**Career Pipeline & Development Meeting**

**Monday, November 29, 2021**

**1:00 PM – 2:20 PM EST**

**Attended:** Aneliya Karadzhinova-Ferrer, Sudhir Malik, Kevin Flood, Matthew Bellis, Joel Butler, Kétévi Assamagan, Daria Wang

**Action items:**

* Aneliya will contact SEC and ask for all questions/answers relevant to CP3. She will share the information as soon as she receives it.
* Aneliya will create slides with plots.
* Kevin will review the shared directory files and the survey questions.
* Kevin will add his thoughts into the skeleton of the paper.
* Reach out to APS to request a list of vendors from them.

**Summary:**

* Within this group, there is a total of 2 Contributed Papers (CP1 and CP3). CP2 is discontinued and all files are saved in the shared directory to keep track of what we have accomplished. D&I group will be working on the CP2 topic.
* We have almost 1500 responses to the EC survey. Snowmass 2021 Survey Questions relevant to CP#3 <https://docs.google.com/document/d/1-1DCWFMTeh_rbENVdqTndZUsTpG6HKSuCGFpgbxPsqQ/edit>

Questions highlighted in dark orange color are most important.

* Snowmass2021Survey\_CEF.csv file path: <https://drive.google.com/file/d/1f4XZ1C1E8dwEjrvtw3aGZ0t4AjrmkN_F/view?usp=sharing>
* All materials relevant to the paper are collected here. Any new ideas can be added here as well:

<https://docs.google.com/document/d/1XThBFps1b6CWGlQk4KAxEh0ap-oqpqmdz95NqzkrGAA/edit>

* Questions cover demographics and pipelining, satisfaction in the field, satisfaction in the job. Survey does not include look-back questions for people in senior positions because our focus is on pipeline. We focused on seniors having interest in starting joint programs with academia and industry collaborating for the benefit of students. We have asked if they would be interested in mentoring students, and if they would be willing to send their students to be mentored by industry – those are questions for senior scientists.
* Most responses are from people in research and national labs, not industry. Need to establish connections between those folks and types of industry that support them. In accelerator sector and instrumentation it is done more straightforwardly. Need to find other types of industry or market segments that connect with HEP with ability to incubate technical skills and expose students to appropriate opportunities. Other markets? Hardware or Services? Summer internships.
* Devices for environmental monitoring. Companies are starting to look towards collecting experiences from young scientists. There are people who left CERN and they come back to share their experiences. It’s not so much about big data analysis, but about creating devices for monitoring. Observation hardware. It is not close to core of particle detectors, but they are interesting projects that are using particle detectors knowledge to create new devices. Applications of everything we’ve done in particle physics.
* CMS had a much more evolved outreach programs in comparison to ATLAS. Looking at diversity as an issue to be studied and addressed. Bringing awareness to the Snowmass process, filter it up to the folks who are going to be looking at one-page executive summaries. White paper is a supporting document for a one pager which will be knit into the final report. One good way to organize a white paper is with an eye towards this executive summary. Leverage the experience and provide foundation across a broader scope of American technical junior people, taking care of the pipelining aspects. CERN is doing pipelining for several generations now. Create actionable items within CP3, working examples from CMS and others, such as SBIR etc.
* <https://www.energy.gov/science/sbir/small-business-innovation-research-and-small-business-technology-transfer>
* CP should be approx. 10-15 pages. Show the results, where they lead us to, what plots we want to show and add interviews with people. 7 pages of exposition (words) plus interviews, data graphs etc. Anecdotal experiences are very important. Give examples people can relate to, see something that applies to them.
* In Europe people have to pick the field and be very serious about it. You cannot fail a single year in your studies. That mindset is not the same in the US because there are more opportunities. We want to encourage people that they do not have to go into academia when they join HEP. The hardware part is lacking. There are people who love doing hardware but they are discouraged at the beginning with an implication that they will just be a technician.
* At UH there is instrumentation faculty that works with HEP. Universities are interested in external funding. External funding comes from projects and disciplines. Industry provides opportunities that we can raise awareness of. It might be useful to reach out to instrumentation frontier and understand how we can synergistically connect with them in terms of Snowmass process, understand where it might be advantageous to focus resources, looking at synergies along the lines of opportunities that frontiers can provide. Instrumentation is a broad frontier and provides opportunities for hardware. (Discussions with Farah from Instrumentation Frontier have been started.)
* We have many examples of non-HEP career transition into industry. In the CP, we want to outline if somebody wants to do it, how can they do it, when, where, who they need to contact, how they can connect to the community (this is especially lacking in the US). Need to map out these opportunities so people can find their own way to the place most advantageous to them. It is important to expose viable pathways, so that they feel that if they step out of HEP, they are contributing to the bigger picture of science anyway.
* APS Meeting. We want to draw on APS and understand who is exhibiting at the event. These are the businesses providing opportunities.
* Need to create CP abstract to capture main findings of the paper so it can be carried over into the final report, so that people who don’t have time to read the paper see the well-crafted abstract with the main message.
* Kevin is joining conveners to work on CP3.
* Final paper due in March 2021.
* Meetings are taking place bi-weekly on Mondays at 1pm EST. Next meeting on December 13, 2021.