



# FCC and the U.S. NSF

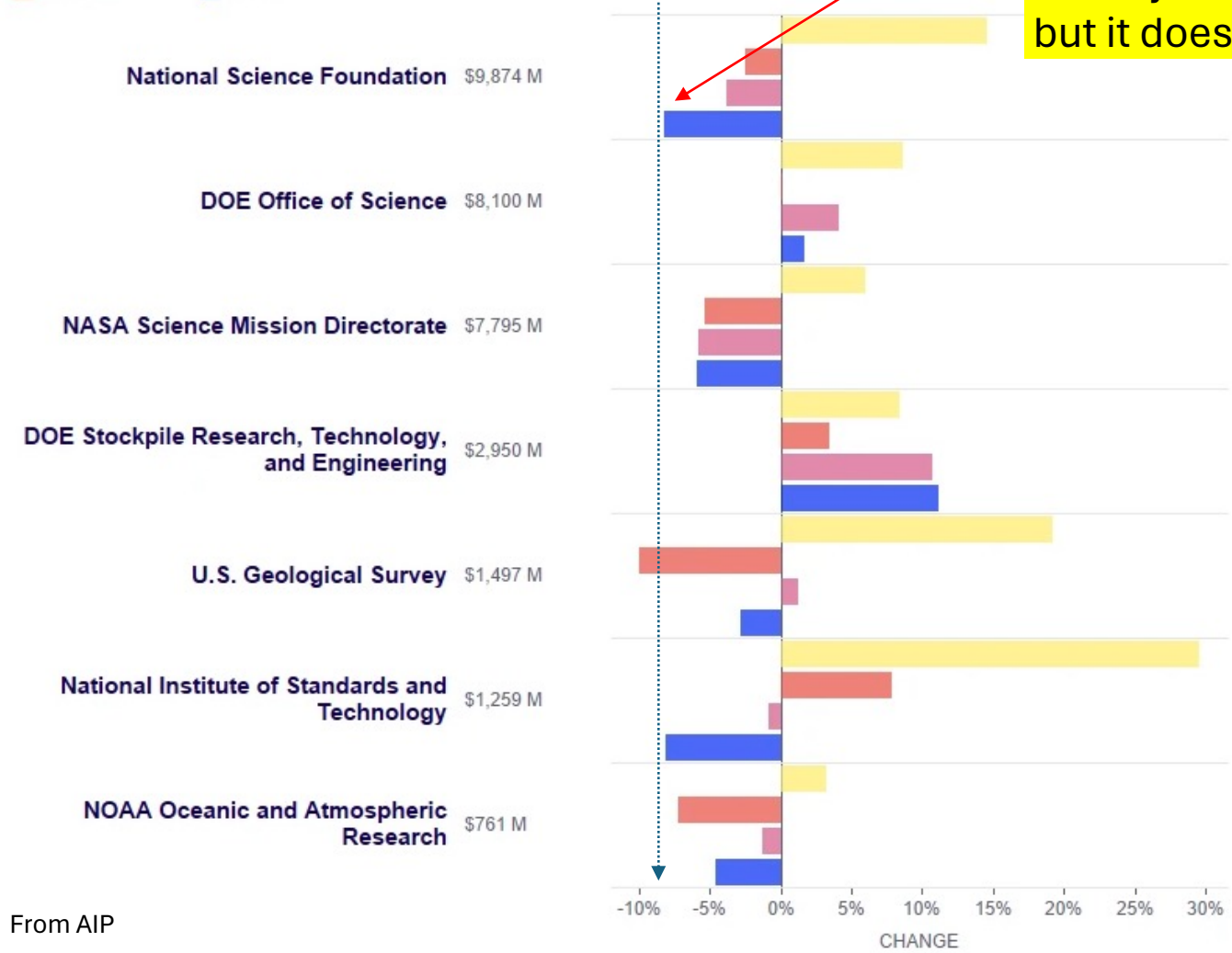
Jim Shank

Program Director MPS/PHY/EPP

## FY24 Appropriations: Selected Science Agencies

FY23 enacted amount (\$ millions)  
% change over enacted

■ REQUEST    ■ SENATE  
■ HOUSE    ■ FINAL



The impact of this has not trickled down to the PHY division yet, so we can say nothing about 2024 funding, but it doesn't look good.

