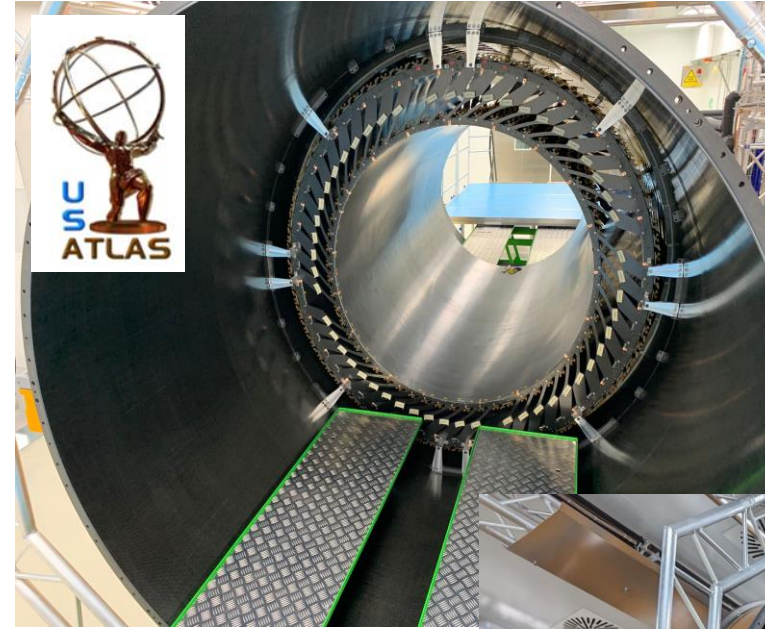
HL-LHC CMS Detector Upgrade

First US CMS HL-LHC (Phase-II) major upgrade deliverable.
Outer Tracker (BTST) arrived at CERN on November 15, 2024.



HL-LHC ATLAS Detector Upgrade

ATLAS Barrel
Detector's carbon
fiber cylinder layers
nested in the surface
cleanroom at CERN.



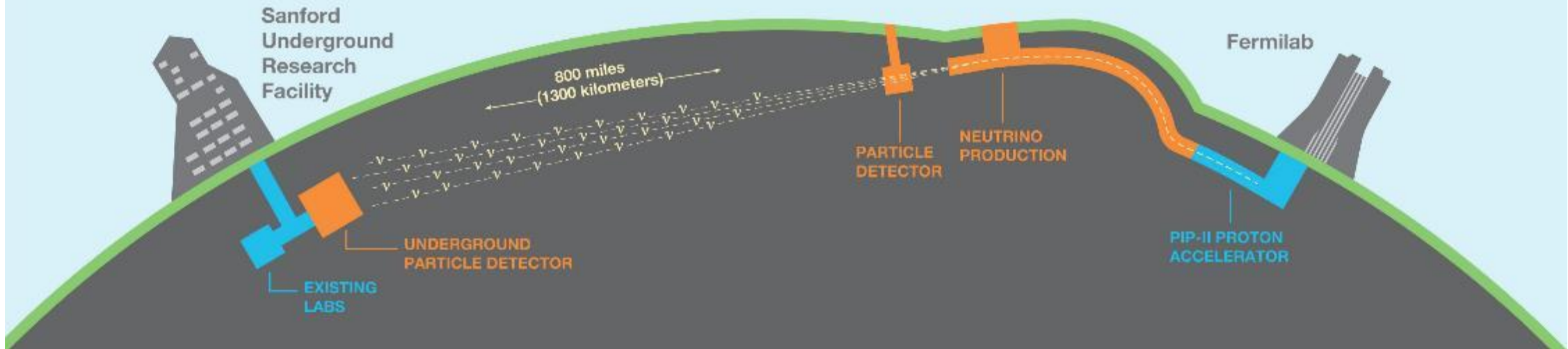
LBNF/DUNE-US Overview

Far Site – SURF in Lead, SD

Facility/Infrastructure and Far Detectors

Near Site – FNAL in Batavia, IL

Facility/Infrastructure, Neutrino Beamline, and Near Detectors



Three subprojects

- **FSCF-EXC** – Far Site Excavation
- **FSCF-BSI** – Far Site Building & Site Infrastructure
- **FDC** – Far Detectors and Cryogenic Infrastructure

Three subprojects*

- **NSCF** – Near Site Conventional Facilities
- **Beamline**
- **ND** – Near Detectors

*Formal DOE approval still needed to split NSCF and Beamline

Largest **DOMESTIC** project in Office of Science (TPC = \$3.3B)

LBNF/DUNE-US Far Site Status & Highlights

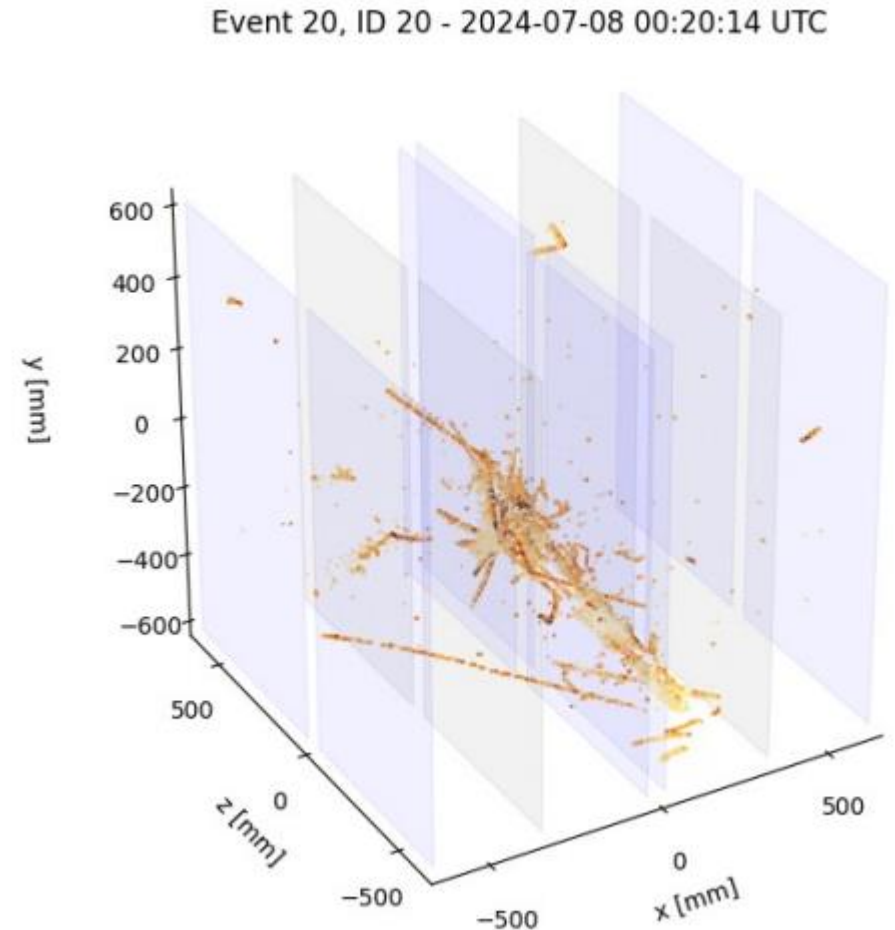
- **FSCF-EXC:** Substantially complete!
Excavation and concrete work done
- **FSCF-BSI:** Construction in progress
 - Surface work substantially complete
 - Underground work underway
- **FDC:** Preparing for CD-2/3 in 2025
 - Executing CD-3A & 3B long-lead procurements
 - CD-3C being sought NLT January '25 to sustain momentum through CD-2/3 approval
 - In-kind contributions are being shored up



Far Detector Cavern – excavation and concrete complete!

