

# Snowmass Early Career Energy Frontier Coordination News

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SEC EF General Meeting, 11 August 2020

# News and Event Overview: 28 Jul - 11 Aug

- Frontier Introduction Series [[Event Indico](#)]
  - Hosted by In-Reach SEC Subgroup
  - [Overview slides](#) blessed by EF Convenors
- Topical Group Convenor Meeting
  - They are all very excited we exist
  - Goal: Physics Drivers
  - **Special Topic Group in EF01** → *hh* (dihiggs, not hadron hadron)
    - If you want to be involved specifically, reach out to Sally Dawson
    - Have their own slack and listserve

Snowmass Early Career

## Frontier Introductions Series

Come meet our Energy, Instrumentation, & Cosmic Frontiers!  
Aug 7, 11a CDT/12p EDT on Zoom

Indico Event: <https://indico.fnal.gov/event/44675/>

Website: <https://snowmass21.org/start/young>

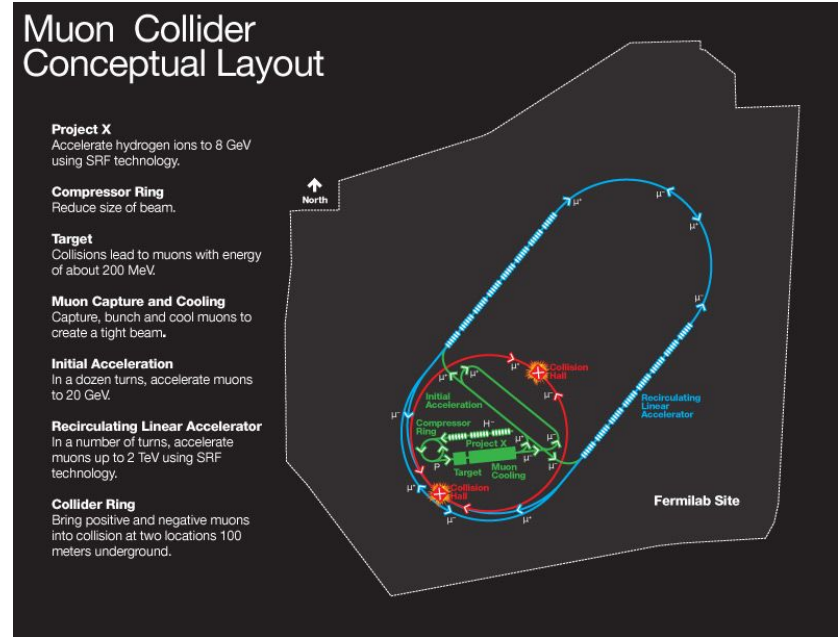
Join us on Slack! [#snowmass-young](#)

Snowmass (& P5) is the Particle Physics community's decadal process for defining our priorities for funding & advocacy.

Point of Contact: Tiffany Lewis  
tiffanylewisphd@gmail.com  
On behalf of SEC-Inreach

# Project Updates and Developments

- List of Projects from Topical Groups
  - Convenors keep saying they want this
    - Unclear how it should manifest
  - **What format do we want?**
- Survey of those who want projects
  - Survey is still open! [\[survey link\]](#)
  - **How should we disseminate this list?**
- Incentivising time spent
  - Convenors are willing to put pressure on PIs
  - They just need to know who
- Muon Collider Effort specifically looking for Involvement!
  - If this interests you, let us know!



I just ripped this image from a Google Search, please do not take this as the truth. I have no idea.

**LIGHTNING OVERVIEW!**

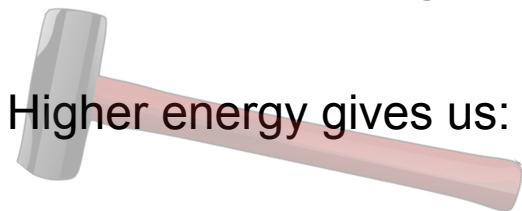


More detailed summary in [Frontier Intro Slides](#)

If we have a lot of new people...

# Current State of the Energy Frontier

- Large Hadron Collider
  - Run III at 14 TeV  $pp$
- HL-LHC - In preparation
  - Unprecedented pile-up conditions
  - New technology for beam intensity at high energy
- Chipping away at Higgs and Standard Model Measurements
- Pushing new particle mass limits to the several TeV range



Higher energy gives us:

**Direct**  
**production** of  
more massive  
particles

Increased  
Production Cross  
section (generally)

# Energy Frontier Needs to Decide

1. What physics we want
2. What machine properties are needed to get 1.)
3. What other information do we need to make the measurement

“Di-Higgs Production! Top Mass! SUSY!...”

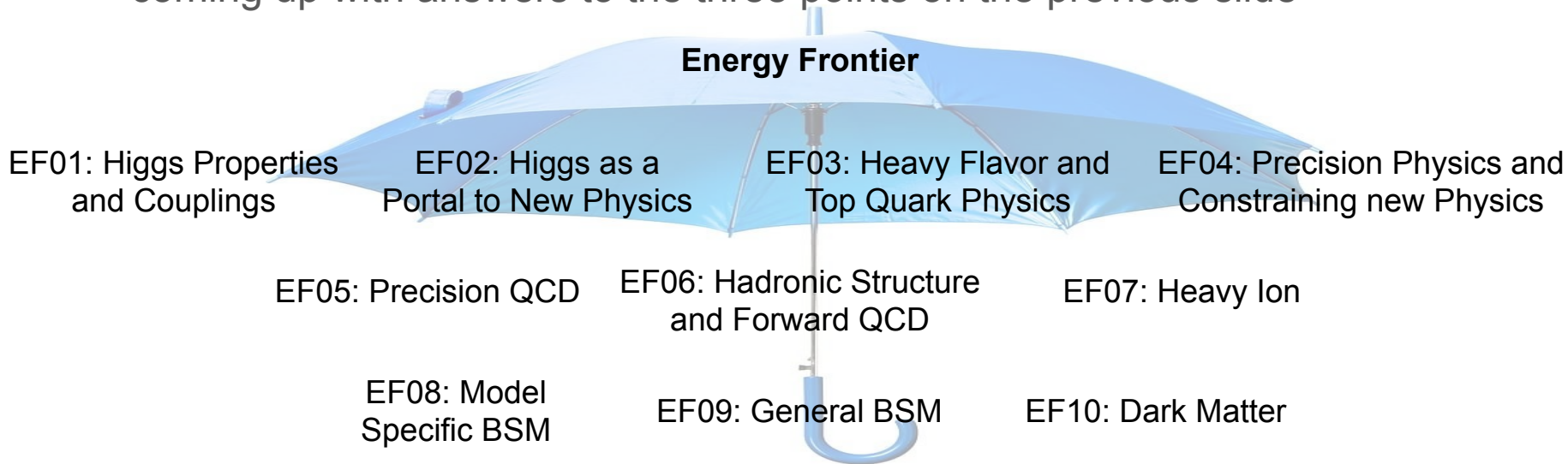
Each Topical Group has to think about what they really want to see in the future

What collision material provides the channel? What energy is needed? What systematics can be reduced?

Do theory calculations need to be better? Does Monte Carlo need to change? Do we need better ways to reduce uncertainties?

# Snowmass EF Structure

- Each Topical Group in the Snowmass Energy Frontier is in the process of coming up with answers to the three points on the previous slide



There are **10 Topical Groups**, each with slightly different focus, spanning the physics accessible at high energy machines.