Welcome to Snowmass Town Hall Meeting

This session is being recorded
Consent is implied by participating this session

April 18, 2020

Young-Kee Kim
University of Chicago
DPF Chair

Announcement

DOE/NSF meeting with Early Career Scientists

Monday, April 20, 2020
12:40 – 13:40 EDT

https://indico.cern.ch/event/908903/

Today's Agenda

Time	Topic
5:30 pm – 5:40 pm EDT	Remarks from DOE and NSF
5:40 pm – 6:20 pm EDT	Snowmass 2021 - Overview + Status + Plan • Overview (15') • Ten Frontiers (30') – 2' per Frontier
6:20 pm – 7:20 pm EDT	Community voices • Each Speaker < 2' + Response by Conveners (~0.5')

Remarks from Funding Agencies

- Glen Crawford
  - Director, Research and Technology Division
  - Office of High Energy Physics
  - Department of Energy

- Saul Gonzalez
  - Program Director
  - Division of Physics
  - National Science Foundation

Snowmass

long-term planning exercise for the particle physics community

Its goal is to develop the community's long-term physics aspirations.

Its narrative will communicate
the opportunities for discovery in particle physics
to the broader scientific community and to the government.

U.S. Strategic Planning Process for Particle Physics

~year-long process
Snowmass Community-Wide "Science" Study
Organized by Division of Particles and Fields (DPF) of APS

Input to P5

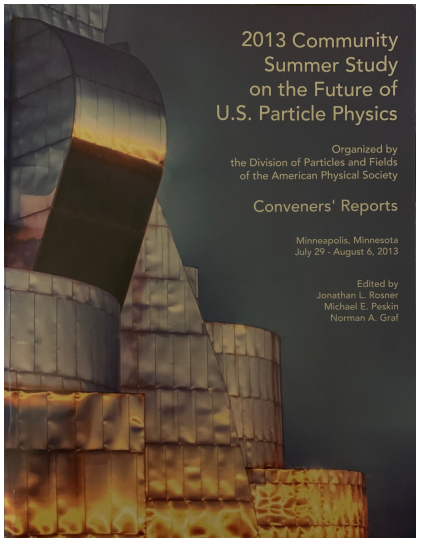
~year-long process
P5 (Particle Physics Project Prioritization Panel)
formulate a 10-year plan (20 year vision) within funding constraints
Subpanel of HEPAP, High Energy Physics Advisory Panel for DOE/NSF funding agencies

Long-Range Plan for Nuclear Science (ν-less double beta decay)
Decadal Survey on Astronomy and Astrophysics (dark energy, CMB)
HEPAP Accelerator R&D Subpanel Report
.....

Snowmass 2013

Snowmass Planning Meeting at Fermilab, October 2012
Various frontier workshops in multiple locations

Snowmass Summer Study at Minnesota (July 29 – August 6, 2013)



Snowmass Report (December 2013)

A successful Snowmass process results in community buy-in, even when hard budgetary decisions need to be made

Snowmass Topics led to P5 Science Drivers

Snowmass 2013 Report

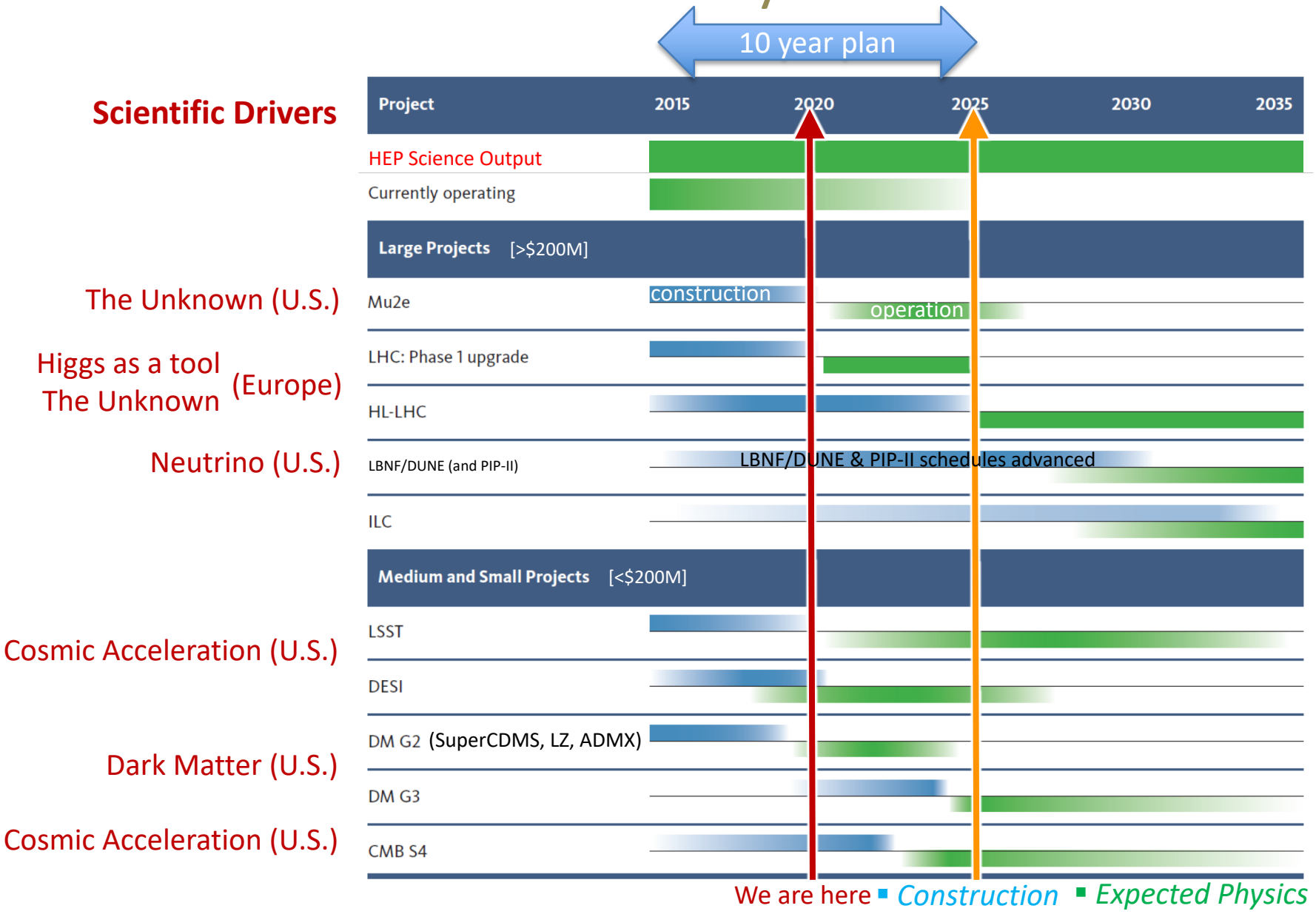
- Frontiers
  - Energy Frontier
  - Intensity Frontier
  - Cosmic Frontier
- Cross-Cutting
  - Facilities (Underground and Accelerator)
  - Instrumentation
  - Computing
  - Theory
  - Communication