LBNF/DUNE-US Near Site Status & Highlights

- **NSCF:** Site prep/wetland remediation complete
 - Preparing for CD-2/3 in 2025
 - Near Site complex construction contracts out for bid
- **Beamline:** CD-3A long lead procurements in progress, assessing readiness for baseline
 - CD-2/3 planned for early 2026
- **ND:** Optimizing scope to fit in DOE total project cost
 - Key performance parameters being developed
 - Independent external review scheduled for May 2025

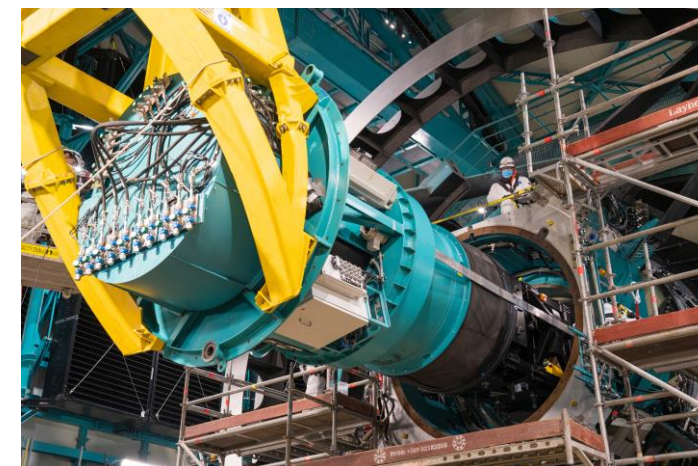


First candidate neutrino events in the 2x2 prototype for ND LAr

LSSTCam shipped from SLAC to Chile in May.
Electro-optical testing shows continued
excellent performance.



- October: With the ComCam, the **NSF-DOE Vera C. Rubin Observatory** took first on-sky images and transferred it from Chile to SLAC for processing – first end-to-end test with images.
- LSSTCam will be installed on the Simonyi telescope in February and the survey starts late 2025.
- Observatory operations split ~ 50/50 NSF/DOE. DOE primarily responsible for LSSTCam M&O, US Data Facility at SLAC.



https://www.youtube.com/shorts/qY6YQsjP_7c

ComCam insertion Aug.2024. Credit: Rubin Observatory, NSF, AURA, Hernan Stockebrand



After 2014, planning began, in coordination with the agencies. The design was revised and developed along the way as it progressed.

2024 May: Due to the need to prioritize the recapitalization of critical Antarctic infrastructure, NSF decided not to move the CMB-S4 project in its current form into the NSF Major Facility Design Stage.

Sept. 2024: DOE/HEP and NSF/MPS charged the CMB-S4 leadership to develop a revised project concept that does not include significant new instrumentation or facilities at the South Pole. The goal is to plan a configuration that is capable of the full set of science goals with reasonable cost, schedule and risk. Set up two study groups:

1. Survey the Landscape: Collect and evaluate information regarding the plans and capabilities of CMB experiments that are expected to take data in the next 10 years, and which contribute to the CMB-S4 science goals, to determine how best to use and expand beyond those capabilities.
 2. Optimize an all-Chile design: Develop the revised design for a Chile-only concept, incorporating the significant design work already done by the CMB-S4 collaboration for both sites, using well-developed scientific, engineering and project planning tools
- Revised concept for the basic design expected by spring 2025
 - Agencies will meet regularly with the team along the way to coordinate and monitor progress.

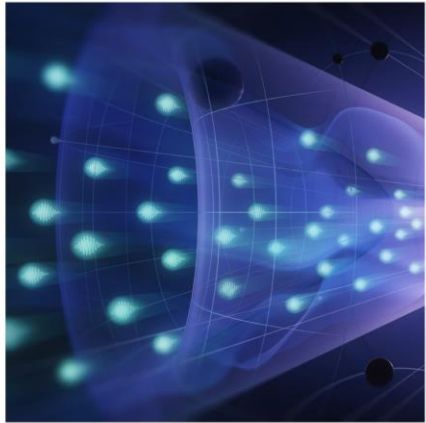
US High Energy Physics in the DOE

- Planning is guided by the December 2023 P5 Report
- We are truly committed to the concept that HEP must be a global initiative, participating in projects “off-shore” as well as being a reliable host to programs hosted in the U.S.
- We are very constrained by budget realities
- Transition in government may lead to different priorities and/or initiatives

HEPAP P5 report (Dec.2023)

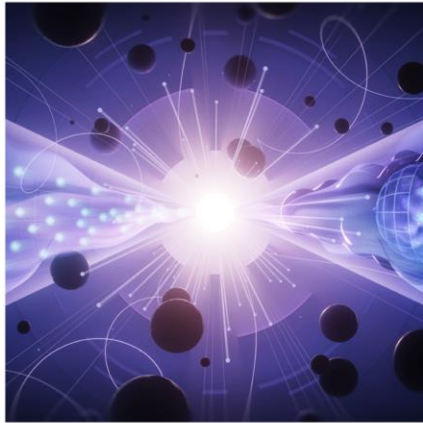
Charge: Develop a 10-year strategic plan for US particle physics, in the context of a 20-year global strategy and two constrained budget scenarios (provided by HEP)

- Low scenario FY2024 President's Budget Request **+2%** inflation through FY2023
- High scenario Follows FY 2022 Chips & Science Act Authorization, then **+3%** inflation through FY 2035



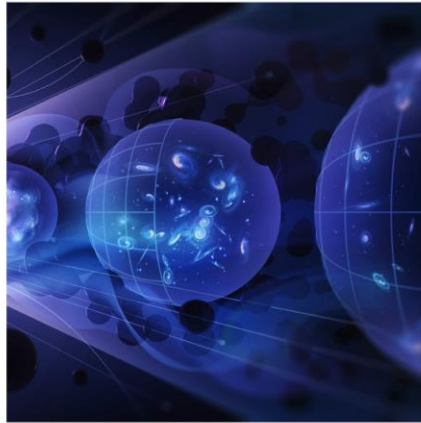
Elucidate the Mysteries of Neutrinos

Reveal the Secrets of the Higgs Boson



Search for Direct Evidence of New Particles

Pursue Quantum Imprints of New Phenomena



Determine the Nature of Dark Matter

Understand What Drives Cosmic Evolution

Report w/6 recommendations:

