



# Introduction and News

Accelerator Frontier: Derun Li (LBNL), and Diktys Stratakis (Fermilab)

Energy Frontier: Kevin Black (Univ. of Wisconsin-Madison), and Sergo Jindariani (Fermilab)

Theory Frontier: Patrick Meade (Stony Brook Univ.), and Fabio Maltoni (Louvain U., CP3)

# Recent Events

- ◆ 3<sup>rd</sup> Muon Community Meeting
  - Organized by the International Muon Collider Collaboration
  - Goal to develop Accelerator R&D Roadmap
  - 3-day event (1 day dedicated to physics and detectors)
  - Review R&D plan, resources, timescales, prioritization
  
- ◆ **Goal:** in time for the next European Strategy for Particle Physics Update, aim to establish whether the investment into a full CDR and a demonstrator is scientifically justified
  
- ◆ Two funding scenarios considered: minimal and aspirational
  - More details: <https://indico.cern.ch/event/1062146/>
  
- ◆ Next step – submission of the final report to LDG and to CERN Council

# Today's Agenda

## Snowmass Muon Collider Forum

Tuesday Oct 12, 2021, 10:00 AM → 12:10 PM US/Central

Description Join Zoom Meeting [LINK](#)

10:00 AM → 10:10 AM News ¶

⌚ 10m ✎

10:10 AM → 10:30 AM Discussion of the Energy/Luminosity Scenarios for the report

⌚ 20m ✎

Speaker: Sergo Jindariani (FNAL)

 MuonColliderForu...

10:30 AM → 11:00 AM Precision Muon Program and synergies with Muon Collider

⌚ 30m ✎

Speakers: Eric Prebys (UC Davis) , Eric Prebys

11:00 AM → 11:30 AM Comparisons of BIB at different energies

⌚ 30m ✎

Speaker: Massimo Casarsa (INFN-Trieste)

# Energy/Luminosity Points

- ◆ **Last time proposed** to use these points for the summary plots. Numbers represent integrated luminosity assuming 5 years of running at EACH energy:
  1. Higgs pole 125 GeV:  $0.025 \text{ ab}^{-1}$
  2. 3 TeV:  $1 \text{ ab}^{-1}$
  3. 10 TeV:  $10 \text{ ab}^{-1}$
  4. 30 TeV :  $10 \text{ ab}^{-1}$  (cons.) –  $90 \text{ ab}^{-1}$  (optim.)
  
- ◆ **Received important input since then:**
  - Suggestion to consider conservative and optimistic scenarios for 125 GeV ( $0.010$  and  $0.025 \text{ ab}^{-1}$ )
  - $90 \text{ ab}^{-1}$  at 30 TeV is based on  $E^2$  scaling, however there is a common opinion that such scaling would break for very high energies.
  - Propose to use  $10 \text{ ab}^{-1}$  for all points above 10 TeV. In line with the Smasher's Guide.
  - Preliminary studies indicate that the effect on physics reach should not be dramatic, but this needs to be confirmed.



# New Proposal

- ◆ Numbers represent integrated luminosity assuming 5 years of running at EACH energy:
  1. **Higgs pole 125 GeV: 0.010 ab<sup>-1</sup>(conservative) and 0.025 ab<sup>-1</sup> (optimistic)**
  2. **3 TeV: 1 ab<sup>-1</sup>**
  3. **10 TeV: 10 ab<sup>-1</sup>**
  4. **30 TeV : 10 ab<sup>-1</sup>**
  5. For Higgs consider combination of (1)+(2) and (1)+(3) ?
  
- ◆ Studies at additional mass points (1.5, 6 and 14 TeV) are welcome and should be used for demonstrating reconstruction performance but likely won't make it to the physics reach summary plots/tables. For these extra points, we suggest :
  - 1.5 TeV: 0.25 ab<sup>-1</sup>
  - 6 TeV: 4 ab<sup>-1</sup>
  - 14 TeV : 10 ab<sup>-1</sup>
  
- ◆ Would like to finalize this asap. Please comment!