

UEC Government Relations Subcommittee

Kevin Pedro (Chair), David Yu (Deputy Chair)

July 12, 2024

Why Government Advocacy?

- Vast majority of US HEP research is supported by *taxpayer funding*
 - Congress appropriates funding for our programs with the expectation that our basic research will pay off now (via *side benefits*) and in the future (via enabling *completely new* science and technology)
 - Executive branch distributes funding via the agencies
 - Department of Energy, National Science Foundation, etc.
- We visit Washington, D.C. every year to communicate with the federal government directly:
 - Provide information about our program's impacts, status, successes, plans
 - Convey our gratitude for their and taxpayers' support
 - Reinforce community support for the HEP budget

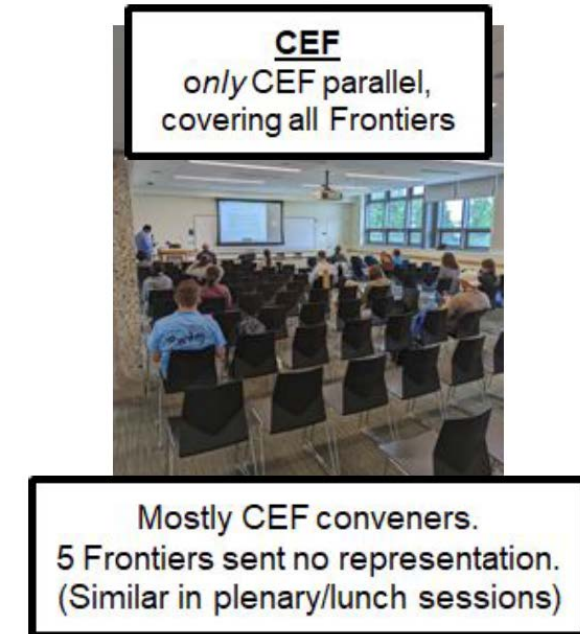
The DC Trip

- HEP visits to Congress date back more than 35 years
- Statistics tracked since 2010: anywhere from 23 to 69 participants
 - Goal is to cover all offices (100 Senators + 435 Representatives + non-voting members)
 - We also meet with: OMB, OSTP, DOE, NSF, State Department (new!)
 - + House and Senate appropriations and science/energy (sub)committees
- Organized by Fermilab Users Executive Committee, US LHC Users Association, SLAC Users Organization, APS Division of Particles and Fields
 - Participants selected by election, competition, expertise, or invitation
 - Supported by lab contractors' corporate funds, USLUA dues & donations
 - Participation from more labs this year: Argonne, Brookhaven, Berkeley
 - Contributions from usparticlephysics.org content group, Lewis-Burke Associates (government relations firm), Universities Research Association



Snowmass

- Government Outreach was a topical group in the Community Engagement Frontier
 - Led by Rob Fine (LANL), Louise Suter (FNAL)
 - Produced 3 white papers:
 - “The DC Trip” [arXiv:2207.00122](https://arxiv.org/abs/2207.00122)
 - Also has interesting subsections about grant reform and other big-picture questions
 - Areas beyond funding [arXiv:2207.00124](https://arxiv.org/abs/2207.00124)
 - DEI, immigration, research security, lab access
 - Synergies with APS, AIP, AAAS
 - Non-Congressional engagement [arXiv:2207.00125](https://arxiv.org/abs/2207.00125)
 - Executive branch, state/local governments, influential people and groups
 - Also topical group report [arXiv:2209.09067](https://arxiv.org/abs/2209.09067) and frontier report [arXiv:2211.13210](https://arxiv.org/abs/2211.13210)
- Unfortunately, also highlighted lack of prioritization for community engagement topics in HEP...



2023 P5 Report

- Congress loves P5!