<https://www.usparticlephysics.org/2023-p5-report/>

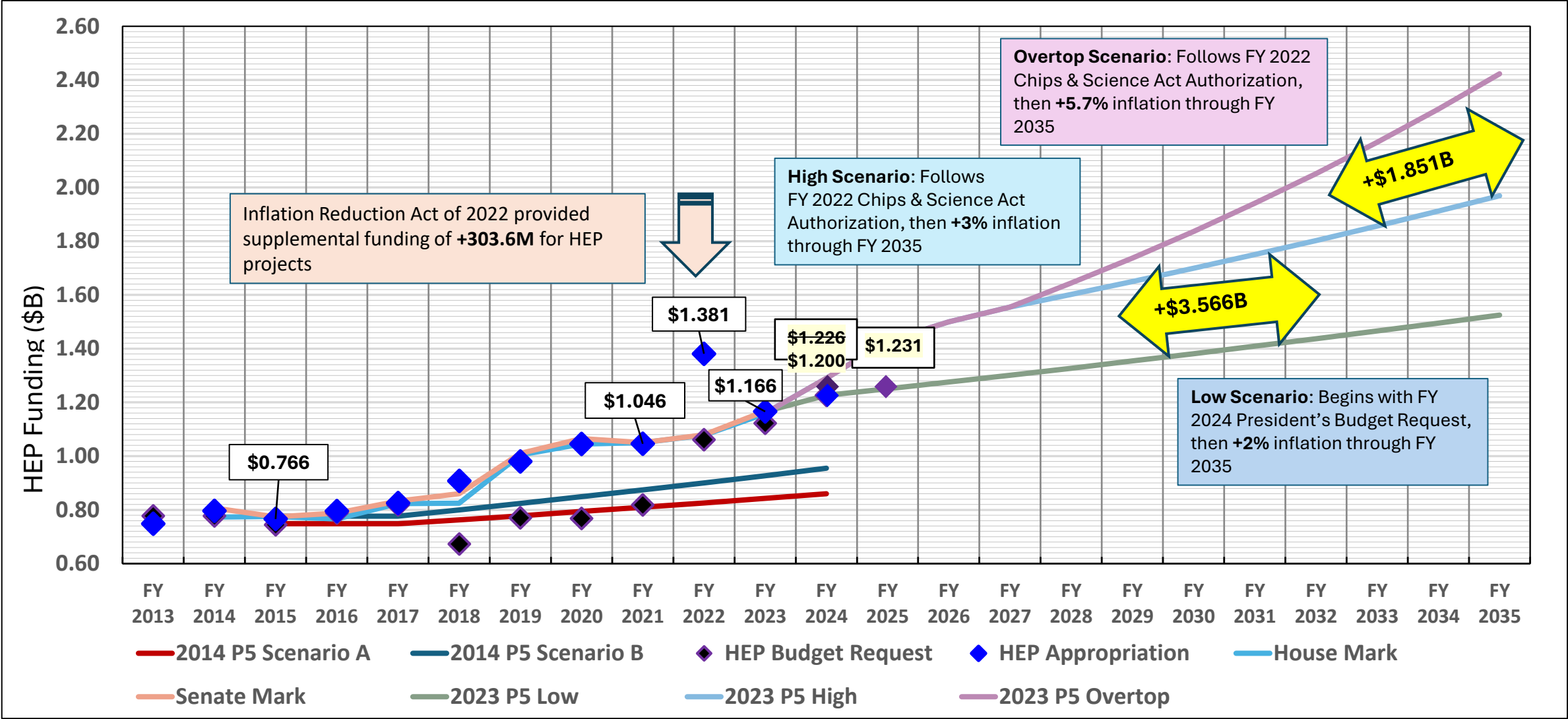
HEP first responses – shown at the May 2024 HEPAP

<https://science.osti.gov/hep/hepap/Meetings/202405>

P5 Resources for Outreach:

<https://www.usparticlephysics.org/resources/>

HEP Budget History & 2023 P5 Budget Scenarios



FY 2024 HEP Budget

- Office of Science increased 1.7% from 8.1B in FY 2023 to 8.24B in FY 2024
 - Office of High Energy Physics increased 2.9% (+34M) from 1.166B in FY 2023 to 1.2B in FY 2024
- Congressional direction set LBNF/DUNE and PIP-II at 255M and 125M, which is **+\$80M over FY 2023 funding levels**
- Additional direction provided floor/ceiling limits for SURF, CMB-S4, ACORN, HL-LHC Upgrade projects, and LBNF/DUNE OPC.
- Congressional directional at the SC level for QIS and AI/ML propagated down to HEP and holds FAIR and RENEW at FY 2023 levels

| | FY 2023 Enacted | FY 2024 Request | FY 2024 House | FY 2024 Senate | FY 2024 Approp |
|---------------------|--------------------|--------------------|------------------|-------------------|-------------------|
| High Energy Physics | 868.0 | 850.3 | 842.3 | 850.0 | 824.0 |
| Construction | | | | | |
| LBNF/DUNE | 176.0 | 251.0 | 225.0 | 251.0 | 251.0 |
| PIP-II | 120.0 | 125.0 | 125.0 | 125.0 | 125.0 |
| Mu2e | 2.0 | | | | |
| HEP Total | 1,166.0 | 1,226.3 | 1,192.3 | 1,226.0 | 1,200.0 |

The agreement provides not less than \$35M for Sanford Underground Research Facility and not less then \$5M for the Accelerator Controls Network Research Operations

| High Energy Physics | FY 2023 | FY 2024 |
|-------------------------|---------|---------|
| Research | 446,037 | 424,561 |
| SBIR/STTR | 15,867 | 15,267 |
| Facilities/Ops | 349,096 | 334,972 |
| Projects (excl LIC TEC) | 57,000 | 49,200 |
| Total | 868,000 | 824,000 |

Funding for HEP Research, MIE Projects and Facility/Experimental Operations decreased 5% from 868M in FY 2023 to 824M in FY 2024.

FY24 HEP FOA/Lab Call Recap

| FOA/Lab Call | Status | Release Date | Awards Announced | # HEP Awards | Total HEP Funding (\$M, all yrs) |
|---|-----------------------|--------------|------------------|--------------|----------------------------------|
| HEP Comparative Review (via SC Open Call) | Completed | Oct 2023 | June 2024 | ~70 | \$111 |
| US-Japan | Completed | Oct 2023 | Nov 2024* | 18 | \$2 |
| EPSCOR Partnerships | Completed | Dec 2023 | Aug 2024 | 3 | \$2 |
| Early Career | Completed | Dec 2023 | Sep 2024 | 10 | \$14 |
| RENEW | Awaiting announcement | Mar 2024 | TBD | TBD | TBD |
| FAIR | Completed | Mar 2024 | Nov 2024 | 5 | \$2 |
| Hardware-Aware AIML | Under review | May 2024 | TBD | TBD | TBD |
| QuantISED 2.0 | Under review | May 2024 | TBD | TBD | TBD |
| Microelectronics | Under review | May 2024 | TBD | TBD | TBD |

*FY24 US-Japan lab awards decided in Jun 2024 but funding and announcement delayed until early FY25.

