

# FY2024 HEP Funding Opportunities

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HEPAP Meeting  
May 9 2024



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

[Energy.gov/science](https://www.energy.gov/science)

# Overview

- Public Service Announcements
  - [HEP PI Meetings](#) : May 13-15 at DPF Conference
  - [HEP Office Hours](#) : next May 21, 2pm ET. Topic: Technology R&D
  - [Webinars](#) for targeted funding opportunities, see individual FOAs/lab calls below
- Recent Funding Opportunities (updates)
  - HEP Accelerator Traineeships
  - HEP Comparative Review
  - Early Career Research Program
  - EPSCoR
  - (SBIR/STTR Phase I and II - not covered here)
- Current Funding Opportunities (advertising)
  - [RENEW and FAIR](#)
  - [Hardware-Aware AI/ML](#)
  - [HEP-QIS: QuantISED 2.0](#)
  - [Microelectronics](#)
  - See also <https://science.osti.gov/hep/Funding-Opportunities>

# HEP PI Meeting

- DOE-HEP PI Meeting to be held during the upcoming 2024 APS/DPF-Pheno Meeting, hosted collaboratively by Univ of Pittsburgh and Carnegie Mellon University, May 13-17, 2024 (*next week*)
  - Meeting open to all attendees incl. current DOE principal investigators (PIs), co-investigator, those PIs interested to apply to future DOE funding opportunities, and interested national laboratory staff
  - Meeting website: [Indico](#)
- Individual sessions include:
  - General DOE-HEP FOA Presentation (*e.g.*, comparative review, DOE early career research program, QIS program, and other FOAs) – Monday, May 13, at 12:30-14:00
  - Energy Frontier Program – Tuesday, May 14, at 12:30-14:00
  - Computational HEP and AI/ML Program – Tuesday, May 14, at 12:30-14:00
  - Cosmic Frontier Program – Wednesday, May 15, at 12:30-14:00
  - Early Career with Undergrads, Graduates, and Postdocs – Wednesday, May 15, at 12:30-14:00
  - Intensity Frontier Program – Wednesday, May 15, at 17:30-19:00
  - HEP Theory Program – Wednesday, May 15, at 17:30-19:00
- Also, DPF plenary session on “News from DOE & Response to P5” by Michael Procaro on May 13
- Opportunities for meeting attendees to interact with HEP program managers during the week

# HEP Office Hours

- Informal monthly “drop-in” Zoom meeting with HEP program managers to discuss topics related to program funding opportunities, priorities, “how to write a good proposal,” etc. Format is short presentation followed by Q&A.
- **Note** we cannot give technical advice about specific proposal ideas. Questions of the form “I plan to propose XYZ, would that be successful?” will not be answered.
- Researchers, educators, and research administrators from **all institutional types are encouraged to join**. A primary goal of the virtual office hours is to broaden awareness of our programs; no prior history of funding from DOE is required to join.
- Registration is required.
- **HEP Office Hours: 3<sup>rd</sup> Tuesday of the Month, 2pm ET. Next: May 21.**
- Topics (slides and recordings available at website below):
  - March : HEP 101 (introduction to program)
  - April: Early Career opportunities
  - **May: Technology R&D initiatives**
- Future topics TBD. Suggestions welcome!
- For more information: visit <https://science.osti.gov/hep/officehours>.

# HEP Traineeships in Accelerator Science and Engineering

- This was a [recompete](#) of the first of the HEP focus topics for DOE Traineeship FOAs
  - First released in FY17, and expanded in FY19, FY21, & FY23 ([DE-FOA-0003025](#)).
    - Started at ~\$1M/yr, ramped up to ~\$4M/yr in FY24
  - Subsequent FOAs in other HEP technical areas, to be recompeted on similar schedule
    - FY21: DOE Traineeship in High Energy Physics Instrumentation ([DE-FOA-0002496](#))
    - FY22: DOE Traineeship in Computational High Energy Physics ([DE-FOA-0002743](#))
- The AS&E Traineeship scope was determined through community [input](#)
- Funding predominantly goes to student stipends (in FY24, includes “living wage” adjustments)
- History/Impact of previous AS&E Traineeship awards
  - 2017: initial award to Michigan State
  - Subsequent awards to SUNY Stony Brook (subaward to Cornell), IIT (subaward to NIU), Old Dominion (subawards to Norfolk State, Hampton), Cornell (subawards to UCLA, Ariz State, U Chicago)
  - [29 students graduated and a total of 74 students participated through academic year 22/23.](#) Students per year should increase by x2 going forward.
- For more information: see <https://engage.aps.org/dpb/resources/newsletters>