P5 2014 Report

Five intertwined scientific Drivers were distilled from the results of a yearlong community-wide study:

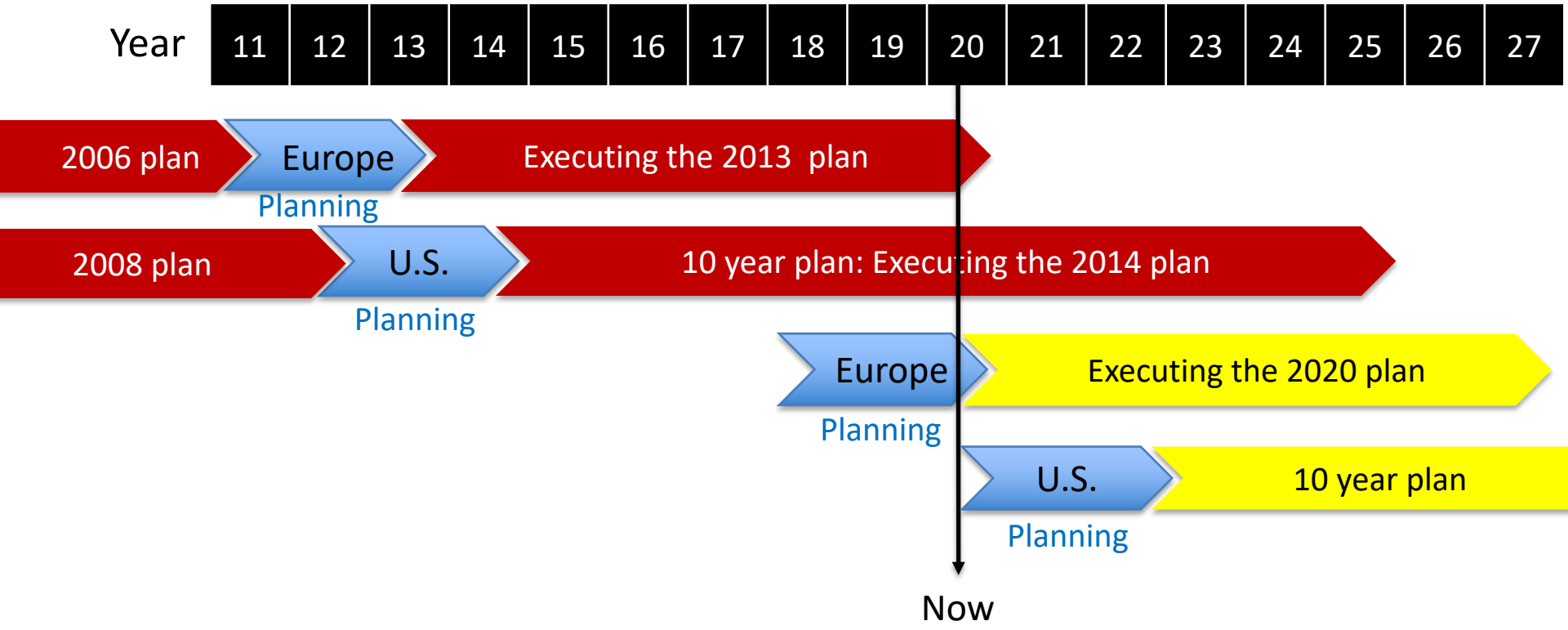
- Use the Higgs boson as a new tool for discovery
- Pursue the physics associated with neutrino mass
- Identify the new physics of dark matter
- Understand cosmic acceleration: dark energy and inflation
- Explore the unknown: new particles, interactions, and physical principles

P5 2014 has been very successful !!