FY24 Lessons Learned

- Moving Comparative Review FOA to SC Open Call vehicle helped expedite approval/review process, but reviews still in Q2 FY24 so decision-making work is back-loaded.
 - Comparative Review panels moved into Q1 in FY25
- Extended FY24 Continuing Resolution, challenging budget and additional new approval clearance process did not help with the schedule.
- Large number of special-purpose FOAs/lab calls means PMs are ~continuously busy and work spills over into FY25
- This is a problem SC-wide. Will limit the number of awards with budget periods ending between June/July and Oct/Nov
 - Relatively little impact on HEP – most awards have start/end dates in Apr/May.
 - Initial budget period for some New awards may be >12 months to avoid continuations occurring at “crunch time”

Timeline of FY 2025 Budget Headlines

Debt Limit



3 Jun 2023

HR. 3786, Fiscal Responsibility Act, signed into law

Suspends debt limit through Jan 1, 2025.

Sets statutory caps on non-defense appropriations for FY 2024 (flat) and FY 2025 (+1%). No adjustments for inflation.

Enacted



9 Mar 2024

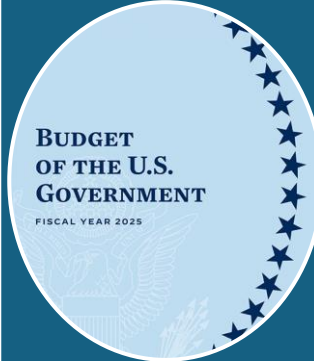
HR. 4366, Consolidated Appropriations Act, 2024, signed into law

Office of Science increases 1.7% from to 8.24B

Office of High Energy Physics increases 2.9%

1.200B HEP

Request



11 Mar 2024

President's 2025 \$1.67T discretionary budget request submitted to Congress

Would decrease non-defense appropriations by about \$60B (3.4%) over the 2024 Request

1.231B HEP

Markup



27 Jun 2024

House Appropriations Subcommittee for Energy and Water Development, and Related Agencies released a summary for the FY 2025 House Mark

1.218B HEP

Markup



1 Aug 2024

Senate Appropriations Subcommittee for Energy and Water Development, and Related Agencies released a summary for the FY 2024 Senate Mark

1.230B HEP

Cont. Res



27 Sep 2024

HR. 9747, Continuing Appropriations and Extensions Act, 2025, signed into law

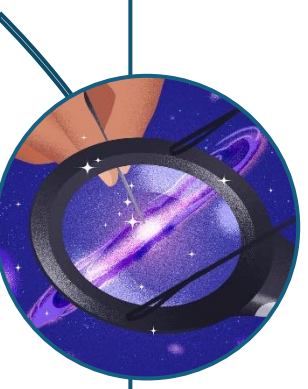
Continuing resolution temporarily extends fiscal year 2024 spending levels until **Dec 20, 2024.**



To avert a Dec 21st shutdown, Congress must pass a budget or another short-term CR.

Lawmakers must pass a final FY 2025 spending bill by the end of April 2025 or face across-the-board spending cuts to both defense and domestic programs (known as “sequestration”).

FY 2025 President's Request Highlights




Research \$395.8M (-\$30.4M, -7.1% from FY 2024 Enacted)

- **\$24M increase** for AI/ML. **\$8M increase** for RENEW and FAIR
- **\$4M decrease** as Accelerate Innovations in Emerging Technologies concludes
- QIS, Microelectronics, Advanced Computing, and Accelerator Science and Technology continue at the FY 2024 Enacted Level
- **\$59.9M decrease** to Core Research. Focus support on high-profile research topics and early research results; key contributions and critical U.S. commitments to experiments & projects; University research & training; other priority cross-cutting initiatives



Facilities Operations \$381.7M (+\$33.2M, +9.5% above FY 2024 Enacted)

- **Fermilab Accelerator Complex** \$166.9M (+\$25.3M, +17.9% above FY 2024 Enacted): 5,180 hours
- **SLAC FACET-II** \$17.6M (+\$1.1M, +6.9% above FY 2024 Enacted): 3,120 hours
- U.S. LHC Detector Operations \$57.3M (+\$4.5M, +8.5% above FY 2024 Enacted)
- Vera Rubin Operations \$33M (+\$2.1M, +6.7% above FY 2024 Enacted)
- Sanford Underground Research Facility \$35M (**No change** from FY 2024 Enacted)



Projects \$453.2M (+\$28.0M, +6.6% above FY 2024 Enacted)

- **LBNF/DUNE** \$280M (+\$25M, +10% above FY 2024 Enacted to support LBNF/DUNE's five subprojects)
- **ACORN** \$10M (+\$5M, +100% above FY 2024 Enacted)
- **CMB-S4** \$4.5M (level funding from FY 2024 Enacted)
- **ATLAS and CMS Detectors** \$33.7M (-\$2M, -6% below FY 2024 Enacted): as per the baselined profiles
- **PIP-II** \$125M (level from FY 2024 Enacted): continue support for baseline profile

FY25 HEP NOFO/Lab Call Plan

| FOA/Lab Call | Status | Release Date | Awards Announced | # HEP Awards |
|---|------------------------|--------------|------------------|--------------|
| HEP Comparative Review (via SC Open Call) | Under Review | Sep 2024 | April 2025 | TBD |
| US-Japan | Deferred* | n/a | -- | -- |
| EPSCOR Implementation | Under review | Sep 2024 | TBD | TBD |
| Early Career | Awaiting release | TBD | TBD | TBD |
| RENEW | Depends on FY25 budget | TBD | TBD | TBD |
| FAIR | As above | TBD | TBD | TBD |
| AI for HEP Theory and Data Analysis | As above | TBD | TBD | TBD |
| Accelerator Stewardship | As above | TBD | TBD | TBD |