(d) FURTHER ACTIVITIES.—Section 305 of the Department of Energy Research and Innovation Act (42 U.S.C. 18645) (as amended by subsection (c)), is amended by adding at the end the following:

“(g) FACILITY CONSTRUCTION AND MAJOR ITEMS OF EQUIPMENT.—

“(1) PROJECTS.—Consistent with the Office of Science’s project management practices, the Director shall, to the maximum extent practicable, by incorporating the findings and recommendations of the 2014 Particle Physics Project Prioritization Panel (P5) report entitled ‘Building for Discovery’, support construction or fabrication of—

“(A) an international Long-Baseline Neutrino Facility based in the United States;

“(B) the Proton Improvement Plan II;

“(C) Second Generation Dark Matter experiments;

“(D) the Legacy Survey of Space and Time camera;

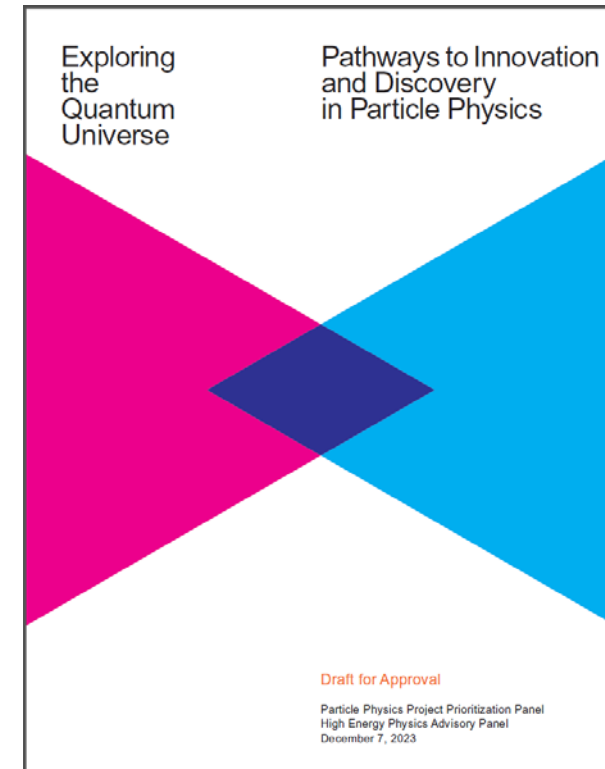
“(E) upgrades to detectors and other components of the Large Hadron Collider; and

“(F) the Cosmic Microwave Background Stage 4 project; and

“(G) other high priority projects recommended in the most recent report of the Particle Physics Project Prioritization Panel of the High Energy Physics Advisory Panel.

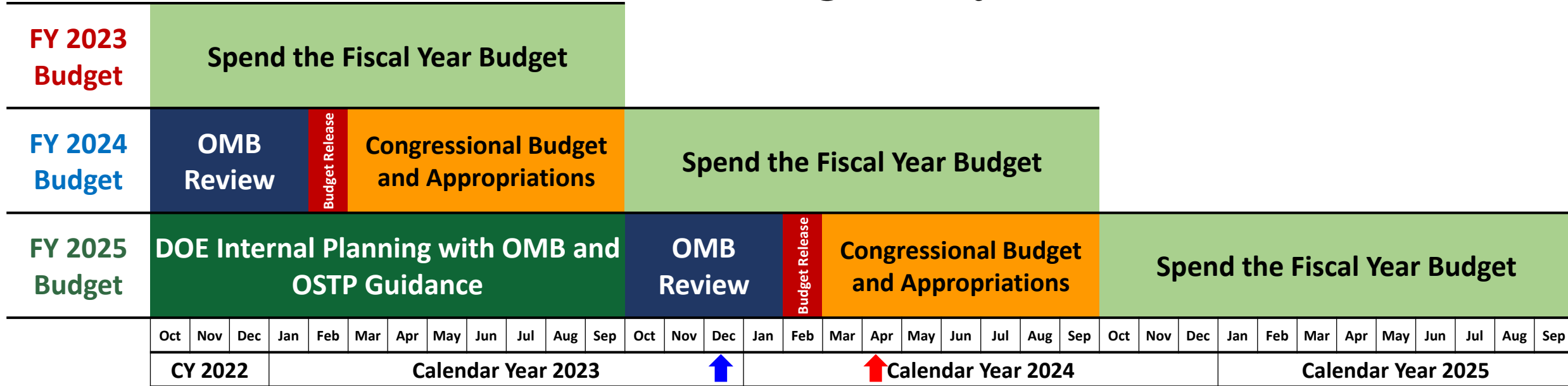
Text of [H. R. 4346](#) (“CHIPS and Science Act”), p. 81

- New P5 report presents an expansive, balanced, and ambitious vision for our field
- How do we make it a reality?