Particle Physics is Global

- Europe and U.S.
  - Frequency: 7 years (Europe), ~8 years (U.S.)
  - Process: ~2 years in total (~1 year on science + ~1 year priorities)
    - ~1 year on science: Snowmass (U.S.)
    - ~1 year priorities: P5 (U.S.)
- Japan, Canada, China, …



Snowmass 2021

- Successful Snowmass 2013 is our model!
  - Implement lessons learned from Snowmass 2013
- Snowmass 2021: Ten Frontiers
  - Energy Frontier
  - Frontiers in Neutrino Physics
  - Frontiers in Rare Processes & Precision Measurements
  - Cosmic Frontier
  - Theory Frontier
  - Underground Facilities and Infrastructure Frontier
  - Accelerator Frontier
  - Instrumentation Frontier
  - Computational Frontier
  - Community Involvement
- DPF Executive Committee + DPF Program Committee
  - Initial organization work
  - Scope of each Frontier + first draft of subgroups of each Frontier
  - Facilitate convener nominations

Create a transparent and inclusive process

- General call for frontier & topical convener nominations
  - Closed November 15, 2019
  - Self-nominated, by peer, or by a small group
- Frontier co-conveners
  - December 2019
  - Chosen by elected representatives (DPF EC + Chair-line of DAP, DNP, DPB, DGRAV)
  - Based on balance: senior/junior; theory/experiment; gender; region; labs/univ.s
  - ~3 co-conveners for each of the 10 Frontiers
- Dates and sites of Planning Meeting and Summer Study
  - Snowmass Planning Meeting: November 4-6, 2020 at Fermilab
  - Snowmass Summer Study: July 11-19, 2021 at UW Seattle
- Engage DAP, DNP, DPB, DGRAV in the process from the beginning

Snowmass Advisory Group (Steering Group)

- DPF Executive Committee
  - Chair: Young-Kee Kim
  - Chair-Elect: Tao Han
  - Vice Chair: Joel Butler
  - Past Chair: Prisca Cushman
  - Secretary/Treasurer: Mirjam Cvetic
  - Councilor: Elizabeth Simmons
  - Member-at-Large: Rick Van Kooten
  - Member-at-Large: Elizabeth Worcester
  - Member-at-Large: Natalia Toro
  - Member-at-Large: Andre de Gouvea
  - Member-at-Large: Mary Bishai
  - Member-at-Large: Lauren Tompkins
  - Early Career Member-at-Large: Sara Simon
- Representatives from other Divisions
  - DPB: Sergei Nagaitsev
  - DNP: Yury Kolomensky
  - DAP: Glennys Farrar
  - DGRAV: Gabriela Gonzales

Steering Group

- International Community Representatives
  - 2 from Americas
    - Canada
    - Latin America (Claudio Dib)
  - 2 from Europe + Russia
    - EPS HEPP (Val Gibson)
    - APPEC (Berrie Giebels)
  - 2 from Asia + Pacific
  - 1 from Africa + Middle East
    - IUPAP C11 (Azwinndini Muronga)
- Editor and Communication
  - Editor – Michael Peskin
  - Communication – Bob Bernstein

Further Preparation Work

- Monthly meetings: all Frontier conveners + Advisory group
- Weekly meetings: Steering group

- Establishing topical groups and topical group conveners
  - 6~10 topical groups for each frontier
  - ~3 co-conveners for each topical group
  - Topical group leaders from all the compiled nominations + others (e.g. international members), endorsed by the Steering Group

- Planning workshops
  - Initial discussions on frontier-level/ topical-level workshops

- Community contributions and communication
  - Community contributions: Letters of Interest and Contributed Papers
  - Young generation's involvement: Snowmass Young
  - Snowmass Wiki: One-Stop Source (https://snowmass21.org/)
  - DPF monthly Newsletter and DPF Webpage (https://www.aps.org/units/dpf/)
  - Email: snowmass@fnal.gov, snowmass-young@fnal.gov, spokespersons, …
  - Slack Channels (https://snowmass2021.slack.com/)