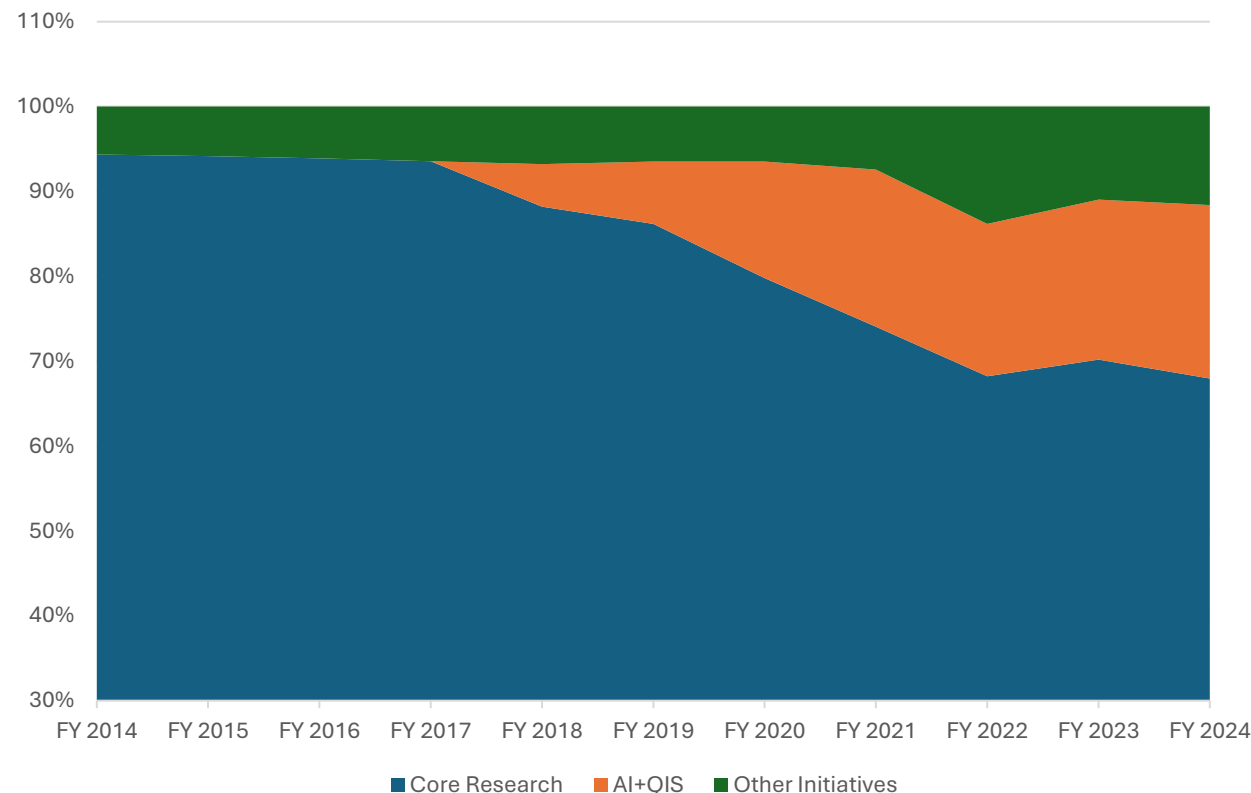
*FY25 US-Japan Lab Call cancelled due to budget constraints. Expect to re-start in FY26.

FY25 Outlook

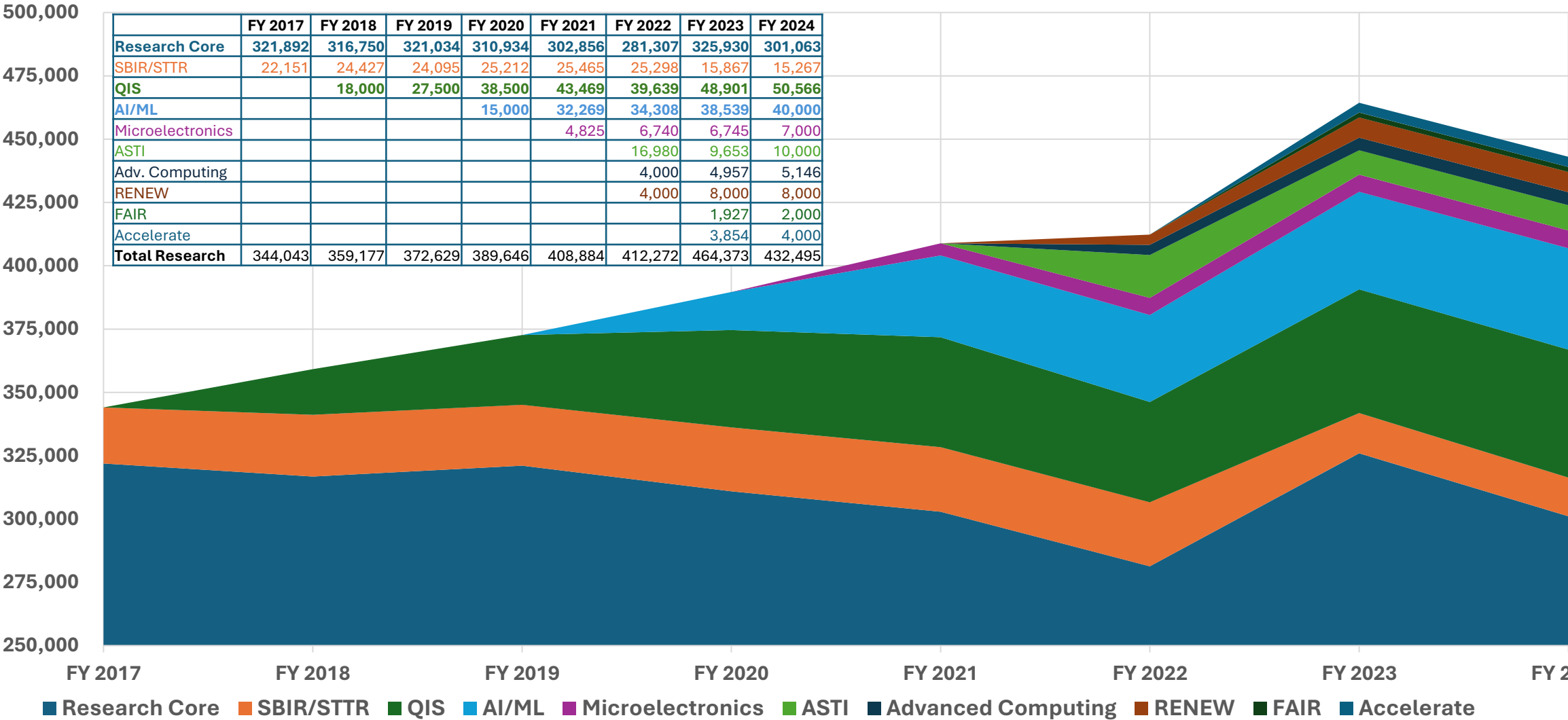
- Large changes to NOFO (formerly FOA) template initiated by OMB (mostly restructuring where sections go, but may confuse some stakeholders)
 - Office Hour/Q&A sessions, PI outreach will be increased
- EPSCOR will cycle to “Implementation” awards (large multi-year, institution building). Pre-applications under review now.
- Early Career call will happen, just a question of when
- Fate of RENEW/FAIR tied to FY25 Budget
- Available funding for AI and Accel Stewardship calls also depends on budget
- No new QIS call (QuantISED 2.0 awards will be multi-year, starting FY25).
- ASTAE/AGILE small projects not happening (yet).

