Alignment Activities at the Fermi National Accelerator Laboratory

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Alignment Activities at the Fermi National Accelerator Laboratory

_Fermilab areal view_  
(25 km²)

Position & vertical control network of Monuments & BMs

Most recent and future project sites
Muon Campus (g-2)

14 m dia. g-2 storage ring constructed from 12 x 30° yoke segments
Alignment Activities at the Fermi National Accelerator Laboratory

➢ **Muon Campus (g-2)**

HAMAR Rotating Laser Level (± 2.5μrad)
Muon Campus (g-2)

Vertical and radial deviations of the NMR probe trolley wrt ideal beam orbit (scale ± 2 mm – expected tolerance ± 0.3 mm)
Muon Campus (Mu2e)  J. Barker / J. Kyle
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➢ **Muon Campus (Mu2e)**

- Production Target
- Proto-type TS segment
- DS magnetic Field Mapper
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➢ **Short Baseline Neutrino Project (SBN) Dr. B. Oshinowo**

- SBN Far Detector
- MicroBOONE Detector
- SBN Near Detector
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➢ **SBN Project**

- SBN Near Detector
- SBN Far Detector ICARUS
- SBN MicroBOONE Detector
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➢ **Dune / LBNF Projects**

Dr. V. Bocean

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Diagram showing the alignment activities between the Sanford Underground Research Facility and Fermilab, involving particle production and detection processes.
Alignment Activities at the Fermi National Accelerator Laboratory

» Dune / LBNF Projects

Proto DUNE liquid Argon cryo-vessel at CERN

Proposed LBNF beam line
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➢ **DUNE / LBNF Projects**

All smiles before going 1.6 Km below ground and before claustrophobia sets in

June 2016
Alignment Activities at the Fermi National Accelerator Laboratory

➢ DUNE / LBNF Projects

Retro-reflectors at the end of the three plumb lines at the ROSS shaft
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➢ **Proton Improvement Project II (PIP II)**

Architectural concept of the 300 m long Super Conducting RF PIP II Linac

PIP II increases power on target to 2.4 MW ➔ Remote handling of survey equipment necessary
In collaboration with JLAB and SLAC, Fermilab is producing half of the SRF required cryo-modules.
High Luminosity HL-LHC upgrade  J. Kyle / Dr. H. Durand
Alignment Activities at the Fermi National Accelerator Laboratory

➢ **Summary and future challenges**

➢ Many different projects have been initiated at FNAL and are progressing in parallel thus taxing the AMD resources

➢ All of these projects require new laboratory infrastructure

➢ The laboratory funding has changed to a project driven structure determined by line items in the annual congressional appropriations bills

➢ The AMD seems no longer be part of the project planning or is being subsumed under installation activities and with that we are no longer in control of our own destiny
Quo vadis AMD?