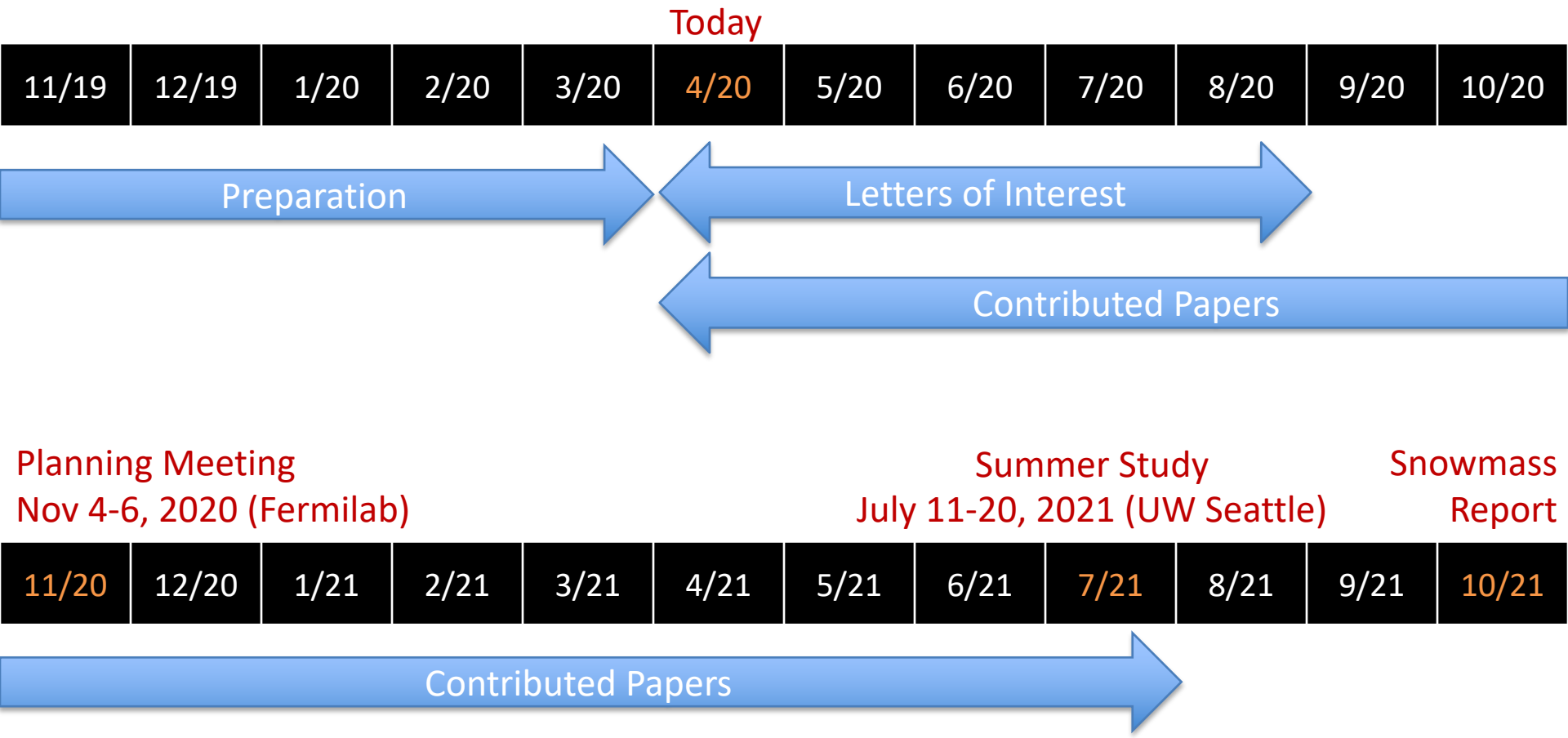
Community Contribution

- Letters of Interest (submission : April 1, 2020 – August 31, 2020)
  - Allow conveners to see what proposals to expect and to encourage the community to begin studying them. Help conveners to prepare the Snowmass Planning Meeting (Nov. 4 - 6, 2020 at Fermilab).
  - Letters should give brief descriptions and cite the relevant papers to study.
  - Submission instructions: https://snowmass21.org/loi
  - Authors are encouraged to submit a full writeup as a contributed paper

- Contributed Papers (submission : April 1, 2020 – July 31, 2021)
  - Part of the Snowmass proceedings.
  - White papers on specific scientific areas, technical articles presenting new results on relevant physics topics, and reasoned expressions of physics priorities, including those related to community involvement.
  - These papers and discussions throughout the Snowmass process will help shape the long-term strategy of particle physics in the U.S. Contributed papers will remain part of the permanent record of Snowmass 2021.
  - Submission instructions: https://snowmass21.org/submissions/.

Timeline

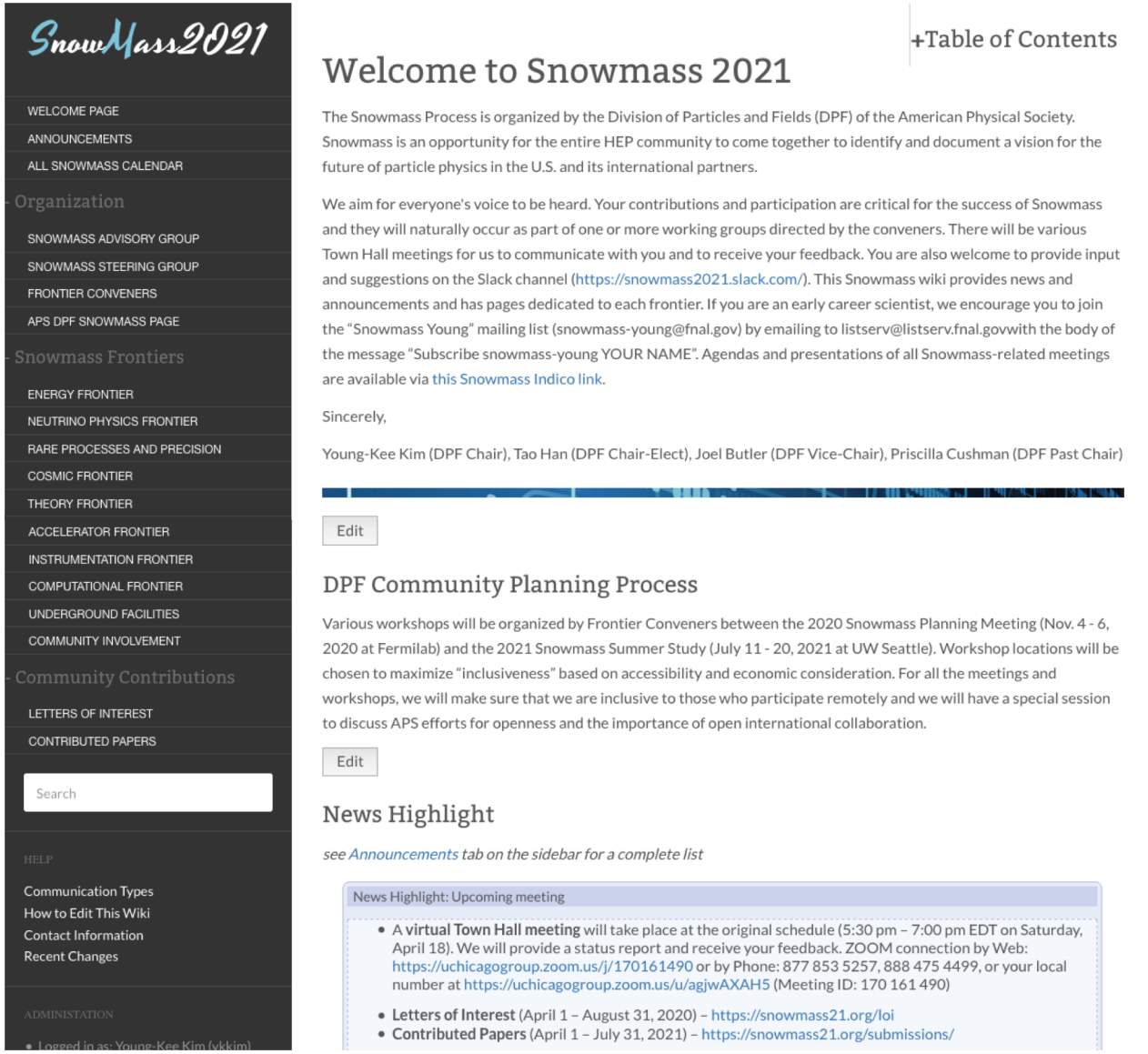
We are ahead of the curve compared to Snowmass 2013



