Computation ↔ Community Engagement
– opportunities for working together

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What is the liaison role? How can we work together?

- My role as liaison between the two frontiers…
  - I am a computational accelerator physicist & a small business founder
  - I'm new to this role, so: guidance and feedback are very welcome ☺
- I posed the following questions to the topical group conveners:
  - What does this CE topical group need from the Computational Frontier?
  - How can Comp Frontier participants engage with your topical group?
  - What can your topical group offer to the Computational Frontier?
- I suggest topical group conveners of the Computational Frontier should consider these 3 questions regarding the Community Engagement Frontier

Community Engagement Frontier – topical groups

Kétévi A. Assamagan (BNL) & Breese Quinn (U. Mississippi)

- CommF1: Applications & Industry
  - Farah Fahim (FNAL), Alex Murokh (RadiaBeam), Koji Yoshimura (Okayama)
- CommF2: Career Pipeline & Development
  - Sudhir Malik (UPRM), Yangyang Chen (Cornell), Amr El Zant (BUE), Julie Hogan (Bethel U.)
- CommF3: Diversity & Inclusion
  - Mu-Chun Chen (UCI), Samuel Meehan (CERN),
    Carla Bonifazi (UFRJ), Kétévi Assamagan (BNL)
- CommF4: Physics Education
  - Randal Ruchti (Notre Dame), Sijbrand de Jong (Radboud), Sudhir Malik (UPRM)
- CommF5: Public Education & Outreach
  - Sarah Demers (Yale), Kathryn Jepsen (SLAC)
    Don Lincoln (FNAL/Notre Dame), Azwinndini Murongo (NMU)
- CommF6: Public Policy and Government Engagement
  - Rob Fine (Rochester), Louise Suter (FNAL), Brajesh C. Choudhary (Delhi)

CommF1: Applications & Industry

- Conveners: Farah Fahim (FNAL), Alex Murokh (RadiaBeam), Koji Yoshimura (Okayama)
- Description:

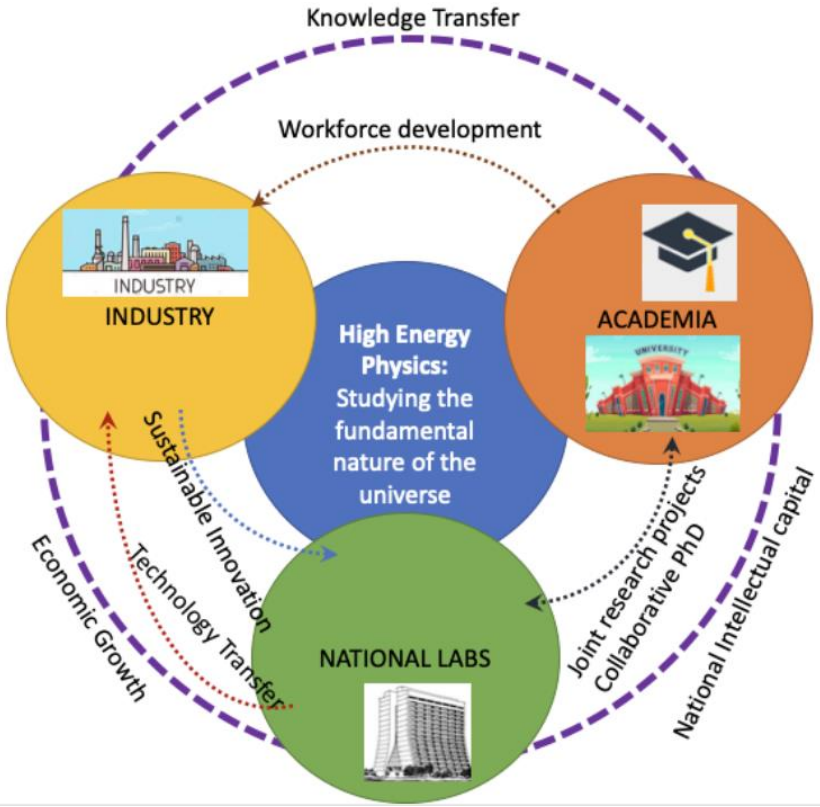
  The objective is to develop strategic planning and engagement that promote applications and technology transfers of knowledge gained in particle physics research. In addition, we would like to develop and improve mechanisms to disseminate impacts.

