Mandate
of the
Internal Review of "Magnet Technology Options" for the Muon Collider

21 June 2023, Orsay

We define here the scope and desired outcome of the internal review of the "Magnet Technology Options" for the Muon Collider, to take place in the morning of 21 June 2023, in in a dedicated parallel session of the Annual Meeting of the International Muon Collider Collaboration, Orsay, June 19-22 2023. A panel of internal experts has been convened, with the following tentative composition:

- Steve Gourlay (FNAL)
- Herman Ten Kate (Twente University)
- Hans Schneider Muntau
- Steinar Stapnes (CERN)
- Akira Yamamoto (KEK and CERN)

We plan to present and discuss the following material:

- Summary of relevant magnet performance requirements, set to match the desired collider parameters;
- Overview of technology options (LTS, HTS and resistive) for the magnet types required in the various part of the collider complex;
- Evaluation of typical and achievable performance range for a certain technology (e.g. field, aperture, temperature, heat load, radiation load, wall-plug power), including a TRL indication, and the need for R&D;
- Short presentation of candidate designs selected, reasons, and work program for the study.

The expected outcome is a report, answering the following questions:

- Are all critical magnet systems identified, including the true performance drivers, with no missing area ?
- Is the evaluation of technology options complete and appropriate ? Specifically, are there viable options that have not been considered, or not evaluated correctly ?
- Are the selection of options to be studied in detail, and the ranking of priorities, justified and appropriate for the objectives of a pre-conceptual report, due by end 2025 ?
- Is the work program proposed matching the above ambitions ?