# FY24 HEP Comparative Review **DE-FOA-0003177**

- Call for proposals issued as part of FY24 SC Open Call ([also included FY25 HEP call](#))
- Applications for support of HEP research activities in any of the 6\* areas identified below may be submitted to this FOA. HEP expects to convene comparative merit review panels on a yearly basis, as described below, for both New and Renewal applications devoted to these research activities.
  - **Experimental HEP:** Energy Frontier, Intensity Frontier, Cosmic Frontier
  - **HEP Theory**
  - **Technology R&D:** General Accelerator R&D (GARD), Detector R&D
- HEP allows applications from single institutions that span multiple research areas described in this FOA, including applications that span multiple HEP subprograms (a.k.a “umbrellas”) or research thrusts.

\***Computational HEP/AIML** and **HEP-QIS** covered in separate FOAs in FY24 ([see later slides](#))

**Status : in final decision process. Decisions anticipated by late May/early June.**

For more information ([FAQ, webinar](#)) : <https://science.osti.gov/hep/Funding-Opportunities>

# FY24 Early Career Research Program **DE-FOA-0003176**

- Applications for support of HEP research activities in any of the **8** areas identified below may be submitted to this FOA. HEP expects to convene comparative merit review panels on a yearly basis, as described below, for both New and Renewal applications devoted to these research activities.
  - **Experimental HEP: Energy Frontier, Intensity Frontier, Cosmic Frontier**
  - **HEP Theory**
  - **Technology R&D: General Accelerator R&D (GARD), Detector R&D, **Computational HEP, HEP-QIS****
- Eligibility time window (max years past PhD for PIs) increased for this competition for a second year from 10 to 12 years for all applicants. **DOE/SC intends to revert to the original 10-year eligibility window in subsequent competitions.**

**Status : Full proposals due Apr 25, out for review. Decisions anticipated by late June.**

For more information (**Webinar, previous awards**) : <https://science.osti.gov/early-career>

# Building EPSCoR-State/National Laboratory Partnerships

## DE-FOA-0003201

- DOE Established Program to Stimulate Competitive Research supports research programs in jurisdictions underrepresented in Federal research funding
  - This biennial FOA supports building new collaborative research activities with DOE national labs
  - Participation by undergraduate students, graduate students, or postdoctoral fellows is required.
  - Other biennial EPSCoR FOA supports building research infrastructure at universities.
- Maximum funding of \$1,000,000 over four years with possibility of one renewal of up to three years. Any subsequent support subject to competitive solicitation process of the relevant DOE core program. Applications must propose research areas supported by DOE programs.
- Previously (before FY24) limited to 1 application per institution. Now, **up to 2 applications per program area** (e.g., ASCR, BES, BER, FES, HEP, NP, applied energy programs) per institution.
- DOE/SC EPSCoR funding also now distributed among SC programs.
- **Large increase in HEP-related proposals in FY24.**
- **Status : in final decision process.**

For more information ([Webinar](#)) :

<https://science.osti.gov/-/media/bes/epscor/pdf/2024/ESPCoR-FOA-Webinar-FY2024v2.pdf>

# Office of Science RENEW and FAIR Initiatives

- **Reaching a New Energy Sciences Workforce (RENEW)**
  - Leverage SC's national laboratories, user facilities, and other research infrastructures to support traineeships for students and postdoctoral researchers at institutions underrepresented in the SC portfolio.
  - **Applications to RENEW must include training activities\*** beyond conduct of research.
- **Funding for Accelerated, Inclusive Research (FAIR)**
  - Build research capacity, infrastructure, and expertise at institutions historically underrepresented in the SC portfolio by funding fundamental research relevant to the SC mission.
- **Both initiatives aim to:**
  - Increase the diversity of institutions participating in SC research.
  - Build relationships with institutions historically underrepresented in the SC research portfolio.
- **Focus on non-R1 emerging research institutions (ERIs) and non-R1 minority serving institutions (MSIs)\*\***

**For HEP : Applications must propose subject areas supported by HEP (same as ECRP)**

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\*Traineeships are structured, substantive STEM training programs with measurable expectations and a duration and intensity substantial enough to achieve both short-term and long-term training outcomes.