SC Initiatives and Funding

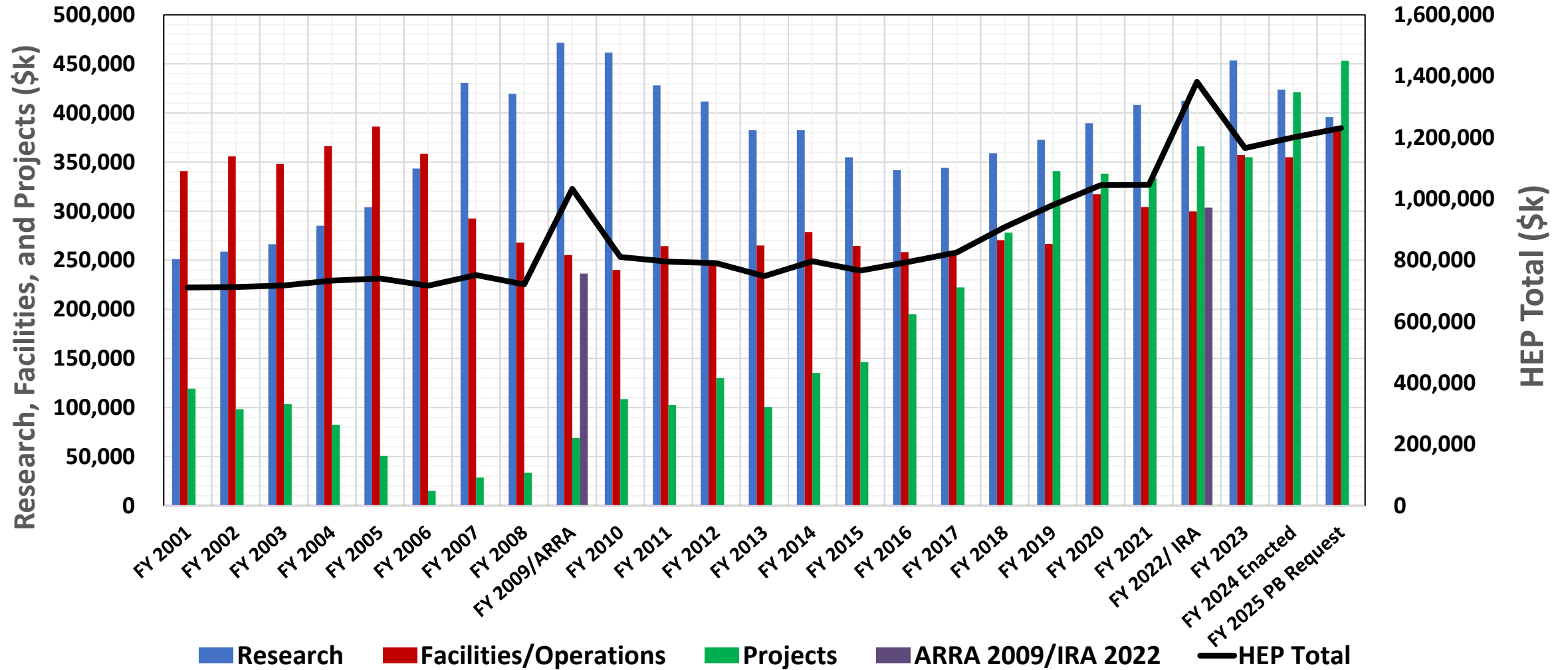
- SC Initiatives provide focus on areas of strategic importance
 - Initiatives do not change the focus of the DOE or HEP mission but emphasize how it can be accomplished with the most impact
- Since 2018, the number of and funding to initiatives has increased
 - In 2017, 93% of DOE HEP's Total Research budget was in Core
 - SBIR/STTR the only non-Core funding
 - In 2024, 69% of DOE HEP's Research budget from appropriation was Core
 - QIS, AI/ML, SBIR/STTR, ASTI, RENEW, Microelectronics, Advanced Computing, Accelerate, FAIR
 - QIS+AI/ML were 20% of total HEP Research
 - All other programs combined were 11%



HEP Research Breakdown (\$k) FY 2017-2024



HEP Budget (\$K): Research, Facilities & Projects



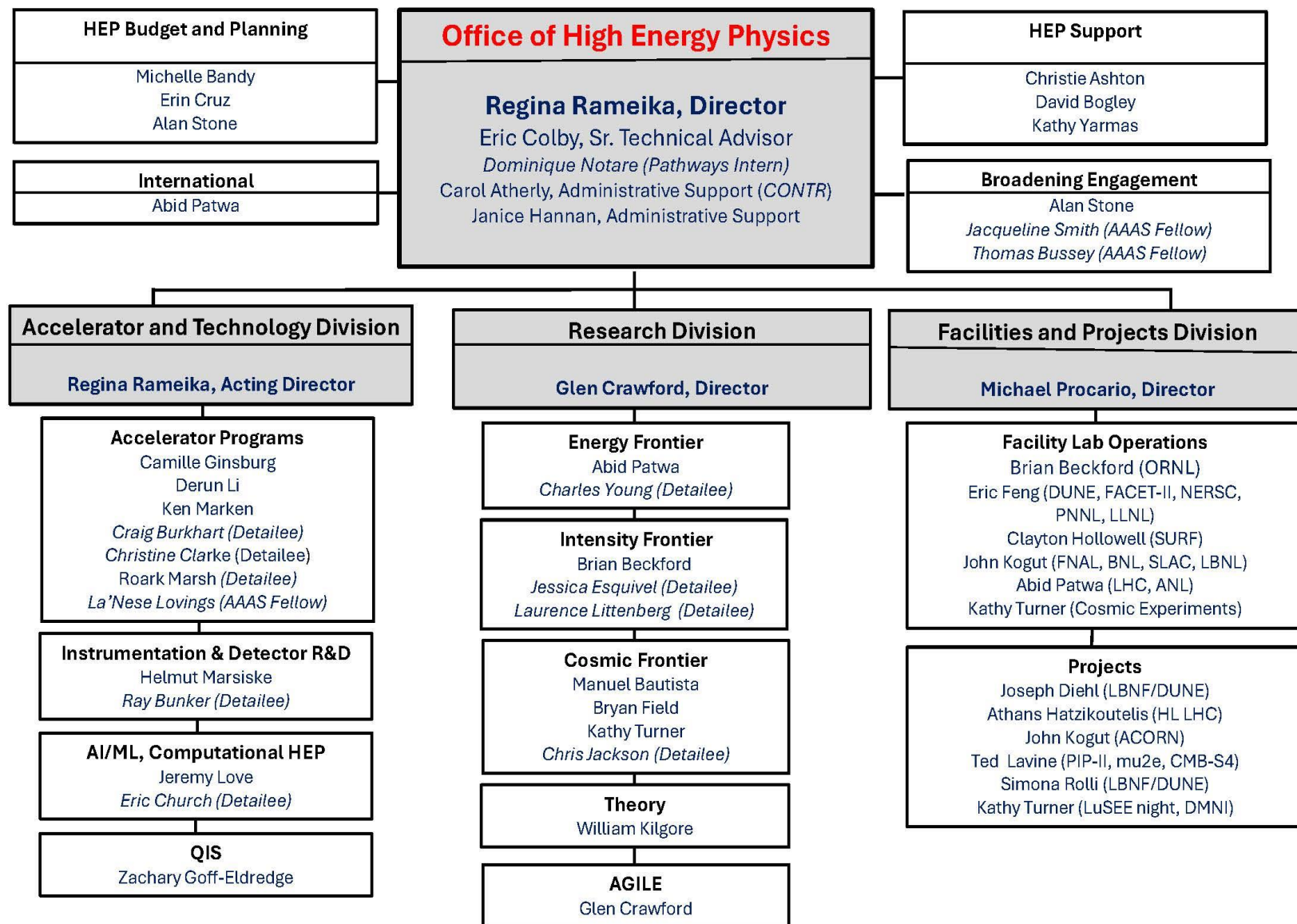
Note: A significant part of the growth of our research budget has been in new initiatives – Quantum, AI/ML

