

## **Prospects and challenges of the Muon Collider**

Muon Collider is an extremely attractive option for the future energy-frontier machine. It is capable of delivering clean final states of lepton collisions at multi-TeV centre-of-mass energy with the minimal energy consumption. Being a less familiar type of machine compared to  $e^+e^-$  and  $pp$  colliders it poses a number of technological challenges that need to be addressed, including the production and acceleration of the muon beams, controlling of the neutrino radiation hazard and mitigation of the beam-induced background with advanced design of both the detector and reconstruction algorithms.

In this talk an overview of the mentioned challenges will be presented together with the main solutions studied at the moment. The three main topics that will be covered are:

1. different conceptual designs for obtaining high-energy muon beams;
2. estimated environmental radiation hazard due to neutrinos from the muon beam decays;
3. detector-design considerations and performance studies at a Muon Collider.

### **Working group**

WG4

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