

Parallel Session: Experiment

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Bigger picture goals for USMCC

Explore and develop concepts and technologies for a Muon Collider Detector

- Different collision environment compared to (HL-)LHC motivates novel approaches
- Interplay between detailed simulation studies and instrumentation R&D

For the next few years

- Demonstrate a path towards a muon collider detector that meets physics requirements
 - great progress already! e.g. [Snowmass Muon Collider Forum Report](#), [JHEP paper](#)
- Improve realistic constraints in simulation and estimations
- Develop prototypes towards needed technology, organizing across CPAD groups

Upcoming EU Strategy offers excellent opportunities for short-term projects!

Today's session

A few non-exhaustive examples of key challenges and opportunities. Many more areas not covered, with projects ranging from simple to ambitious

Timing detectors R&D directions

Speaker: Artur Apresyan (Fermilab)

Pixel detectors in a muon collider environment

Speaker: Timon Heim (Lawrence Berkeley National Lab)

Challenges for calorimeter design at a muon collider

Speaker: Grace Cummings (Fermilab)

If interested, please sign-up in this [google doc](#), for informal follow-ups and organization!

Areas

- BIB mitigation
- Tracking Detector
- Calorimeters
- Muon System
- PID Detectors and Algorithms
- Luminosity and other specialized sub-detectors
- Very-forward muon detection (Trigger) and DAQ
- Simulation software infrastructure
- Physics studies with full simulation
- Mechanical structures and detector integration

What's next?

How will groups meet after the meeting is over?

How will people know what work is being done?

- IMCC Physics & Detector meetings every Tue @ 4:00 PM (CET), muoncollider-detector-physics@cern.ch, [indico category](#)
- US informal Slack workspace: [USMCC](#)

We encourage smaller informal meetings on targeted activities that can lead to papers, and encourage everyone to share early their results in the above meetings!

- [IMCC publication guidelines](#)

Detector Software Tutorial

Updated tutorial on [wiki page](#) to target newly released software!

Friday morning, [IARC building](#)

- Computing account on dedicated cluster for the tutorial
(instructions sent via email)
- software can easily work on various clusters, and on your laptop!