Snowmass Young

- The Snowmass 2021 process will develop a long-term strategic plan
  - Voices of early career members are critically important
  - Enrich and strengthen Snowmass-Young (SNOWMASS-YOUNG@LISTSERV.FNAL.GOV)
- Forming a representative group for Snowmass Young
  - Soliciting nominations
  - Nominees: early career members (e.g. grad students, postdocs, etc.). Nominees need not be APS members to participate in the process. Nominations can include self-nominations and will be open until **May 11, 2020** through the google form: https://forms.gle/Xpd4jW3Y6oxcXxmD7
  - Coordinated by
    - Sara Simon, 2020 DPF Executive Committee Early Career Member
    - Fernanda Psihas, 2019 DPF Executive Committee Early Career Member

Snowmass Wiki (One-Stop Source)



https://snowmass21.org/

Sergei Chekanov (ANL)

About Community Communication

The Snowmass process is a dynamic exchange of ideas across a large swath of the community. These exchanges will take place in a variety of virtual (e.g., slack) and in person (e.g., workshops) formats.

It is imperative that all DPF community members feel safe and supported in engaging in all exchanges.

> There have been incidents on our slack workspace in which some community members have experienced negative interactions.
>
> We formed the DPF Ethics Task Force and are working on community guidelines for our slack workspace and for meetings / workshops to educate our community about microaggressions and to proactively work to provide a supportive environment.
>
> Instituting a moderator process is one tool we will employ to address concerns as they arise on slack.

We regret not having this set up in advance. We will be circulating draft guidelines for comment on the time scale of a few weeks.

Energy Frontier

Meenakshi Narain (Brown U)

Laura Reina (FSU)

Alessandro Tricoli (BNL)

Topical Group			Topical Group co-Conveners		
EF01	EW Physics	Higgs Boson properties and couplings	Sally Dawson (BNL)	Andrey Korytov (U Florida)	Caterina Vernieri (SLAC)
EF02		Higgs Boson as a portal to new physics	Patrick Meade (Stony Brook)	Isobel Ojalvo (Princeton)	
EF03		Heavy flavor and top quark physics	Reinhard Schwienhorst (MSU)	Doreen Wackeroth (Buffalo)	
EF04		EW Precision Phys. & constraining new phys.	Alberto Belloni (Maryland)	Ayres Freitas (Pittsburgh)	Junping Tian (Tokyo)
EF05	QCD and Strong Interactions	Precision QCD	Michael Begel (BNL)	Stefan Hoeche (FNAL)	Michael Schmitt (NW)
EF06		Hadronic structure and forward QCD	Huey-Wen Lin (MSU)	Pavel Nadolsky (SMU)	Christophe Royon (Kansas)
EF07		Heavy Ions	Yen-Jie Lee (MIT)	Swagato Mukherjee (BNL)	
EF08	BSM	Model specific explorations	Jim Hirschauer (FNAL)	Elliott Lipeles (UPenn)	Nausheen Shah (Wayne State)
EF09		More general explorations	Tulika Bose (UW-Madison)	Zhen Liu (Maryland)	Simone Griso (LBL)
EF10		Dark Matter at colliders	Caterina Doglioni (Lund)	LianTao Wang (Chicago)	

Energy Frontier: Plans

- Bi-weekly meetings with Topical Group conveners
- We are arranging meetings with other Frontier conveners
- Workshops with the community
  - **Kick-off Meeting: Thursday May 21, 2020 (full day)**
  - **EF Workshop: July 9-10, 2020 (two full days)**
  - Propose to hold joint sessions with other Frontiers at the EF workshops and the "general workshops" in Nov 2020, July 2021 etc).

- We encourage the community to contact Topical Group conveners with their ideas for LOI and contributed papers for the EF
- Snowmass21 SLACK: energy frontier topics
- Email lists for communication [all archived]
  - with the EF community SNOWMASS-ENERGY-FRONTIER-GROUP@fnal.gov
    - request members of the community to subscribe to this list
  - Contacting EF conveners and Topical Group conveners:
    - EF conveners: SNOWMASS-EF-CONVENERS@fnal.gov
    - All Topical Group conveners: SNOWMASS-EF-TOPICAL-GP-CONVENERS@fnal.gov
  - Emails for each of the 10 Topical Groups will be available via their wiki pages.