From AIP

# P5 Recommendation 2 (continued)

**P5:** *Construct a portfolio of major projects that collectively study nearly all fundamental constituents of our universe and their interactions, as well as how those interactions determine both the cosmic past and future. [in priority order:]*

c) **An off-shore Higgs factory**, realized in collaboration with international partners, in order to reveal the secrets of the Higgs boson. The current designs of FCC-ee and ILC meet our scientific requirements. The US should actively engage in feasibility and design studies. Once a specific project is deemed feasible and well-defined (see also Recommendation 6), the US should aim for a contribution at funding levels commensurate to that of the US involvement in the LHC and HL-LHC, while maintaining a healthy US on-shore program in particle physics

## NSF perspective:

- We agree and our intention is that NSF will play a role in detector development and science exploitation for a future Higgs factory
- Recently USG signed a [Statement of Intent](#) with CERN
- The NSF has signed a plan with DOE to chart a joint way forward on U.S. involvement in a Higgs Factory.



# The U.S. and CERN Joint Statement of Intent

(April 26, 2024)

The United States and CERN intend to:

- Enhance collaboration in future planning activities for large-scale, resource-intensive facilities with the goal of providing a sustainable and responsible pathway for the peaceful use of future accelerator technologies;
- Continue to collaborate in the feasibility study of the Future Circular Collider Higgs Factory (FCC-ee), the proposed major research facility planned to be hosted in Europe by CERN with international participation, with the intent of strengthening the global scientific enterprise and providing a clear pathway for future activities in open and trusted research environments; and
- Discuss potential collaboration on pilot projects on incorporating new analytics techniques and tools such as artificial intelligence (AI) into particle physics research at scale.

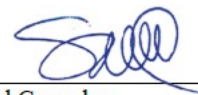
# The Higgs Factory Coordination Consortium

The U.S. HFCC is to coordinate efforts in the following areas:

1. Physics and technical feasibility studies, including any associated design and R&D efforts, to advance various experiment detector concepts at a future Higgs factory;
2. Prioritization and stewardship of the national R&D efforts should funds be identified by DOE and/or NSF;
3. Development of the pre-project detector R&D scope that will be required prior to DOE and/or NSF initiating any detector project at a future  $e^+e^-$  collider;
4. Conceptualization of the software and computing framework that will be needed to advance physics studies and R&D efforts; and to collect, store, and analyze the large volumes of physics data at future collider experiments;
5. In consultation with DOE and NSF program managers, develop various funding models that will be required to support the R&D efforts described in items (3) and (4) above; and
6. Ensure collaborations by the U.S. with our partners are cost-effectively carried out to advance the future Higgs factory initiatives. Such partner efforts include, but are not limited to, those being undertaken by
  - a) the U.S. Coordinating Panel for Advanced Detectors (CPAD);
  - b) the CERN-hosted Detector R&D (DRD) initiative;
  - c) the European Committee for Future Accelerators (ECFA); and

*Regina Rameika*

Regina Rameika  
Co-Chair  
U.S. Higgs Factory Joint Oversight Group  
U.S. Department of Energy



Saul Gonzalez  
Co-Chair  
U.S. Higgs Factory Joint Oversight Group  
National Science Foundation

# Backup



# NSF Director Visits CERN May 31, 2024



From left to right:

Pratik Kafle (grad student MSU)

Andreas Hoecker, CERN. Spokesperson for ATLAS

The NSF Director, Sethuraman Panchanathan

Eleanor Woodward (grad student Columbia)

Mars Lyukova (grad student Stony brook)

Yoav Afik (postdoc Chicago)

Mike Tuts, Columbia University,

PI on the HL-LHC award for ATLAS.

[More CERN Photos](#)