Status on FY 2026

- FY 2026 comes with a unique set of opportunities, challenges, and unknowns
- Opportunities
 - HEP will begin the implementation of 2023 P5 guidance during the [FY 2026 Formulation phase of the budget process](#)
- Challenges
 - Transition to a new Administration will come with new political appointees and S&T priorities
 - Communicating 2023 P5 to the 119th Congress. [New members: 66 \(of 435\) in House and 12 \(of 50\) in Senate](#)
 - The debt ceiling limit authority expires Jan 1, 2025
- Unknowns
 - [New Administration will reset the FY 2026 budget process](#). Anticipate a “skinny” budget with high level overview by early Spring, and a detailed President’s Budget Request about 2 months later.
 - Change in leadership in House and Senate may impact the level of support for Basic Research

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|--|-----|-----|--------------------|---|-----|-----|-----|-----|-----|-----|-----|------------------------------|-----|-----|--------------------|---|-----|-----|-----|-----|-----|-----|-----|------------------------------|-----|-----|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| FY 2024 Budget | Spend the Fiscal Year Budget | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 2025 Budget | OMB Review | | | Budget Release | Congressional Budget and Appropriations | | | | | | | | Spend the Fiscal Year Budget | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 2026 Budget | DOE Internal Planning with OMB and OSTP Guidance | | | | | | | | | | | | OMB Review | | | Budget Release | Congressional Budget and Appropriations | | | | | | | | Spend the Fiscal Year Budget | | | | | | | | | | | | | | | |
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | | | |
| | CY 2023 | | | Calendar Year 2024 | | | | | | | | | | | | Calendar Year 2025 | | | | | | | | | | | | Calendar Year 2026 | | | | | | | | | | | | |

HEP Organization (Sept. 2024)



New Working Groups in DOE-HEP

- Cosmic Working Group – **K. Turner**, M. Batista, B. Field
- Fermilab Accelerator Group – **E. Colby**, C. Ginsburg, J. Kogut
- Neutrino Group – **S. Rolli**, J. Diehl, A. Hatzikoutelis, E. Feng, B. Beckford, J. Kogut

Developing specific charges -

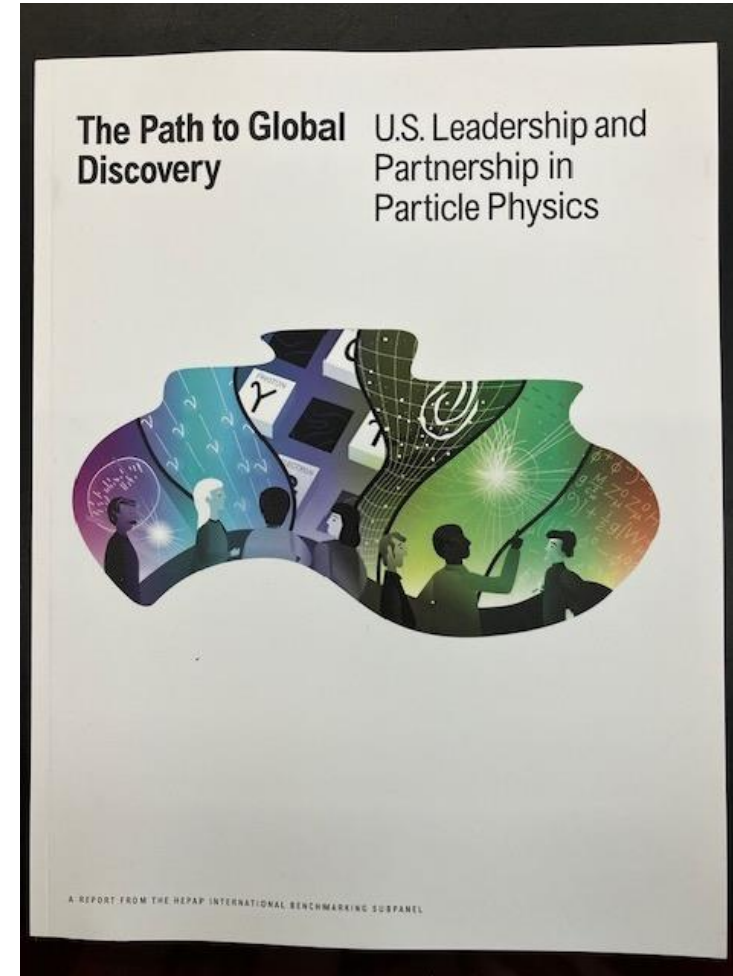
- Advanced Technologies (in planning) – **H. Marsiske**, J. Love, Z. Goff-Eldredge
- Energy Frontier Group – **A. Patwa**, A. Hatzikoutelis, +TBD
 - LHC, HL-LHC, future energy frontier opportunities

Neutrino Working Group

- A transversal Working group has been established in HEP comprising program managers for the following areas:
 - LBNF/DUNE project- Simona Rolli (Chair), Joe Diehl, Athans Hatzikoutelis
 - nascent DUNE Operations program – Eric Feng
 - Fermilab Detector & Accelerator Operations program - John Kogut
 - Research at the Intensity Frontier – Brian Beckford
- The working group reports to the HEP AD and *“should identify resources, human & operational, active in the neutrino area and associated technology areas, seek optimization strategies with the goal of strengthening the nascent DUNE program and propose solutions to any issues that arise.”*
- Members of the group have sent a data call request to labs & universities PIs to provide information about the current person-power efforts devoted to DUNE activities: hardware & software efforts necessary to complete the DUNE construction and to be ready to commission detectors & beamline
- As the DUNE program will grow over the years to become the major domestic and Fermilab activity (similarly to what the Tevatron program was) we also requested information on the ramp up of activities in the next five years to start optimizing the funding and resources toward DUNE - **this information will be updated every year from now on and used to inform budgetary decisions in the IF Research area and Fermilab Operations.**

International Benchmarking Subpanel Report

- HEPAP charged to form a subpanel to conduct an international benchmarking study to evaluate U.S. leadership in particle physics in a global context in February 2022.
- Draft report delivered to HEPAP in October 2023 and approved in November 2023
- There were 7 Key Findings and Recommendations, and numerous sub-findings and recommendations
- A draft report was available to the 2023 P5 Panel
- The report did not address budget issues



Key Finding and Recommendation – Scientific breadth and application

- Finding : Particle physics theory and experiments address deep mysteries of the universe while advancing concepts and technology that are vital to other research fields as well as society at large.
- Recommendation : **Strengthen investments** to advance particle physics discoveries as well as benefits to other scientific disciplines and society.
- *Response : Agree – this is our HEP mission*

Key Finding and Recommendation – *Scientific breadth and application*

- Finding : The field of particle physics is a vibrant research ecosystem, built by an international network of partnering nations, facilities, experiments, and people. To be a leader, the U.S. must continuously produce scientific results, build facilities and experiments for the future, and advance new ideas and technologies that enable discoveries of tomorrow.
- Recommendation : **Maintain a comprehensive program** at home and abroad, with a range of experiment scales and strategic balance among construction projects, operations of experiments and facilities, and core research activities, including the development of future facilities.
- *Response – Agree; we believe that our program is structured to do this*

