

Monthly Snowmass Newsletter (September 2020)

Recent Highlights and Upcoming Events

Organization and activities of Snowmass 2021 are available on the [Snowmass wiki page](#).

How to Snowmass

Learn about Snowmass by reading Chris Quigg's inspiring 4-page article: "[How to Snowmass](#)". It has two parts: "The Spirit of Snowmass Past" and "What Snowmass Can Do for You, and What You Can Do for Snowmass".

Snowmass Community Planning Meeting

The CPM 2020, that will take place on October 5-8, will be a virtual meeting and be open to everyone. The overall program and registration are available at <https://indico.fnal.gov/event/44870/>. Registration is required to attend the CPM. Particle physics is global. Our international community's strong participation in the entire Snowmass process is critical for the success of Snowmass and we hope many of our international colleagues will attend the CPM. We have received more than 1,500 Letters of Interest!! Frontier and Topical Group conveners will use these LOIs to prepare for breakout sessions.

The primary goal of the CPM is to develop plans or steps ("Snowmass Planning") to achieve a successful Snowmass 2021 report. A huge number of diverse topics have been identified and many topics touch multiple frontiers and topical groups. Therefore, there are many challenges to converge. There are many challenges to properly and inclusively implement inputs from the community and to communicate that with the community. All of this requires a clear layout of steps to take between October 2020 (CPM) and October 2021 (Report). The CPM is to build these steps.

On the first day of the CPM on October 5, we will hear an inspiring talk about the field, strategies and plans in other regions and in related fields, and remarks from funding agencies. We will also hear voices of our community via a town hall meeting: topics could range from scientific interests to general comments including advice, observations, or concerns for the Community Study meeting in July 2021. If you would like to give a 3' speech at the town hall meeting, please submit your abstracts by 5:00pm US Central Daylight Time on Sept. 25, 2020: instructions and selection process are available [here](#). Following breakout sessions on October 6th and 7th, the final day of the CPM on October 8 will cover each frontier's scientific questions and plans between October 2020 (CPM) and October 2021 (Report), "Global Accelerator Facilities for Future Particle Physics" via a panel session and a summary of activities by early careers. The CPM will end with talks that will inspire the community's engagement in defining the future.

Snowmass Early Career

In August, Snowmass Early Career (SEC) hosted an informational series to introduce early career members to the Snowmass process and each frontier. These were recorded and posted on the SEC meeting indico site. A long-term organization Letter of Interest (LOI) was submitted outlining a process to build a standing early career organization post-Snowmass with community feedback. A number of meetings are planned to gather community feedback on this proposed organization, and we encourage early career members

who are interested in this effort to attend and/or join the effort. These meetings will be advertised widely, and all SEC meeting information can be found on [the SEC meeting indico](#). More information about SEC and how to get involved can be found on our wiki page: <https://snowmass21.org/start/young>.

Community Engagement Frontier

The Community Engagement Frontier is very pleased to have received 90 submitted [Letters of Interest](#) (LOIs). We are excited to dig into them, and are using them to make preparations for the upcoming [CPM](#) in October. The authors of and those interested in the LOIs are invited to join us at the CPM as we organize and plan for the work required to address the issues raised in the Letters. The CPM will also feature a plenary session, “Community Engagement Across the Frontiers,” in which we will hear representatives from each Frontier discuss the importance of CEF issues to their work. Please be on the lookout for a community-wide survey from CEF that we will launch soon. A broad response to this survey will be crucial to gathering the data we need to move CEF issues forward in HEP. We also encourage everyone to check our [calendar](#) for the continuing series of townhalls and community chats held by our various Topical Groups. Finally, keep an eye out for a new Topical Group we will be forming soon on Societal Impacts of our field.

Theory Frontier

Preparations are in full force for the upcoming CPM early October. Every TG will be involved in organizing one or more breakout sessions. TG's in charge of organizing the various breakout sessions have been identified at the recent convener's meeting. TF07 held a mini workshop on Sept 15 on EW effects at high energies, and TF11 is planning to hold a Neutrino Theory workshop Sept. 21-23. Work is in progress on reading and acknowledging the LOIs received by each topical group. The TF is welcoming Graham Kribs as a new topical convener for TF08.

