

What does a Program Manager do?

Computational HEP Traineeship Summer School
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U.S. DEPARTMENT OF
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Show Don't Tell

- ◆ Program Managers (PMs) serve as an interface between the scientific community and the federal government
 - PMs work with the scientific community to ensure our programs reflect their needs
 - PMs work with the President's representatives to prepare a budget request and allocate the funding appropriated by Congress
 - PMs ensure funding is used appropriately and efficiently to accomplish the intended goal
- ◆ The history of the Computational HEP Traineeship is a good illustration of what a PM does
 - This is a DOE program so this is what a DOE PM does

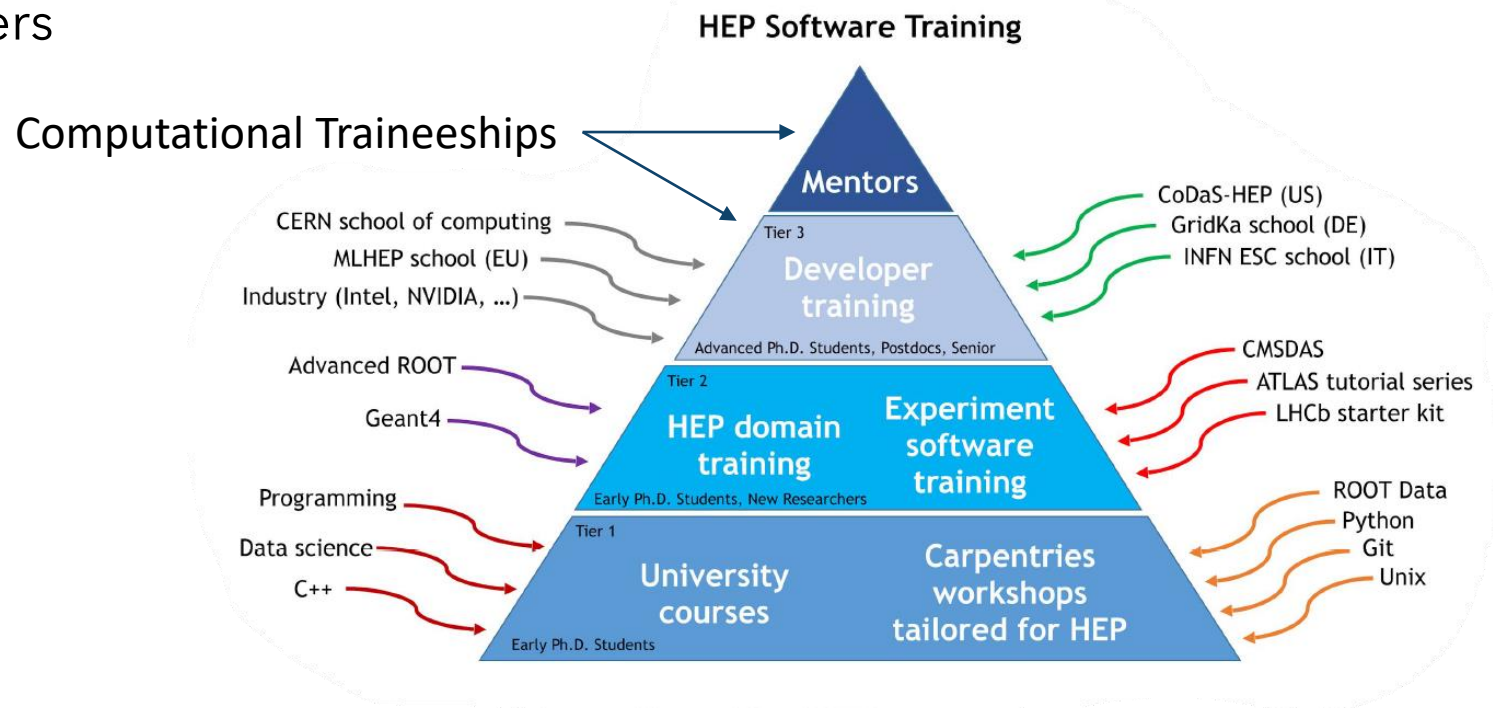
Snowmass

- ◆ In 2013, the HEP community went through a Snowmass process to provide input to the Particle Physics Project Prioritization Panel (P5)
 - PMs are primarily observers and get a sense of what is important to the community.
- ◆ The Snowmass Computational Frontier report stated: [Chapter 9 Computing](#)

These trends lead to vastly increasing code and system complexities. For example, only a limited number of people in the field can program GPUs. In this and other highly technical areas, developing and keeping expertise in new software technologies is a challenge, because well-trained personnel and key developers are leaving to take attractive positions in industry. Continued training is important. There are training materials from some of the national supercomputing centers. Summer schools are organized by the Virtual School of Computational Science and Engineering (www.vscse.org) and other groups. We must examine whether these provide the right training for our field and whether the delivery mechanisms are timely. On-line media, workbooks and wikis were suggested to enhance training. Another area of common concern is the career path of those who become experts in software development and computing. We should help young scientists learn computing and software skills that are marketable for non-academic jobs, but it is also important that there be career paths within particle physics, including tenure-track jobs, for those working at the forefront of computation.