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

Federal Budget Cycle



P5 report released

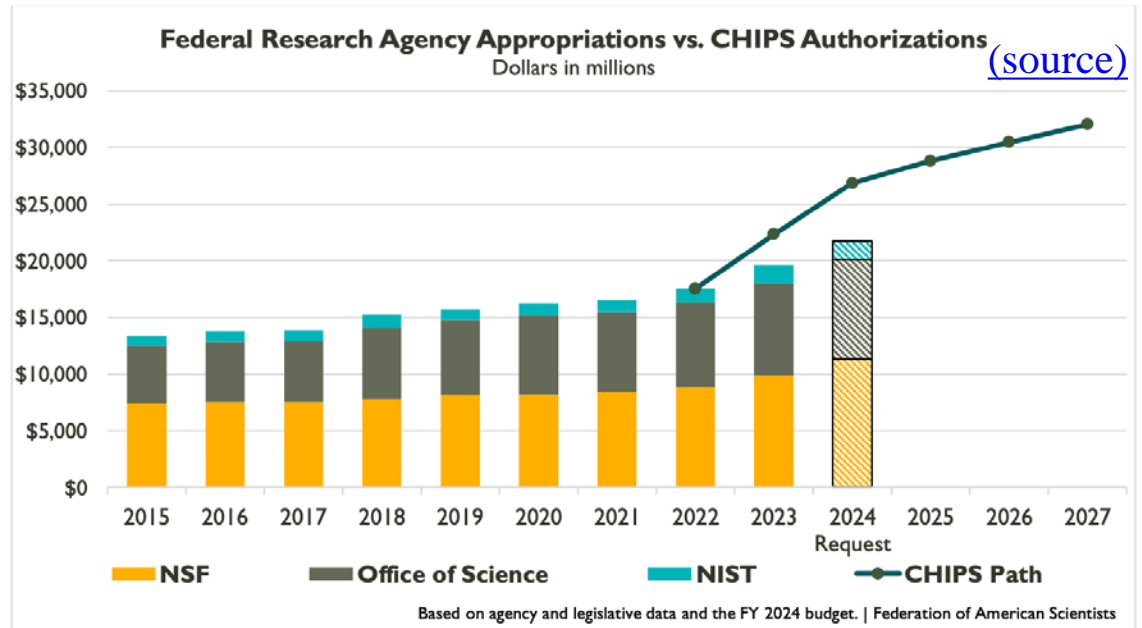
DC Trip

Source: Gina Rameika

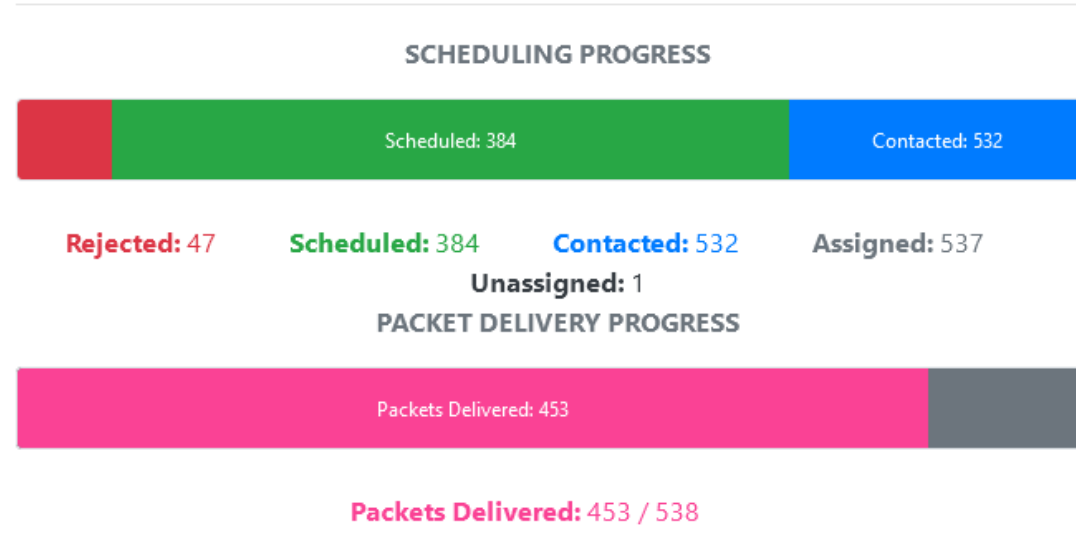
- Federal budgets are planned on a 3-year cycle
- FY25 budget request was already planned by executive branch based on 2014 P5
- This year, we advocated for both FY25 budget *and* presented the new P5 plan
 - Try to push for increases in R&D motivated by new P5 plan
 - Difficult environment: spending caps enacted because of inflation impact on national debt payments

