International Muon Collider Design Study

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Laboratory Directors Group (LDG)

European Large National Laboratories and CERN Directors Group aims to maximise cooperation in the planning, preparation and execution of future projects.

LDG was established by the CERN Council with the aim to facilitate the implementation of the European Strategy for Particle Physics.

LDG should establish Accelerator R&D roadmap to define a route towards implementation of the goals of the 2020 Update of the European Strategy, bringing together the capabilities of CERN and the LNLs to carry out R&D and construction and operation of demonstrators.
Motivation

LDG established the muon collider working group that states:

The compelling physics reach justifies establishment of an international collaboration to develop fully the muon collider design study and to pursue R&D priorities, according to an agreed upon work plan.

From the deliberation document of the European Strategy Update:

High-priority future initiatives

[...] In addition to the high field magnets the accelerator R&D roadmap could contain:

[...] an international design study for a muon collider, as it represents a unique opportunity to achieve a multi-TeV energy domain beyond the reach of e+e–colliders, and potentially within a more compact circular tunnel than for a hadron collider. The biggest challenge remains to produce an intense beam of cooled muons, but novel ideas are being explored;
To facilitate implementation of the European Strategy LDG decided

Agree to start building the collaboration for international muon collider design study

Accept the proposal of organisation

Accept the goals for the first phase
  • see details in Daniel’s slides that follow
The study will be carried out in a collaboration of international partners and address the feasibility of the collider design and the physics experiments. Institutes can join by expressing their intent to collaborate through signing a light Memorandum of Understanding. The study will be initially hosted at CERN, which will provide administrative and organisational support.

**Collaboration Board**
- Oversees the study and approves important decisions
- One member per institute, elects it’s chair
- Elects project leader

**Project leader**
- Leads study
- Appoints steering committee representing physics, experiment, accelerator and technology, endorsed by Collaboration Board
- Reports regularly to the LDG on the progress

**Advisory committee**
- review study progress at least once per year
- recommend further actions
- reports to collaboration board
LDG Decisions

Appointment of Daniel Schulte as ad interim project leader

Will work towards strengthening cooperation and ensuring effective use of complementary capabilities

Core team (Nadia Pastrone, Lenny Rivkin and Daniel Schulte) will start collecting MoUs