Presentation from the CE townhall:

Objectives

Create an ecosystem congenial to the pursuit of discovery

- ✓ Joint research projects, collaborative PhD
- Workforce Development
- Technology Transfer
- Sustainable Innovation
  - Technological base and infrastructure development
  - Strategic investment into next generation technologies



CommF2: Career Pipeline & Development

- Conveners: Sudhir Malik (UPRM), Yangyang Chen (Cornell)
  Amr El Zant (BUE), Julie Hogan (Bethel U.)
- Description:
  The objective to identify and encourage options to promote the skill development of physics graduates and young researchers, create careers and employment opportunities, and encourage placements based scientific majors and skills.

- Here is one relevant remark, paraphrased from a recent Computational Frontier conveners meeting:
  - "A good area of collaboration would be career opportunities and training for software developers in the HEP community."

Responses to the questions: **CP&D**

- Caveat: convener responses have been paraphrased/edited for brevity

- What does this topical group need from the Computational Frontier?
  - Networking is key to finding jobs outside academia.
    - How do we facilitate such networking? What tools do we need?
  - "Data Scientist" and several other software industry jobs are directly related to skills in HEP computing.
    - How do we facilitate transitions in both directions?
  - One useful example is https://alumni.cern
    - CERN maintains this site to connect prospective employees with employers.
    - How can we build on this idea?
- How can Comp Frontier participants engage with your topical group?
  - Physics Education LOI no. 3 on Training describes ways to engage

    https://docs.google.com/document/d/10HLb7E37UFuu74tQmLBsnnId7v8Z8sI2Knu-ZGnGTBE/edit

CommF3: Diversity & Inclusion

- Conveners: Mu-Chun Chen (UCI), Samuel Meehan (CERN), Carla Bonifazi (UFRJ), Kétévi Assamagan (BNL)
- Description:

  This topical group is focused on issues and projects related to (1) **Diversity**, (2) **Inclusion**, and (3) **Equity**. All three are essential not only to professional success in our field, but to developing a better society at large. We aim to gather information concerning diversity/inclusion/equity in our field, instances of success and failures, actions that have been taken by individuals and organizations to promote our core tenets. Ultimately, we aim to produce recommendations and resources that are tailored to particle physics, cosmology, and astrophysics that promote diversity and encourage inclusion and equity at all levels of scientific discourse, engagements and managements.

- One interaction to date:
  - Prof. Chen (UCI) is participating in the CompF5 breakout session of this workshop.

Responses to the questions: **D&I** (part 1)

- Caveat: convener responses have been paraphrased/edited for brevity

- What does this topical group need from the Computational Frontier?
  - Active engagement from people for whom computation is their most active frontier.
  - There is an impression that Comp Frontier participants don't really care about EDI.
  - EDI issues are not "someone else's responsibility".
  - With a small amount of time and effort from everyone, adiabatic change is possible.
  - When we send out surveys, fill them out.
    - Recent accessibility survey: only 157 respondents
    - The #comp_frontier_topics Slack channel includes 187 people.
    - What does it mean if you won't take 5 minutes to fill out a survey?
    - This sort of data collection is essential.
  - A relevant LoI, "Making the Most of Our ("Old") Computing Resources" – https://docs.google.com/document/d/1UQY5x11hqC8zaZlM7xEVvX42zxdifAh4YfPAXS8cPVs/edit#heading=h.ynrk94rds6qg
    - A task force of senior individuals is needed to help make this a reality.
    - Comp Frontier participants are uniquely qualified to help

Responses to the questions: **D&I** (part 2)

- Caveat: convener responses have been paraphrased/edited for brevity

- How can Comp Frontier participants engage with your topical group?
  - Townhalls - Roughly every two weeks and target issues in a way that:
    - allows people to express themselves
    - or simply listen and learn
  - Look at the group LoI's – https://docs.google.com/document/d/1glKb_7-McPsBpCF4xFJrx7h0ScycpfIEDRyqmcQYaLA/edit
    - see if a Broad Topic piques your interest
    - if you have thoughts or opinions, sign your name to the author list
    - the goal is to create focused groups for these topics to help them evolve into actual Snowmass projects
    - since EDI issues are sometimes hard to pin down, unless you already are involved in them, the intent is to create an entry point for people who feel this is important.