Neutrino Physics Frontier

Patrick Huber (Virginia Tech)

Kate Scholberg (Duke University)

Elizabeth Worcester (BNL)

Topical Group		Topical Group co-Conveners			
NF01	Neutrino Oscillations	Peter Denton	Megan Friend	Mark Messier	Hiro Tanaka
NF02	Sterile Neutrinos	Georgia Karagiorgi	Bryce Littlejohn	Pedro Machado	Alex Sousa
NF03	Beyond the SM	Pilar Coloma	Lisa Koerner	Ian Shoemaker	Jae Yu
NF04	νs from Natural Sources	Yusuke Koshio	Gabriel Orebi Gann	Erin O'Sullivan	Irene Tamborra
NF05	Neutrino Properties	Carlo Giunti	Ben Jones	Lisa Kaufman	Diana Parno
NF06	Neutrino Cross Sections	Jonathan Asaadi	Baha Balantekin	Kendall Mahn	Jason Newby
NF07	Nuclear Safeguards and Other Applications	Nathaniel Bowden	Jon Link	Wei Wang	
NF08	Theory of Neutrino Physics	André de Gouvêa	Irina Mocioiu	Saori Pastore	Louis Strigari
NF09	Artificial Neutrino Sources	Laura Fields	Alysia Marino	Pedro Ochoa	Josh Spitz
NF10	Neutrino Detectors	Josh Klein	Ana Machado	Dave Schmitz	Raimund Strauss

Neutrino Physics Frontier: Plans

- Liaisons:
  - Computational Frontier: Alex Himmel
  - Rare Processes and Precision Frontier: Bob Bernstein
  - Accelerator Science and Technology Frontier: Laura Fields
  - EF, CF: consulting with conveners
- Meetings: starting end of April
  - Regular Zoom meetings of topical group conveners+ liaisons
  - ~1 mini-workshop per topical group, some potentially joint with other frontiers (or each other)
  - 1 Neutrino Frontier workshop
- Communications:
  - **Please join Slack, #neutrinos channel**
  - Developing community mailing list (mostly announcements)

Rare Processes & Precision Mea.s Frontier

Marina Artuso (Syracuse U.)

Alexey Petrov (Wayne State U.)

Bob Bernstein (FNAL)

Topical Group		Topical Group co-Conveners	
RF01	Weak Decays of b and c	Angelo di Canto	Stefan Meinel
RF02	Strange and Light Quarks	Emilie Passemar	Evgueni Goudovski
RF03	Fundamental Physics and Small Experiments	Tom Blum	Peter Winter
RF04	Baryon and Lepton Number Violation	Pavel Filievez Perez	
RF05	Charged Lepton Flavor Violation	Sacha Davidson	Bertrand Echenard
RF06	Dark Sector at Low Energies	Stefania Gori	Mike Williams

Rare Processes & Precision Mea.s Frontier: Plans

- Regular email contact and meetings as needed. Formal structure under development

- Liaisons to each other frontier being named from co-conveners and topical conveners

- Planning a workshop in approximately March 2021 with smaller topical group mini-workshops as needed

Cosmic Frontier

Aaron Chou (Fermilab)

Marcelle Soares-Santos (Brandeis)

Tim Tait (UC Irvine)

Topical Group		Topical Group co-Conveners			
CF01	Particle DM	Jodi Cooley (SMU)	Tongyan Lin (UCSD)	Hugh Lippincott (UCSB)	Tracy Slatyer (MIT)
CF02	Wavelike DM	Joerg Jaeckel (Heidelberg)	Gray Rybka (UW)	Lindley Winslow (MIT)	
CF03	DM Astro Probes	Alex Drlica-Wagner (FNAL)	Chanda Prescod-Weinstein (NH)	Haibo Yu (Riverside)	
CF04	DE & CA The Modern Universe	Jeff Newman (Pittsburgh)	Masao Sako (Penn)	Anze Slosar (BNL)	Finalizing
CF05	DE & CA Cosmic Dawn & Before	Clarence Chang (ANL)	Deirdre Shoemaker (Georgia Tech.)	Finalizing	
CF06	Dark Energy complementarity	David Schlegel (LBNL)	Finalizing	Finalizing	
CF07	Cosmic Probes	Luis Anchordoqui (CUNY)	B.S. Sathyaprakash (Penn State)	Kirsten Tollefson (MSU)	Finalizing

Cosmic Frontier: Plans

- Finalizing last few topical conveners
- Cosmic Frontier Meetings: Zoom reports,

  biweekly → weekly
- In process of identifying liaisons with other frontiers.

- Workshops:
  - One cosmic frontier workshop devoted to dark matter [Date TBD].
  - One cosmic frontier workshop devoted to dark energy & cosmic acceleration [Date TBD].

