



FY 2011 PPD Engineering Support for MICE

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MICE Spectrometer Solenoids

- MICE is building two spectrometers
 - ◆ 4T Solenoids
 - ◆ Fiber Trackers
- There have been many technical problems and delays.
- The Fermilab responsibilities are now
 - ◆ Insulating Vacuum hardware
 - ◆ Zip Tracking
 - ◆ Commissioning fiber trackers, updating AFEIIIt firmware for higher L1 accept rate

Solenoid: Vacuum

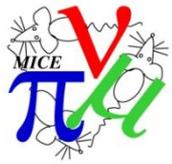
- Assemble and test vacuum systems for MICE spectrometer solenoids. All equipment has been ordered and should arrive by October. We would like to request that the PPD vacuum group assemble and test the equipment prior to its being shipped to the vendor in California. Estimate: 2-3 weeks technician time (Kendziora Group).

Solenoid: Zipping

- We are optimistic that the first MICE solenoid will be ready for zipping in early 2011 (March-April) with the second arriving 2-3 months later. MICE management is now discussing the possibility of skipping the zip tracking and shipping the magnets directly to RAL. If this decision is made then, of course, this task will be dropped. (Roman et al.)



Fiber Trackers



- Develop the AFE IIt firmware to allow for larger L1 accept rate. A test stand would have to be reconstituted, the current firmware would have to be validated and then the digital logic would have to be reworked and its effect on analog performance evaluated. The second task is to test operation of the AFEIIt board in magnetic field (100G). Total effort: 4-6 mm EE (Rubinov/Fitzpatrick)

MICE Beam Profile Monitors

- The current readout tubes (Burle MAPMT) for the MICE Beam Profile Monitors (BPMs) are problematic (large gain non-uniformity and cross-talk) and we wish to consider replacing them with SiPMs. A design has been made that would give a pin-for-pin compatible replacement for the Burle Tubes. The first step is to test the concept with a single channel (optical interface is designed, tools have been ordered) and then if this is successful, 4 64 channel arrays would need to be made. Total time (technician) approximately $\frac{1}{2}$ - 1 mm. Drafting: 2-3 man-days. In addition, 2-3 aluminization runs at Lab 8. (Sellberg, Hahn).

IDS-NF

- A magnetized iron detector (MIND) very similar to MINOS is the baseline detector for the IDS. PPD Engineering has been doing a little design work on the steel plates for MIND, but in order to converge on the key design issue for the IDS interim design report by December, we need to specify the plate dimensions (cross-section). Something bigger than the 8m MINOS plate is desired, but the initial baseline of 14m seems to introduce many mechanical issues. Engineering analysis/design of steel plates for MIND - 1 mm. (Kilmer/Woods), drafting (1 m-week).