CHIPS and Science Act

- Passed in 2022 with bipartisan support
- *Authorizes* Congress to increase science funding
 - But does not *require* them to do so: appropriations still decided on a per-year basis
- So far, Congress has fallen short of appropriating the authorized amounts
 - Also happened with past bills, e.g. [COMPETES Acts of 2007 and 2010](#)
- Levels authorized by CHIPS and Science form the basis of our advocacy
 - Need to *make the case* for Congress to fund at authorized levels!
 - Demonstrate that we will provide good returns on their investment



This Year's Trip



- 69 participants (highest ever in person!)
 - Significant growth since last year (40), similar to last in-person trip before COVID (68 in 2019)
- Second in-person trip since COVID
 - Met with almost as many offices as before COVID (389 in 2018, 434 in 2019)
- Also met w/ 5 executive offices, 8 Congressional committees

DC Trip Deliverables

- Dear Colleague Letters (DCLs): our advocates in Congress ask other Congresspeople for their support
 - Senate:
 - DOE letter led by Durbin, Duckworth, Rounds: 35 signatures (vs. 36 last year)
 - NSF letter led by Markey: 36 signatures (vs. 28 last year)
 - House:
 - DOE letter led by Foster, Weber, Leger Fernandez, LaLota: 118 signatures (vs. 108 last year)
 - NSF letter led by Neguse and Fitzpatrick
- New DCLs this year:
 - Microelectronics: fully fund the MICRO act to establish Microelectronics Science Research Centers, bringing together labs, universities, and private sector partners for research and technology transfer
 - Initial funding opportunity [from DOE \(LAB-24-3320\)](#): proposals due soon!
 - South Pole infrastructure: LC-130 planes
 - Critical for new P5 initiatives: CMB-S4, IceCube Gen 2
- Programmatic funding requests (per office): 89 sent by trip attendees

Advocacy Materials

Contributing to the

We develop our students' analytic in today's technology-driven eco career paths and become leader vation in technology, energy, med



"I work at the intersection of technology and ec policy, on issues from semiconductor suppl resilience to artificial intelligence for sustainab opment. A key part of my job is building con across government agencies and internatio ners, all with their own priorities. That's a skill I working on neutrino physics experiments, like with hundreds of collaborators around the wo

Rory Fitzpatrick, U.S. Department of

"I work on Waymo's LIDAR team. LIDAR is the 'senses' that self-driving car systems use the 3D world around them. I use my research rience in light detection to build custom sens enhance the safety of self-driving cars. I find th ple value the data analysis skills and multidisc background I bring to the team as a particle ph

Kanika Sachdev,



Prepared by



Simulating radiation exposure

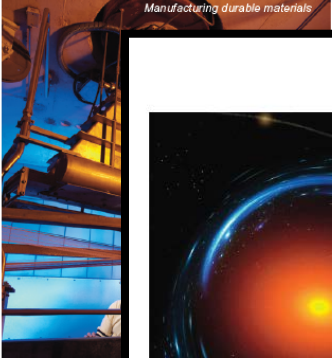
Computing and Simulation

- **The World Wide Web** was first developed by particle physicists to share information quickly and effectively around the world. Particle physicists continue to push the frontiers of big data analysis with global grids and cloud computing.
- **Radiation exposure for spacecraft** is simulated using software originally developed to model particle detectors.
- **Atomic and nuclear physics advances** benefit from precise mathematical techniques developed by particle physicists, now used to predict new materials and molecules.
- Particle physics theorists are developing foundational concepts that will **advance quantum information science** and enable quantum simulation experiments that will provide new ways to explore scientific problems.