Key Finding and Recommendation – *Collaborating across the globe*

- Finding : Frontier research in particle physics necessitates international collaboration and cooperation. The combined expertise and resources from nations around the world enable discoveries and technological advances impossible to achieve by any single nation. It is the global particle physics program that collectively addresses the burning scientific questions across the breadth of the field.
- Recommendation : **Continue support** for and actively seek engagement with international collaborations and partnerships of all sizes.
- *Response : This is the plan....*

Key Finding and Recommendation - *Being a partner of choice*

- Finding : Success in hosting and participating in international collaborations requires tailored approaches to collaboration governance and project management, host lab environments that are conducive to international research teams, and the ability to make reliable agreements with international partners.
- Recommendation : **Implement structures** for hosting strong international collaborations, act with timeliness, consistently meet obligations, and facilitate open communication with partners.
- *Response : We do our best to do this, but agree there is room for improvement*

Key Finding and Recommendation – *Strengthening critical capabilities*

- Finding : It is our state-of-the-art expertise in the tools, technology, and techniques of particle physics that makes the U.S. a sought-after partner and gives us the ability to impact future experiments at home and abroad.
- Recommendation : **Continuously develop critical technologies** to maintain and grow U.S. leadership in particle physics at home and abroad.
- *Response : Agree – this is the SC mission*

Key Finding and Recommendation – *Advancing national initiatives*

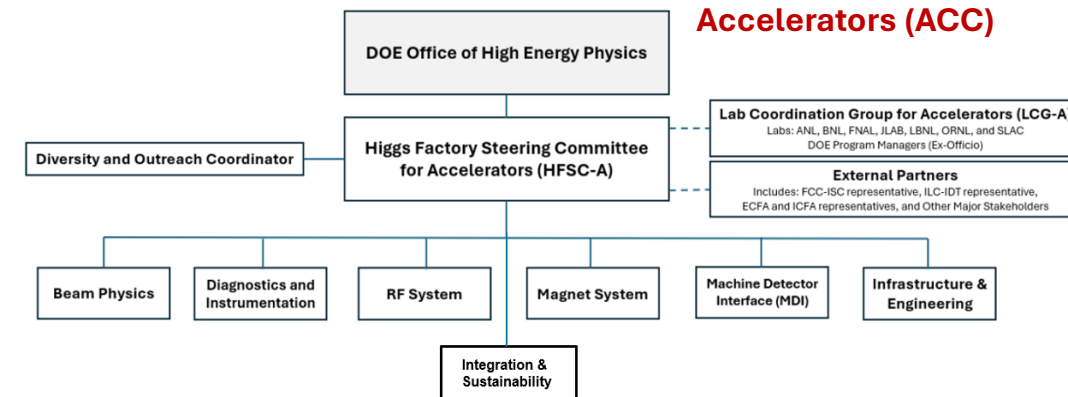
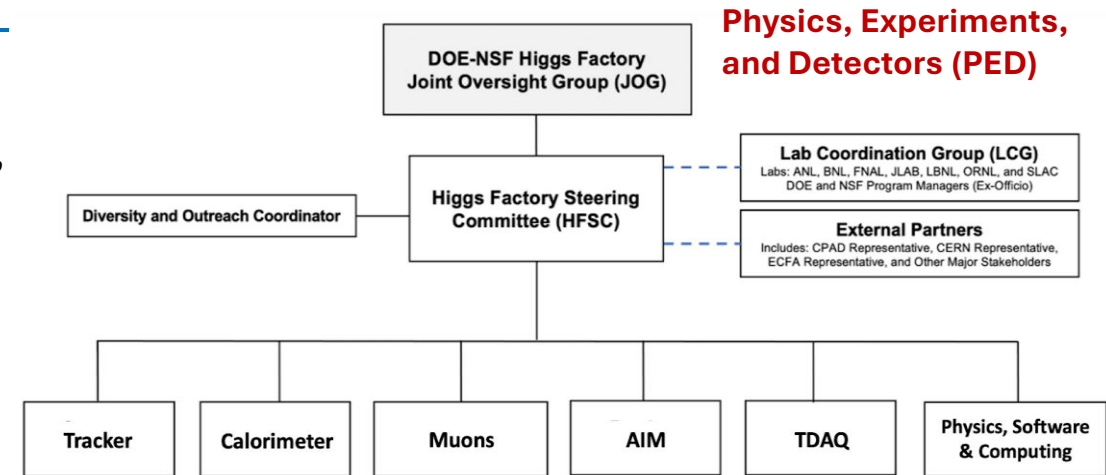
- Finding : The national initiatives in artificial intelligence and machine learning, quantum information science, microelectronics are accelerating new research avenues in particle physics, and particle physics contributions to these initiatives are bringing new ideas and new technologies to a range of disciplines.
- Recommendation : **Enhance and leverage** the innovative role that particle physics plays in artificial intelligence and machine learning, quantum information science, and microelectronics to advance both particle physics and these national initiatives.
- *Response – This is what we are attempting to do with the strong support we have been receiving in these areas*

Key Finding and Recommendation – *Building a robust workforce*

- Finding : Attracting, inspiring, training, and retaining a diverse workforce is vital to the success of all particle physics endeavors and more broadly to U.S. science and technology. A robust particle physics workforce will both leverage and be representative of the diversity of the nation.
- Recommendation : **Explore frontier science** using cutting-edge technologies to inspire the public and the next generation of scientists while opening new pathways to diversify the workforce and realize the full potential of the field.
- *Response – HEP has a strong presence in the area of SC Broadening Engagements*

U.S. Higgs Factory Coordination Consortia (HFCC)

- Earlier this year, formed two consortia for the US community to engage and advance the development of a potential future off-shore Higgs factory
 - May 2024: Charge by DOE & NSF to form US HFCC for Physics, Experiments, and Detectors (PED)
 - Aug 2024: Charge by DOE to form US HFCC for Accelerators (ACC)
- Over the last few months, various L2 and L3 subsystem roles filled by experts for each US HFCC – PED and ACC
- Other related efforts since the release of 2023 P5 report:
 - Joint US-CERN Statement of Intent for the US to collaborate at a future FCC-ee should the project receive a green-light (*discussed at the last May 2024 HEPAP meeting*)
 - Requested above US HFCC to prepare input to the now ongoing update of European Strategy for Particle Physics
- As P5 report has now been formulated and delivered, above initiatives are part of the agencies' implementation process... more details in a dedicated talk later today



This meeting

- We have reports on :
 - Agreements with CERN and US
 - Strategy and Vision for the Quantum and AI/ML SC Initiatives
 - A&T Division Overview and HEP Comparative Review of the GARD Program
 - Status of European Strategy for Particle Physics
 - US Higgs Factory Steering Activities
 - US Muon Collider Collaboration Activities
 - Test beam facilities
 - CMB Science Reports
 - Committee of Visitors Report on DOE HEP Facilities Division and DOE Response
 - Fermilab