P5

- ◆ All science drivers identified by the [2014 P5 Report](#) require increasingly complex software and computing systems to deliver scientific discoveries
 - The lack of necessary computing expertise needed to realize these scientific drivers was viewed as a risk across the entire HEP program
 - PMs are mostly observers to the P5 process but often answer questions from panel members



Taken without permission from [Peter Elmer's Future of Computing Talk at DPF](#)

HEPAP

- ◆ Computing was not the only area where a lack of expertise was seen as a critical issue
 - Snowmass Report additionally identified the field as lacking critical Accelerator and Detector experts
- ◆ High Energy Physics Advisory Panel ([HEPAP](#)) is a Federal Advisory Committee Act ([FACA](#)) Panel that advises the federal government on the national HEP program
 - A PM is responsible for identifying members, organizing HEPAP meetings, and ensuring HEPAP satisfies the legal requirements of a FACA panel
- ◆ HEPAP convened a subcommittee to understand the challenges of these critical expert shortages
 - [HEP Workforce Development Needs](#) report of the HEPAP subcommittee
 - This report has a 5 page description of Accelerator training and needs, a 3 page description of Detector training and needs, and a 1 page description of Software and Computing training and needs

First Things First

- ◆ Since there was clearest guidance from HEPAP on Accelerator training this was the first DOE HEP Traineeship
 - Accelerator Traineeship FOA issued in 2017
 - PM drafted this FOA based off the guidance for Accelerator training in the HEP Workforce Report
- ◆ If it is so easy why didn't DOE HEP issue the FOA sooner?
 - What happened between 2014 and 2017?

Congressional Appropriation aka Budgets

- ◆ There is a semi-regular cadence to the budget cycle
 - In the summer PMs prepare narratives and requests for two fiscal years(FY) in the future
 - DOE HEP Budget office are already starting on the FY26 request
 - The DOE HEP budgetary information is rolled into the larger DOE and federal government budget and gets released as the President's budget request the following winter
 - [FY25](#) came out at the time of the state of the union
 - There is a lot of work that goes into this iterative process, but generally only minor changes are made after this initial preparation
 - PMs are involved in preparing financial tables with explanations of changes, narrative descriptions of their programs and highlights, as well as drafting issue papers that call attention to hot issues of political interest
 - Then congress, both house and senate, make and pass the appropriations bills for the FY.
 - This should happen by October 1st, but has been delayed in recent years
- ◆ Bottom line: it takes ~2 years to implement changes in the budget

<i>Computational HEP</i>	<i>\$11,518</i>	<i>\$15,000</i>	<i>+\$3,482</i>
Funding supports transformative computational science, high performance computing, and SciDAC 4 activities; cross-cut computational science tools for HEP science and computational science driven discovery; and exploratory research on portable parallelization techniques, storage solutions, and complex workflows and optimizing use of exascale architectures.		The Request will support the multi-laboratory HEP Computational Center for Excellence (CCE) to develop portable parallelization solutions, data transfer and storage challenges, and event generation and complex workflows. The HEP-ASCR SciDAC partnerships will re-compete. The Request will support a new Traineeship Program in High Performance Scientific Computing to address critical HEP workforce needs.	Funding increase will support the HEP CCE and the new Traineeship Program.

[From FY22 Budget Request](#)

Funding Opportunity Announcement

- ◆ Once the appropriations bills are passed the funding must be allocated in that fiscal year
 - To support programs at Universities DOE must issue a Funding Opportunity Announcement (FOA) for what should be proposed and how it will be reviewed
 - The [Computational HEP Traineeship FOA](#) was released in FY22
 - PMs draft the technical portions of the FOA
 - DOE's Grants and Contracts Office (lawyers) draft the majority of the FOA text
 - Little guidance from HEPAP Subpanel meant more PM leg work to [determine the appropriate topics](#)
 - Coordination with NSF PMs to ensure no overlap with other programs
 - Brief DOE Office of Science Leadership on the FOA
- ◆ Once an FOA is out a PM does outreach
 - Draft emails to send to PI mailing lists
 - Give talks and webinars
 - Meet with PIs to answer questions
 - Maintain public [FAQs](#) to address common PI questions



DOE TRAINEESHIP IN COMPUTATIONAL HIGH ENERGY PHYSICS

FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) NUMBER: DE-FOA-0002743

FOA TYPE: INITIAL
CFDA NUMBER: 81.049

FOA Issue Date:	April 28, 2022
Submission Deadline for Applications:	June 30, 2022, at 11:59 PM Eastern Time

Review of Proposals

- ◆ Once the proposals are submitted they must be reviewed
 - First for logistical requirements, did they follow the restrictions? Number of pages, letters of collaboration, etc.
 - Then for technical merit
 - The review criteria are defined in the FOA in priority rank order
 - The first four are set by law, but guidance questions to reviewers can be edited
- ◆ PM is responsible for the review process
 - Identifying reviewers, following up to make sure they submit their reviews, and redacting the reviews in case anything should not be shared with the PI
 - If a panel review is held the PM is responsible for coordinating the event. The hotel, reviewers, agenda, etc.
 - Program Analysts support these activities: PAMS, ORISE, honoraria, etc.
- ◆ Recommendations on what proposals to award and to decline
 - In my experience there are always more proposals you wish you could fund than available support
- ◆ This process must be documented and involves plenty of paperwork
 - PMs are reviewed by [Committee of Visitors \(COV\)](#) to evaluate how well we have met the needs of the community

Managing On Going Programs

- ◆ Once funding decisions are made, PMs discuss any changes or concerns with PIs
 - New institutions or PIs, differences in funding profiles, new opportunities, etc.
- ◆ PIs submit progress reports every year
 - PM keep track of how each project is progressing, what students are working on, who they are partnering with, etc.
 - If there are issues PMs try to help address them
- ◆ PMs make themselves available to the community to get feedback and answer questions, at events like this