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The Accelerator Complex from the International Design Study of the Neutrino Factory

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The Neutrino Factory produces high-energy neutrino beams with a well-defined flavour content and energy spectrum from the decay of intense, high-energy, stored muon beams to establish CP violation in the neutrino sector. The International Design Study for the Neutrino Factory (the IDS-NF) will provide a Reference Design Report (RDR) for the facility. The present baseline design has been re-evaluated to take into account the recent measurements of theta_13. This talk describes the status of the accelerator facility and the accelerator subsystems of which it is comprised. This is a modification of the facility described in the Interim Design Report (IDR) completed in 2011. The accelerator facility will deliver 10^21 muon decays per year from 10 GeV stored muon beams. The straight sections of the storage ring point to a 100 kton Magnetised Iron Neutrino Detector (MIND) at a distance of 2000—2500 km from the source. The accelerator-physics challenges, and the R&D underway to meet them, will be described together with alternative designs that are being developed to mitigate the technical risks that some of the subsystems present.

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