

International Workshop on Accelerator Alignment



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New Projects at Fermi National Laboratory and their Metrology requirements

Fermilab is transitioning from the collider era to a dedicated international neutrino and muon facility in accordance with the recent US P5 recommendations. While the long baseline neutrino facility (LBNF) is currently in the conceptual design phase, the muon program is ramping up rapidly. This presentation focuses on the g-2 project to be constructed over the next two years. Physicists plan to measure the muon g-2 quantity very precisely at Fermilab, surpassing the precision of that measurement previously made at Brookhaven National Laboratory. In the meantime the storage ring hardware has been relocated to a new building at FNAL and the system is now being reassembled. At the heart of the device that stores the muon beam is a set of three 50-foot-diameter superconducting coils that energize the 700-ton storage ring magnet producing a 1.45 Tesla magnetic field. The magnet needs to be precision aligned in order to produce a homogeneous field that is constant to a few part per million.

Primary author: Mr FRIEDSAM, Horst (Fermi National Laboartory)

Co-author: Mr KYLE, John (Fermi National Laboratory)

Presenter: Mr FRIEDSAM, Horst (Fermi National Laboartory)