\*\*Institution Designations and Classifications: <https://science.osti.gov/grants/Applicant-and-Awardee-Resources/Institution-Designations>

# FY24 RENEW DE-FOA-

## 0003280

FOA Issued : March 12

Pre-applications due: April 30

Pre-app response date: June 4

Full applications due: July 23

Webinar date : March 21

Application Office Hours : July 10, 18

<https://science.osti.gov/Initiatives/RENEW>

HEP POC: Brian Beckford



- All applications must be submitted on behalf of a lead institution that is a non-R1 ERI or non-R1 MSI.
- The lead institution must partner with **at least one** team member from a DOE-affiliated institution (National Labs, User Facilities, etc). See FOA for additional teaming requirements.
- Limited to one application per PI and no more than 3 applications per program per institution.
- There are two application tracks that are differentiated by the award size and duration:

Application Track	Award Floor (Total)	Award Ceiling (Total)	Award Duration
Exploratory Application	\$100,000	\$400,000	2 years
Full Application	\$750,000	\$2,250,000	3 years

# FY24 FAIR DE-FOA-

## 0003207

FOA Issued : March 12

Pre-applications due: April 23

Pre-app response date: May 28

Full applications due: July 16

Webinar date : March 20

Application Office Hours : July 2, 10

<https://science.osti.gov/Initiatives/FAIR>

HEP POC: Jeremy Love



- All applications must be submitted on behalf of a lead institution that is a non-R1 ERI or non-R1 MSI.
- The lead institution must partner with a **single** DOE institution (National Labs, User Facilities) OR an R1 ERI/MSI. See FOA for additional teaming requirements.
- Limited to one application per PI and no more than 3 applications per program per institution.
- One application track:

Application Track	Award Floor (Total)	Award Ceiling (Total)	Award Duration
Full Application	\$300,000	\$800,000	3 years

# Hardware-Aware AI for HEP LAB

## 24-3305

Lab Call Issued : May 1

- University PIs may submit proposals in this area for a [Research review through the SC Open Call FOA-3317](#)

Pre-applications/LOIs due: June 26

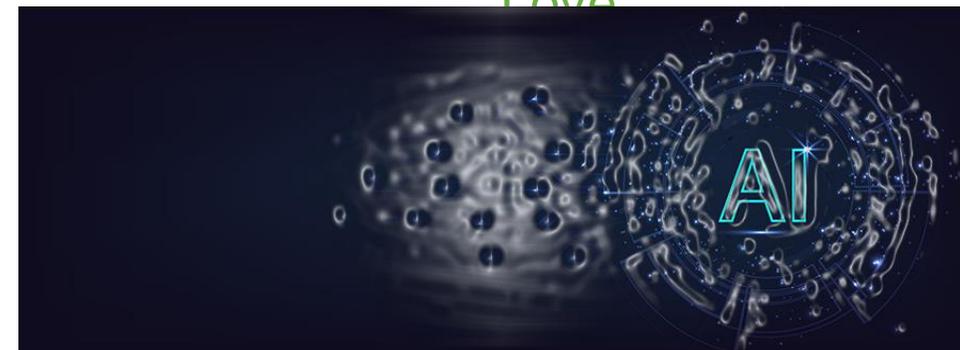
Full applications due: July 24

Webinar date : May 29. [Registration required.](#)

<https://science.osti.gov/hep/Research/Artificial-Intelligence-AI>

- DOE HEP intends to hold a review for new ambitious research projects where detailed knowledge of HEP hardware systems informs the AI techniques and methods required for implementation
- Applications are sought in two broad categories
  - **Smart Detectors** - Intelligence on detector in readout and control electronics
  - **AI for Operations** - AI/ML for improved experiment and facility operations and control
- Multi-institution team applications are allowed. See lab call for details.
- Limited to **two applications per lab** (as lead institution). No restriction on number of submissions as subawardee. No restrictions on number of submissions per PI.

HEP POC: Jeremy Love



Application Track	Award Floor (Annual)	Award Ceiling (Annual)	Award Duration
Lab Application	\$350,000	\$3,000,000	3 years
University Review	\$100,000	\$350,000	3 years