Responses to the questions: **D&I** (part 3)

- Caveat: convener responses have been paraphrased/edited for brevity

- What can your topical group offer to the Computational Frontier?
  - A broader institutional "reach"
  - We have a number of LoI's that are about bringing into the "HEP fold" communities which are currently not present.
  - If you feel there is a "lack of person power" in the computational domain, then one pragmatic result of D&I efforts will be increased recruitment.

CommF4: Physics Education

- Conveners: Randal Ruchti (Notre Dame), Sijbrand de Jong (Radboud), Sudhir Malik (UPRM)
- Description:

  Research in particle physics needs to be supported by a strong and effective physics education to train the next generation of physicists. The objective is to identify where improvements are needed and propose improved methods to prepare and deliver physics instructions or lessons.

- Topical group CompF3: Machine Learning is emphasizing education
  - It seems natural that these two groups should work together

Responses to the questions: **Physics Education**

- Caveat: convener responses have been paraphrased/edited for brevity

- What does this topical group need from the Computational Frontier?
  - Proposed software training will benefit from experts in the CF community.
  - Our two frontiers should work together to develop the required software training community, including the development/training of instructors.

- How can Comp Frontier participants engage with your topical group?
  - Physics Education LOI no. 3 on Training describes ways to engage

    https://docs.google.com/document/d/10HLb7E37UFuu74tQmLBsnnId7v8Z8sI2Knu-ZGnGTBE/edit

CommF5: Public Education & Outreach

- Conveners: Sarah Demers (Yale), Kathryn Jepsen (SLAC)
  Don Lincoln (FNAL/Notre Dame), Azwinndini Murongo (NMU)
- Description:

We need to develop (or improve) effective means to communicate the research, its results, applications and impacts to the general public, students and policymakers. Through outreach programs, the community of physicists should generate enthusiasm and interest in physics, particularly among pupils.

- Here is one relevant remark, paraphrased from a recent Computational Frontier conveners meeting:
  - "Shared teaching modules (computing oriented) for people outside the particle physics community would be very valuable. For example, one could use HEP domain teaching modules to engage with data scientists."

Responses to the questions: **PE&O**

- Caveat: convener responses have been paraphrased/edited for brevity

- What does this topical group need from the Computational Frontier?
  - CF topical groups should have a standing agenda item on the importance of PE&O.
  - Some CF participants should also participate in PE&O meetings.
- How can Comp Frontier participants engage with your topical group?
  - It will be appreciated if CF participants can join our meetings and if we could be invited to participate in the CF meetings to discuss PE&O
  - Perhaps we should schedule special (less frequent) collaborative meetings…
- What can your topical group offer to the Computational Frontier?
  - CF will benefit from our surveys regarding the why and how of PE&O.
  - CF will learn about the alignment of PE&O activities with other HEP priorities.

CommF6: Public Policy & Government Engagement

- Conveners: Rob Fine (Rochester), Louise Suter (FNAL), Brajesh C. Choudhary (Delhi)
- Description:

The importance to maintain effective and continuous presence and engagement in all sectors of society, in particular with government and policymakers, should be well articulated. Physicists should be trained and promote these images of societal engagements that may erase stereotypes and improve public perceptions. This should be accompanied by well-articulated, yet realistic, presentations of our activities with the objective to sustain or augment support for fundamental and applied physics.

- No input today
  - I accept responsibility here.
  - I have not yet participated in any PP&GE group meetings, and I did not allow much time for a response to my questions.