Theory Frontier

Nathaniel Craig (UCSB)

Csaba Csaki (Cornell)

Aida El-Khadra (UIUC)

Topical Group		Topical Group co-Conveners			
TF01	String theory, quantum gravity, black holes	Daniel Harlow	Shamit Kachru	Juan Maldacena	
TF02	Effective field theory techniques	Patrick Draper	Ira Rothstein		
TF03	CFT and formal QFT	David Poland	Leonardo Rastelli		
TF04	Scattering amplitudes	Zvi Bern	Jaroslav Trnka		
TF05	Lattice gauge theory	Zohreh Davoudi	Taku Izubuchi	Ethan Neil	
TF06	Theory techniques for precision physics	Radja Boughezal	Zoltan Ligeti	#3	
TF07	Collider phenomenology	Fabio Maltoni	Shufang Su	Jesse Thaler	
TF08	BSM model building	Patrick Fox	Hitoshi Murayama		
TF09	Astro-particle physics and cosmology	Dan Green	Joshua Ruderman	Ben Safdi	Jessie Shelton
TF10	Quantum information science	Simon Catterall	Roni Harnik	Veronika Hubeny	

Theory Frontier: Plans

- Plan to hold community workshop at KITP in the spring of 2021, date TBA (March?)
- Will hold initial virtual meeting with topical conveners - discuss how to reach out to theory community
- Will send most appropriate representatives to other frontier's meetings

- Goal: To summarize the advances and future opportunities in all aspects particle theory, formal/string theory, cosmological and astro-particle physics and quantum information science. We are planning to focus on aspects of theory that are not directly focusing on serving an existing or already planned experimental project. We will closely coordinate with the theorists participating in the other frontiers to avoid excessive overlap.

Accelerator Frontier

Steve Gourlay (LBNL)

Tor Raubenheimer (SLAC)

Vladimir Shiltsev (FNAL)

Topical Group		Topical Group co-Conveners			
AF01	Beam Phys & Accel. Education	Z. Huang (Stanford)	M. Bei (GSI)	S. Lund (MSU)	
AF02	Accelerators for Neutrinos	J. Galambos (ORNL)	B. Zwaska (FNAL)	G. Arduini (CERN)	
AF03	Accelerators for EW/Higgs	M. Ross (SLAC)	Q. Qin (IHEP, Beijing)		
AF04	Multi-TeV Colliders	M. Palmer (BNL)	A. Valishev (FNAL)	N. Pastrone (INFN, Torino)	
AF05	Accelerators for PBC and Rare Processes	E. Prebys (UC Davis)	M. Lamont (CERN)		
AF06	Advanced Accelerator Concepts	C. Geddes (LBNL)	M. Hogan (SLAC)	P.Musumeci (UCLA)	R. Assmann (DESY)
AF07	Accelerator Technology R&D				
	Sub-group RF	E. Nanny (SLAC)	S. Posen (FNAL)	H. Weise (DESY)	
	Sub-Group Magnets	G. Sabbi (LBNL)	S. Zlobin (FNAL)	S. Izquierdo Bermudez (CERN)	
	Sub-Group Targets/Sources	C. Barbier (ORNL)	Y. Sun (ANL)	F. Pellemoine (FNAL)	

Accelerator Frontier: Plans and Status

- First meeting with topical group conveners (TGC's) was April 8th
- Now engaging TGC's to formulate structure and scheduling of future meetings
- Take advantage of scheduled workshops where overlaps exist
  - GARD ABP Workshop has overlap with Acc. Sci, Edu and Outreach
    - Will engage Workshop Organizing Committee and TGC
    - 4 segments (one per week) starting in April using Zoom
  - HB2020 October 5-9, 2020 at Fermilab
- Liaisons (so far)
  - Computation and Theory (Lian Tao Wang, U. Chicago), Rare Processes (Bob Bernstein, FNAL), Energy Frontier, Neutrinos
- Still working on . . .
  - Meetings with other frontiers
  - Community Workshops

Instrumentation Frontier

Phil Barbeau (Duke)

Petra Merkel (FNAL)

Jinlong Zhang (ANL)

Topical Group		Topical Group co-Conveners		
IF01	Quantum Sensors	Thomas Cecil (ANL), Kent Irwin (SLAC), Reina Maruyama (Yale), Matt Pyle (Berkeley)		
IF02	Photon Detectors	Juan Estrada (FNAL)	Mayly Sanchez (ISU)	Abigail Vieregg (Chicago)
IF03	Solid State Detectors&Tracking	Tony Affolder (UCSC)	Artur Apresyan (FNAL)	Lucie Linssen (CERN)
IF04	Trigger and DAQ	Darin Acosta (Florida)	Wes Ketchum (FNAL)	Stephanie Majewski (Oregon)
IF05	Micro Pattern Gas Detectors	Thomas Schwarz (Michigan)	Maxim Titov (SACLAY)	Sven Vahsen (Hawaii)
IF06	Calorimetry	Andy White (UTA)	Minfang Yeh (BNL)	Rachel Yohay (FSU)
IF07	Electronics/ASICS	Gabriella Carini (BNL)	Mitch Newcomer (UPenn)	John Parsons (Columbia)
IF08	Noble Elements	Eric Dahl (Northwestern)	Roxanne Guenette (Harvard)	Jen Raaf (FNAL)
IF09	Cross Cutting and System Integration	Jim Fast (PNNL)	Maurice Garcia-Sciveres (LBL)	Ian Shipsey (Oxford)

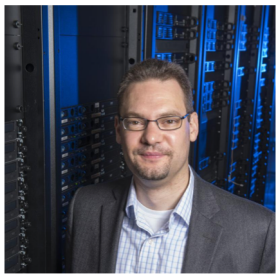
Instrumentation Frontier: Plans

- Meetings with topical group conveners within your frontier
  - 1ST all topical convener meeting on April 14
  - Regular monthly meeting planned
- Meetings with other frontiers
  - Being scheduled to discuss the liaisons and joint workshops (EF, CF, etc)
- Workshops with the community
  - Tentatively a virtual one in early summer 2020
  - Possibly 2nd one in Spring 2021
- ….