# HEP-QIS : QuantISED 2.0 DE-FOA-

0003354

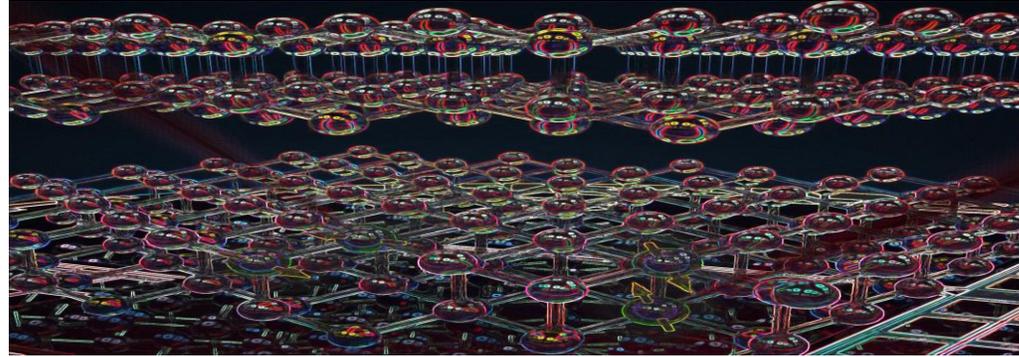
FOA Issued : May 7

Optional LOIs due: June 18

LOI response date: July 2

Full applications due: July 30

Webinar date : TBA



HEP POCs: Glen Crawford, Bill Kilgore, Helmut Marsiske

<https://science.osti.gov/hep/Research/Quantum-Information-Science-QIS>

- Pursuing the exciting science opportunities in this emerging research area requires significant further development of the theory and practice of understanding and deploying real-world quantum systems, building on the achievements of the first cycle of QuantISED awards (2019-2020). Hence this call is QuantISED 2.0.
- Interviewed QIS PIs and consulted Snowmass QIS and Detector BRN/Sensor Workshop reports. This informs 3 main topical areas : [HEP-QIS Theory](#); [Quantum Sensing](#); and [Pathfinder Experiments](#)
- There are two application tracks that are differentiated by the award size, [number of applicants](#) and duration. [See FOA for further guidance and restrictions.](#)

Application Track	# of PIs	Award Floor (Total)	Award Ceiling (Total)	Award Duration
Seed Application	1	\$140,000	\$1,000,000	2-3 years
Team Application	>1	\$1,200,000	\$5,000,000	3-5 years

# Microelectronics Science Research Center Projects LAB

## 24-3320

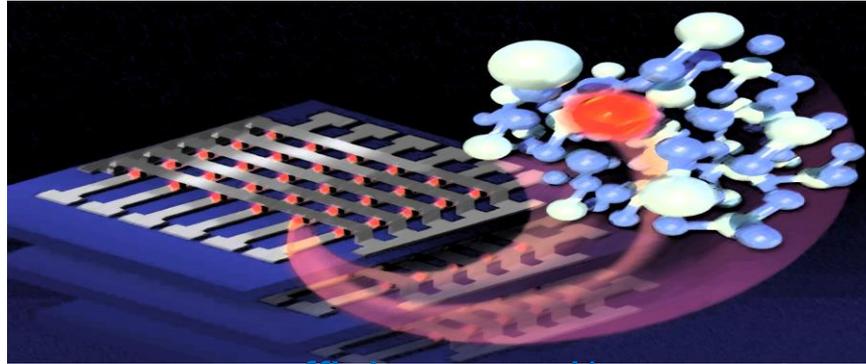
FOA Issued : May 8

Pre-applications due: May 30

Pre-application response date: June 20

Full applications due: July 25

Webinar date : TBA



HEP POC: Helmut Marsiske

- Each center will have a focus either on energy efficiency and/or on extreme environments and is comprised of a *network of awards*
- Labs must be lead institution; teaming arrangements with other labs, universities, and industry strongly encouraged
- Proposals are requested for fundamental scientific research in the following four Research Areas:
  - 1. New or improved materials, surface processing and control, chemistry, synthesis, and fabrication
  - 2. Advanced computing paradigms and architectures
  - 3. Integrated sensing, edge computing, and communication
  - 4. Processing in extreme environments, radiation, radiation transport, and materials interaction
- Each Pre-Proposal and Proposal in response to this funding opportunity is encouraged to propose research that is integrated across at least two of these areas.

Application Track	Award Floor (Annual)	Award Ceiling (Annual)	Award Duration
Lab Application	\$750,000	\$3,000,000	4 years



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# Summary

- Many opportunities/venues for engagement with HEP Program Managers
  - Take advantage of them! Let us know what works (and what doesn't)
- HEP graduate-level Traineeships are a real success story
  - Accelerator Science and Engineering expanding number of students
  - HEP Instrumentation and Computation launched, plan to recompete in FY25/26
- Progress on main FY24 HEP FOAs ([Comparative Review](#), [Early Career](#))
  - Decisions coming soon(ish)
- Lots of new HEP funding opportunities available, particularly in:
  - Expanding opportunities for historically underrepresented institutions ([RENEW](#), [FAIR](#))
  - Emerging technology areas ([AIML](#), [QIS](#), [Microelectronics](#))