

International Muon Collider Design Study



Accelerator Design meeting

Monday 31/05/2021, 16:00 – 18:00

(<https://indico.cern.ch/event/1038303/>)

Chair: Daniel Schulte

Speakers: Daniel Schulte and conveners of the 9 Working Groups

Participants (zoom): Akira Yamamoto, Alex Bogacz, Alexej Grudiev, Anton Lechner, Bernd Stechauner, Christian Carli, Claudia Christina Ahdida, Craig Brown, Daniel Schulte, Elias Métral, Francesca Galluccio, Francisco Javier Saura, Ivan Karpov, Jose Antonio Ferreira Somoza, Kyriacos Skoufaris, Marchand, Nadia Pastrone, Oscar Blanco, Patricia Tavares, Peter Sievers, Shinji Machida, Steffen Doebert, Tiina Salmi, Yongke Zhao.

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MEETING DECISIONS

- None.

MEETING ACTIONS

- 1: Daniel Schulte** Decide on the exact date and format of the 2nd Muon Community Meeting (current proposal: 3 consecutive days, July 12-13-14, between 14:00 and 18:00).
- 2: Everybody** Continue to progress in the different Working Groups and prepare the 2nd Muon Community Meeting in July.

GENERAL INFORMATION AND NEWS (DANIEL SCHULTE)

- The workshop was a great step forward with very good summaries for the 9 Working Groups. A short document is now requested by June 7th, consisting of 2-4 pages of text and describing the process for the R&D list: one should make sure that it is done in a way the community is informed and involved. Furthermore, there should be a particle physics workshop in the last week of June, where each panel will make a 30-minute-long presentation. Daniel proposed to delay the stakeholder meeting in light of the above. There will be then an interim report (with iterations) before September and finally the end-of-the-year report of ~ 40 pages.
- Daniel announced the Physics workshop this week (see <https://indico.cern.ch/event/1037447/>) with almost 300 participants registered => It can also be found on our calendar (<https://muoncollider.web.cern.ch/events-calendar>).
- No other news to share.
- Today, we will rapidly go through the different WGs (which already all sent a 2-page summary to the Muon Beam Panel) to see in particular if there are some news since the summary presented at the 1st Muon Community Meeting.

1 SUMMARY OF RF (ALEXEJ GRUDIEV)

- No news since the summary of the 1st Muon Community Meeting.

2 SUMMARY OF MAGNETS

- Nobody could join.

3 SUMMARY OF HIGH-ENERGY COMPLEX (ALEX BOGACZ)

- No news since the summary of the 1st Muon Community Meeting.
- Some discussions took place about the vFFA for which an important effort is needed. What about the more conventional hFFA? Shinji answered that the demand on magnets is not so high but the complexity is similar to vFFA. Shinji mentioned that we should keep alive all the options with FAAs for the high-energy complex and we will see in the future (which was agreed by Daniel).

4 SUMMARY OF MUON PRODUCTION AND COOLING

- Nobody could join.

5 SUMMARY OF PROTON COMPLEX

- Nobody could join.

6 SUMMARY OF BEAM DYNAMICS (ELIAS METRAL)

- I mentioned that there is a change since the summary we produced for the 1st Muon Community Meeting. After discussion within the Muon Beam Panel, the item 5) was put back to criticality 1 (see https://indico.cern.ch/event/1038303/contributions/4360286/attachments/2254624/3825391/SummaryOfChallenges_BD-WG_27-05-21_EM-TR.pdf).

7 SUMMARY OF RADIATION PROTECTION AND OTHER TECHNOLOGIES (CLAUDIA CHRISTINA AHDIDA)

- Claudia mentioned that there is no news with respect to the 2 items mentioned during the 1st Muon Community Meeting but 2 new items (additional conventional radiation protection challenges) have been added (see https://indico.cern.ch/event/1038303/contributions/4360287/attachments/2255233/3826536/RP-challenges-summary_v02.pdf):
 - o Test facility,
 - o Radiation Protection aspects in key areas of the complex.

8 SUMMARY OF MACHINE DETECTOR INTERFACE (NADIA PASTRONE)

- Nadia mentioned that some changes are currently being made (stating that the 3 TeV is the reference from MAP and then preparing a feasible lattice at 10+ TeV) and a new summary will be written soon.

9 SUMMARY OF SYNERGY

- Nobody could join.

10 PRELIMINARY CONCLUSIONS AND NEXT STEPS (DANIEL SCHULTE)

- The main goal for the moment is to prepare this 2-4-page summary.
- For the 2nd Muon Community Meeting in July
 - o During the 1st Muon Community Meeting we identified a set of challenges in the delivery of the muon collider. The goal now is to confirm those challenges and develop them into a **prioritised and resource loaded R&D list**.
 - o Losses in the collider are an important power consumer due to the cooling needed.
 - o We should start to see how to advance with all that now.
 - o Daniel reminded us that all the things we are preparing will have a huge impact on our future so we need to prepare all this extremely well.
 - o Tomorrow: magnet panel community meeting => Daniel will present the needs for muon collider.
- Following a clarification asked by Akira, Daniel mentioned that we should try and involve more Asia. They will need to catch-up as Europe is catching-up these days. For our colleagues from US it will be very difficult for them to commit at the moment and in the Asia maybe also: in Europe, we will see soon.
- Following a discussion about the possible timetable for the 2nd Muon Community Meeting, it was mentioned in particular that we could work on 3 consecutive days (July 12-13-14) but only between 14:00 and 18:00 such that it is ~ fine for the 3 continents (it will mean between 05:00 and 09:00 in California and between 21:00 and 01:00 in Japan) => **See Action 1**.
 - o I showed the example of the SRWG2021 workshop (https://indico.cern.ch/event/982987/timetable/?view=standard_numbered_inline_minutes), with only few talks per day and spread over several weeks.
- Alex reminded us that today is not an ordinary Monday in UK and US, which might explain why there is less people than usual attending this meeting.
- Feedback from the 1st Muon Community Meeting and in particular the different zoom rooms:
 - o AlexejG mentioned that the RF room was closed at some point, why? => This must have been my mistake as I thought that everybody had left: there is no timeout and it is possible to keep the rooms for the time needed (it is just a matter of not closing them... sorry again for that!).
 - o One should keep the full names of the WGs as it led to some confusion.
 - o I mentioned that there was actually much less people participated than registered.

11 AOB (EVERYBODY)

- Nothing else was discussed.

- The agenda of the next meeting will be announced in due time.

Reported by E. Métral and D. Schulte