Computational Frontier

Steven Gottlieb (Indiana U)

Ben Nachman (LBNL)



Oliver Gutsche (FNAL)

Topical Group		Topical Group co-Conveners		
CompF01	Experimental Algorithm Parallelization	Guiseppi Cerati (FNAL)	Katrin Heitmann (ANL)	Walter Hopkins (ANL)
CompF02	Theoretical Calculations and Simulation	Peter Boyle (BNL)	Daniel Elvira (FNAL)	Ji Qiang (LBNL)
CompF03	Machine Learning	Phiala Shanahan (MIT)	Kazu Terao (SLAC)	Daniel Whiteson (Irvine)
CompF04	Storage and processing resource access (Facility and Infrastructure R&D)	Wahid Bhimji (NERSC)	Rob Gardner (U Chicago)	Frank Würthwein (UCSD)
CompF05	End user analysis	Gavin Davies (U.Mississippi)	Peter Onyisi (U Texas at Austin)	Amy Roberts (UC Denver)
CompF06	Quantum computing	Travis Humble (ORNL)	Gabriel Perdue (FNAL)	Martin Savage (U Washington)
CompF07	Reinterpretation and long-term preservation of data and code	Kyle Cramner (NYU)	Mike Hildreth (U Notre Dame)	Matias Carrasco Kind (Illinois/ NCSA)

Computational Frontier

- Coordination with other frontiers
  - Software & computing is important for almost all other frontiers, so close coordination is needed
  - Have asked other frontiers to dedicate a liaison to the computational frontier
- Topical Working groups conveners
  - Plan to meet bi-weekly initially, then monthly
  - Probably include liaisons for coordination rather than have separate meetings with the liaisons
- Workshops - two prong strategy
  - Considering dedicated workshop for software & computing
  - Asking other frontiers to attach software & computing sessions to their workshops
- Whitepapers and surveys
  - Will follow the Snowmass 2021 white paper process, and will ask working group conveners to ask for specific white papers from groups/individuals to write their reports
  - May design a survey with questions from the working groups to experiments/larger science collaborations to gather initial input for Snowmass 2021 process. Will precede that process by requesting information about existing reports/analyses.

Underground Facilities and Infrastructure

Jeter Hall (SNOLAB)

Kevin Lesko (LBNL)

John Orrell (PNNL)

Topical Group		Topical Group co-Conveners
UF01	Underground Facilities for Neutrinos	TBD
UF02	Underground Facilities for Cosmic Frontier	TBD
UF03	Underground Detectors	TBD
UF04	Supporting Capabilities	TBD
UF05	Synergistic Research	TBD
UF06	An Integrated Strategy for Underground Facilities and Infrastructure	TBD

Underground Facilities and Infrastructure: Plans

- Organizational plans
  - UF&I topical group convener recruitment
    after other Frontiers announce their topical conveners
  - Meetings with other frontiers – *Primary approach for UF&I*
    - Neutrino Frontier
    - Cosmic Frontier
    - Instrumentation Frontier
  - Workshops with the UF&I community
    - No independent workshop anticipated
    - Always participate with other Frontiers' workshops

- Focus on determining requirements to enable the Science goals of the Frontiers and develop a long-term vision for Underground Facilities & Infrastructure

Community Involvement Frontier

Kétévi A. Assamagan (BNL)

Breese Quinn (Mississippi)

Topical Group		Topical Group co-Conveners			
Comm01	Applications & Industry	Farah Fahim (FNAL)	TBD	Koji Yoshimura (Okayama)	
Comm02	Career Pipeline & Development	Sudhir Malik (UPRM)	Yangyang Chen (Cornell)	Amr El Zant (BUE)	
Comm03	Diversity & Inclusion	Mu-Chun Chen (UCI)	Sam Meehan (CERN)	Carla Bonifazi (UFRJ)	
Comm04	Physics Education	Randy Ruchti (Notre Dame)	Frossie Economou (LSST)	Sijbrand de Jong (Radboud)	
Comm05	Public Education & Outreach	Sarah Demers (Yale)	Kathryn Jepsen (SLAC)	Don Lincoln (FNAL/Notre Dame)	A. Muronga (Nelson Mandela)
Comm06	Public Policy and Government Engagement	Rob Fine (Rochester)	Louise Suter (FNAL)	Brajesh Choudhary (Delhi)	

Community Involvement Frontier: Plans

- Note concerning the nature of the Community Involvement Frontier
  - This one is somewhat different. Composed of Topical Groups dealing with different issues of community-wide engagement that cut across all Frontiers, rather than all focusing on specific aspects of one area of our field.
  - Each CI Topical Group will need to work with other Frontiers at least as much as with other CI Topical Groups.
- Meetings with CI Topical Group conveners
  - We will start monthly meetings of all the Topical Group conveners last week of April. At first meeting, we will go over the charges and develop best working plan for each Topical Group.
- Meetings with other Frontiers
  - We met with the Computation Frontier Conveners and agreed to bring “talent acquisition and retention” (i.e. training and career development) under CI “Career Pipeline & Development” and “Physics Education”.
  - Most Topical Groups will require sustained direct engagement with multiple Frontiers.
  - After our first meeting with Topical Group conveners, we will engage the other Frontiers to develop appropriate working structures for most effective cross-communication.
- Workshops with the community
  - Will be most effective to have 2-3 Topical Groups combine to hold joint workshops with other Frontiers, rather than all CI Topical Groups hold a workshop together.