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Alignment Aspects of the Mu2e Magnetic Field Mapping System

This presentation outlines some facets of the new Muon Campus under development at Fermilab. Over the next years two experiments utilizing Muons will test the limits of the Standard Model of Particle Physics. The g-2 experiment tries to improve the accuracy of the measured magnetic momentum of Muons, while the Mu2e experiment is searching for Muon-to-Electron conversions predicted by some theoretical models. Both experiments require very accurate knowledge of the magnetic field properties in which these particles travel. For the Mu2e detector solenoid a magnetic field mapping system has been proposed that utilizes a laser tracker to record the position information of the Hall-probes measuring the three dimensional magnetic properties of the solenoid field. The setup requires the operation of a laser tracker in a high magnetic field environment. Test measurements of various laser trackers under these conditions have been performed and the results will be presented.

Summary

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