High performance computing

A Strategic Plan for US Particle Physics

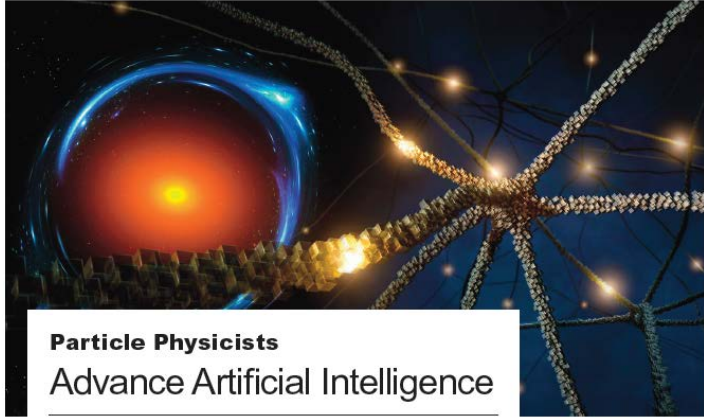


Manufacturing

- **Precise, custom** manufactured u accelerators.
- **The food indus** tors for decades able film that tur goods come wr
- **Ink curing co** ators as an env duce the colorfu items, including

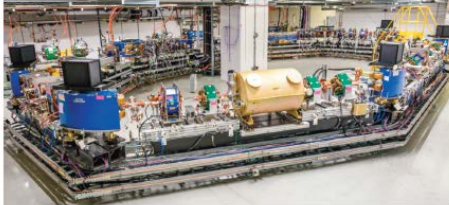


Ink curing for packaging



Particle Physicists Advance Artificial Intelligence

Particle physicists advance artificial intelligence in their quest to explore the frontiers of science. They face unique challenges in operating complex accelerators and detectors and in analyzing massive streams of data. They meet these challenges with innovative techniques that have applications in other areas of science and in industry.



A Strategic Plan for US Particle Physics

usparticlephysics.org

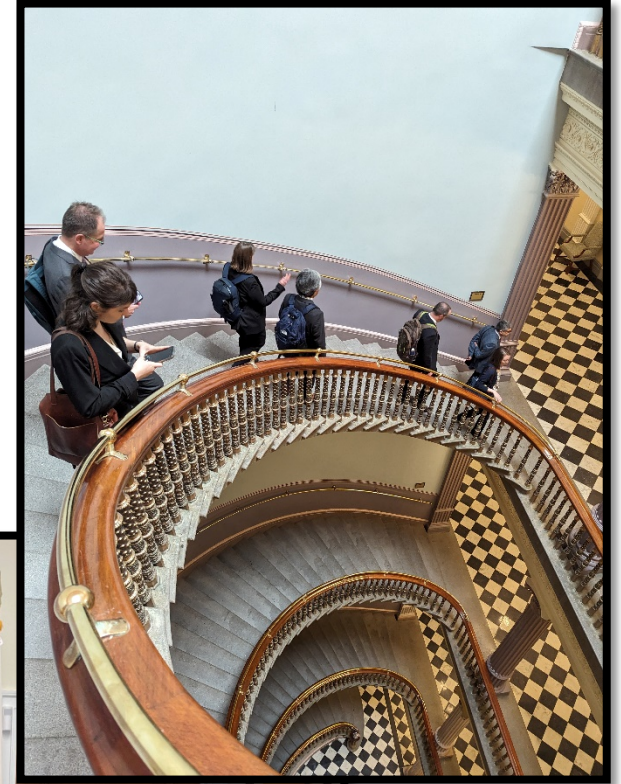
- P5 is the basis of our advocacy
- Additional informational material is developed by a group of volunteers
 - Led by Michael Cooke (DOE)
 - Sandbox Studio does the layout, graphic design, etc.
- Brochures discuss both research and broader impacts
 - Education, workforce, technologies, innovation
- A great place to contribute!

usparticlephysics.org

HEP Takes The Hill



Meetings in DC



Inspirations from P5

Kevin Pedro

Conclusions

- Thanks to all of our participants for making this year's trip so successful!
- Special thanks to my co-coordinators from the other organizations:
 - USLUA: Harvey Newman, Kiley Kennedy
 - SLUO: Caterina Vernieri, Kelly Stifter, Brendan O'Shea
- And other key contributors:
 - Breese Quinn, for organizing the committee meetings and leading a heroic 46 meetings with offices
 - Fernanda Psihas, Justin Vasel, and Rob Fine for software support and coordination
 - P5 chairs Hitoshi Murayama and Karsten Heeger
- We will continue to represent and advocate for the entire field next year and beyond!
 - Want to get involved? Contact us!
 - And encourage your institution to support advocacy for scientific research