Energy Frontier

The topical groups in the Energy Frontier (EF) dedicated several of their community meetings in August to plan for and solicit LOIs. About 370 LOIs were submitted to the Energy Frontier, including 260 LOIs with the EF as primary group, which will help prepare for the upcoming CPM on October 5-8. The Energy Frontier continues with the effort to engage the community, and Meenakshi Narain participated in the Snowmass Panel at the [annual Fermilab User Meeting](#). The Snowmass Early Career (SEC) representatives in the EF, Amber Roepe and Grace Cummings, have circulated a [survey](#) to gather information on the interests of the young physicists' community in the Snowmass process, and have scheduled bi-weekly meetings with their peers to build a strong community. SEC activities can be followed in Slack at #early-career-energy-frontier-coordination or by joining the SNOWMASS-EARLY-CAREER-EF@fnal.gov listserv. To facilitate a wider participation to physics studies in the EF on new collider concepts, the EF Monte Carlo Task Force, chaired by John Stupak, has arranged tutorials, the first on the [ILC software and simulation](#) took place on August 28 with a peak attendance of 46 participants, while those on [CEPC, FCC, LHeC/FCC-eh, and muon collider](#) are scheduled in September. The Energy Frontier continues building connections across topical groups and frontiers with a [workshop on non-perturbative uncertainties](#), arranged by EF05, a [workshop on EIC physics](#) arranged by EF06-EF07, and with discussions by our liaisons Daniel Elvira and Laura Reina with the communities in the Computational Frontier and Theory Frontier, respectively.

Neutrino Frontier

Around ~300 LOIs with the Neutrino Frontier tagged were submitted. Topical group conveners are going through all of these to coordinate and synthesize the input from the community. The first-pass output of this process will be presented at a Neutrino Frontier [online community meeting to prepare for CPM](#), to be held on September 16. Many topical group workshops are taking place. Please see the [Neutrino Frontier google calendar](#) for details. The Neutrino Frontier Meeting will be hosted by Oak Ridge National Laboratory on March 15-17, 2021. The decision as to whether this meeting will be virtual or in-person will be made in January.

Rare and Precision Frontier

The Rare and Precision Frontier has had a series of workshops and topical group convener meetings. All of them are on Indico with recordings in doc-db (<https://indico.fnal.gov/category/1102/> with a link to the recording in the Indico entry). We have added a topical group on Hadron Spectroscopy (RF7). We will have a Town Hall for LOI presentations on October 2nd, details to be worked out.

Cosmic Frontier

The Cosmic Frontier continues to hold regular topical working group meetings, and is currently engaged in preparation for the upcoming CPM. There are plans for some focused community meetings on different topics under works, and we expect to announce dates for them by the CPM.

Accelerator Frontier

Some 320 LOIs have been submitted to the Accelerator Frontier, including 253 where AF is the primary Frontier. The focus of the AF efforts - which used to be encouragement and collection of the LOIs - is now shifted to understand whether reclassification of the LOIs between the topical groups is needed and initial evaluation of the LOIs and grouping them around key questions/themes/topics. The next meeting of the Accelerator Frontier conveners will take place Wed., Sep.9th, 2020. At the meeting we will discuss the Accelerator Frontier expectations, plans and agenda for the Snowmass Community Planning Meeting (CPM, Oct.5-8, 2020, virtual).

Computational Frontier

The Computational Frontier held an all-frontier virtual workshop on August 10-11: <https://indico.fnal.gov/event/43829/>. The workshop featured parallel sessions by each of the topical groups within the frontier as well as plenary sessions related to frontier goals and cross-cutting topics. There was also time for community feedback with lightning talks and Q&A. Please see indico for recordings and slides from this meeting. Additionally, many of the topical groups have held dedicated meetings (see <https://indico.fnal.gov/category/1107/>), which are announced on our email lists and Slack channels. Information about joining can be found on our wiki. We will be busy in September reading nearly 200 LOIs in preparation for the CPM.

Instrumentation Frontier

The Instrumentation Frontier continued holding regular meetings within its topical groups and started preparation for the CPM. A new topical group, IF10, is recently created for Radio Detection. Some other new topics, such as Gravitational Wave instrumentation and Neutron detection, were added to the Cross-Cutting group's work scope. The date of the interdisciplinary MultiHEP workshop has been moved to November 10-12, 2020.

Underground Facility and Infrastructure

We recently held an organizational meeting with all the UF/I co-conveners and liaisons, laying out the topics, suggested sections, and format of the UF/I report, aligned with the topical groups. We are arranging breakout discussions with several other frontiers for the CPM (we do not foresee holding UF/I workshops, but actively participating in the scientific frontier workshops). We have responded to several questions concerning LOIs. We have received seven LOIs by the deadline. Four discuss underground facilities (SURF in South Dakota, Boulby in Northern England, KURF in Virginia, and Salt caverns in Ohio); one discusses Germanium detector processing underground; one presents a classification standard for underground research space; one presents the concept of a multipurpose/disciplinary ultra-low background facility to assist next generation experiments. We also note a number of cross-listed LOIs to other frontiers with implications on underground facilities and infrastructure.