

CP&D - description

- Identify and promote **career** opportunities --- HEP and non-HEP
- Identify and promote **varied skill** development --- technical, computational, communication, career-building
- Encourage career plans based on aptitude (**which abilities → which career**)
- Encourage broader **mentorship** toward a variety of career paths
- Training/partnership programs to boost industry careers, 4-yr institution careers, and alumni connections
- Synergy with **other Topical Groups** in CEF → vision for development of career opportunities and paths

LOIs (CP&D)

Thanks for submitting LOIs

	LOI category	LOI number	LOI topic
1	Enhancing HEP research in 4-yr institutions and community colleges	13	Investment in Research Experiences for Community College Students (overlap with diversity)
		16	Improving access to careers within HEP 4-yr institutions
	Primarily CP&D	26	Study of New Mechanisms for Faculty Collaboration across Academia
		7	Increasing Awareness of and Participation in the Visiting Faculty Program (may also fit in 4-yr colleges category)

2	Tackling Diversity and Inclusiveness in HEP	11	Bias (and Stereotype) in job Seeking
		9	Creating a Research Internship Program to Increase the Number of Minorities in Particle Physics
		5	Towards Equitable Hiring in High Energy Physics
		6	Training a Diverse HEP Workforce in Small Neutrino Experiments
	With Div & Inc TG	22	Preparing and Educating the Research Community and the Public for Particle Physics over the next two decades (2021-2040)
		10	Building the Pipeline
		20	Recruitment, Evaluation, and Recognition
		12	Engineering roles and identity (can also fit in Diversity category)
		3	Physics in Mozambique: the next "Big Thing" (May also fit with Diversity)
		34	Nuclear Magnetic Resonance analysis of biofuels in Mozambique (+ Diversity)

3	Retuning Physics Education and Early introduction of HEP in academic curriculum	24	Restructuring the High School Physics Curriculum
	With Phys Ed TG	25	Understanding and Maximizing Access to Particle Physics at the Undergraduate Level
		23	Rethinking Physics in Secondary Education: Purpose and Practice

4	Retention and reversing the brain drain in HEP	18	Brain Drain and Reversing it
	Primarily CP&D	8	Resources for Academic Jobs

5	Facilitating transition to Industry Career	15	HEP Industry partnership and mobility
		21	Study of the Potential for a new Masters Degree in Applied Physics
	Primarily CP&D	17	Improving Access to Careers beyond HEP
		19	Snowmass Early Career Longterm Organization

6	Enabling science and careers via the software, data and computing in HEP	27	Coherent Vision for Enabling Software Training in HEP
		29	Supporting Research at the Intersection of Physics and Machine Learning
	With Outreach TG & Comp Frontier	28	Open Science by and for HEP
		30	The Femtography Project (can also fit in HEP and software)

7	Access to accelerators and instrumentation knowledge for HEP and related careers	1	An International Exchange Framework for Research in Beam Physics and Accelerator Technology
		2	The Joint Universities Accelerator School
	With A&I TG, Acc & Inst Frontiers	14	Early-career Needs in Instrumentation
		31	Mutual Benefits derived from the Application of Neutrino Physics to Nuclear Energy & Safeguards

Questions to the frontiers

1. There are academic jobs in 4-year institutions (URI) which are very attractive alternatives to highly competitive R1 jobs. URI institutions can favorably affect diversity and inclusiveness in a collaboration. **Faculty who join URIs face several hurdles:** heavy teaching load, funding insecurity compared to R1 peers, high experiment fees & service work. Collaborations are sensitive and do try to help but that is more of an exception than a norm. **How can each frontier work on finding ways to mitigate these obstacles?**
2. **How would each frontier/collaboration engage in HEP wide common training (software and hardware)?** A great example is IRIS-HEP/HSF in the software (and HL-LHC) realm. This endeavor is critical to enable the next generation in solving future challenging issues in HEP. This also requires experimental collaborations to collaborate among each other. **How can we do that despite the fact that each experiment has its own unique challenges?**
3. Given that 70% of physics PhDs join industry, **we need an organised effort to streamline the process of finding jobs in industry** (from the HEP side). Several LOIs suggest ways to do that but it would require efforts by dedicated personnel in a continuous manner. **We need to connect HEP with alumni, or keep alumni connected with HEP.** (ex: <https://alumni.cern>). We should develop central resources to facilitate this process. This would make our field sustainable by attracting the best talent and providing them with the security of a job search support and networking system. **How do the Snowmass Frontiers value this idea, and how can each frontier help?** We think that DOE labs are hubs for HEP and might want to lead on this with help from the HEP community.

Next Steps

- What Needs to occur between now and next July's Community Summer Study on a variety of topics
 - Working on organizing LOIs
 - Names of white papers and contributors
 - Building survey questions to collect data on community needs/opinions
 - What does it take to achieve proposed ideas in LOIs?
- Focus on inter-frontier discussions and establish cross-working-group connections
 - What input do we need from other Frontiers?
- Provide space for members across the field to talk to each other and to discuss, promote, and develop new ideas
- Identify gaps and further input needed to achieve Snowmass goals