

T-980 Meeting, November 11, 2008

1. EOS plans (Dean)
2. Beam in abort gap vs bunch (Dean, Rick, Randy)
3. Flying wire data for beam in the abort gap (Jim)
4. Results of simulations (Sasha, Igor, Armen)
5. FY09 budget and plans (Nikolai)
6. Possibilities with new goniometer, crystals, instrumentation (Nikolai)

Budget and Plans

We need to launch NOW work on hardware for installation in the June 2009 Tevatron shutdown, and plans for CY09 and CY10 T980 program.

It has recently become clear that with the UA9 planned for after November 2009, the original plan "Roman Pots, PIN diodes/electronics and other hardware built in the USA (LARP), sent to CERN, used/tested in SPS and - after completion of UA9 - returned back for installation in the Tevatron and use in T980 in 2009 and 2010" won't work. A self-sufficient plan for the Tevatron program in 2009-2010 will shortly be generated and discussed.

The main new components are a vertical or a two-crystal goniometer providing a capability for both proton and anti-proton beams (\$70-100k), additional beam diagnostics (profilometer-type, PIN diodes and scintillation counters; Roman Pots are unlikely), two or three new crystals, and apparatus for temperature and damage measurements at the end of T980 as requested by Ralph Assmann (~\$100k). With visitors, local expenses and travels, the total is \$210-250k, and we have a promise for that in FY09 from LARP.

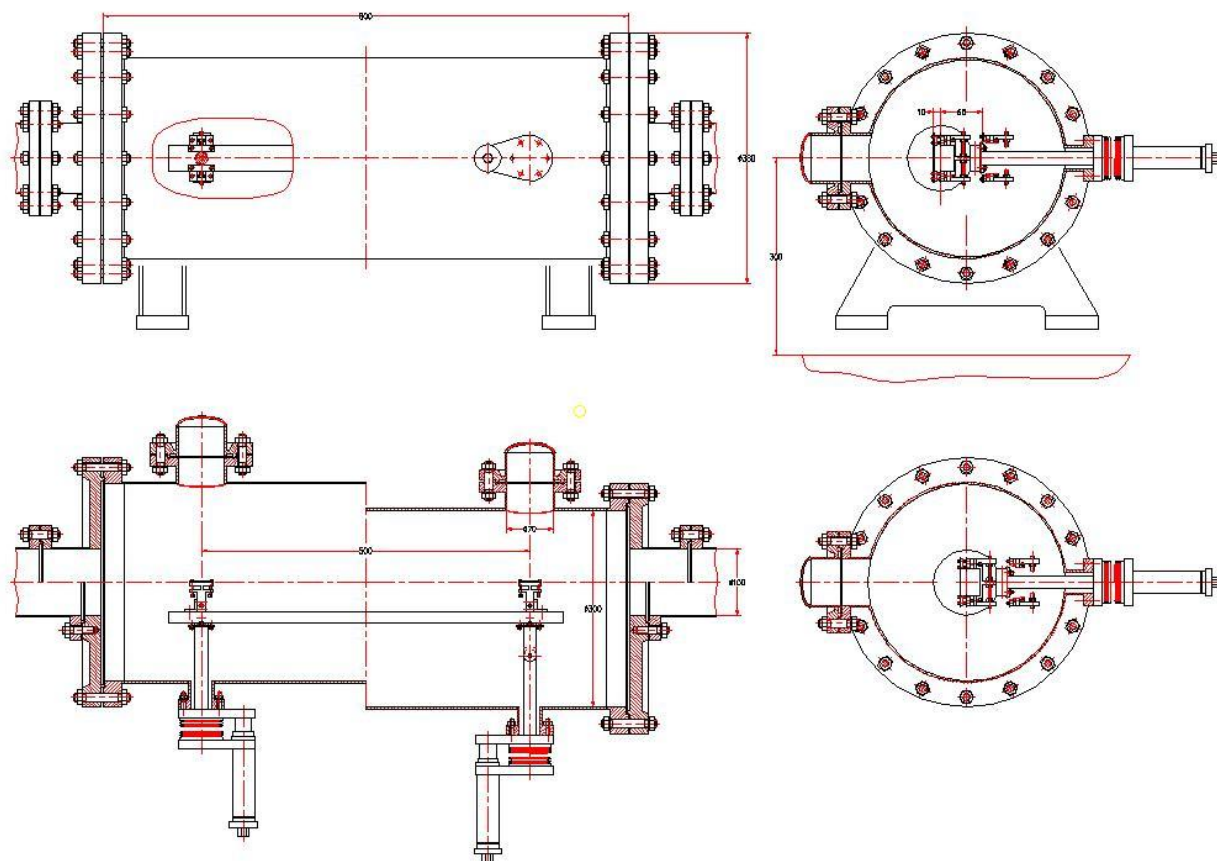
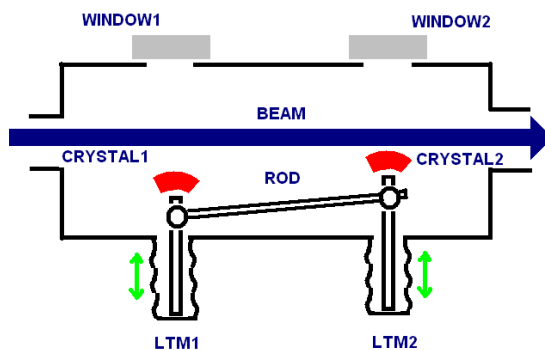
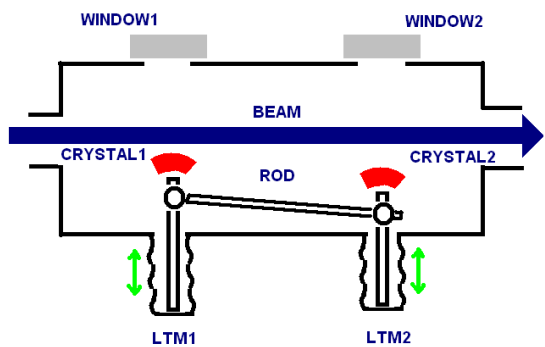
Hardware from IHEP

The most expensive item is a new goniometer to be installed at E01, E02 or C0 (or other available place to be justified by simulations). The goniometer should have a two alternating crystal and vertical-horizontal scraping capabilities. Details on such a goniometer from Yuri Chesnokov (IHEP, Protvino) are on next slides. They have just built such a goniometer for routine use in the 70-GeV IHEP synchrotron for beam collimation, extraction and splitting with crystal, and are considering to build one for CERN. Angular step size is 0.16 urad. The performance - mechanics & vacuum - are very good.

IHEP is ready to build one for us with delivery to Fermilab in April 2009 (to be installed in June shutdown). Regarding compatibility, the mechanical group there has a long-time experience with Fermilab: D0, electron lens and Jim Crisp. A hybrid approach is also possible: joint design, something is built there - something here, etc.

In addition, IHEP will provide 2 or 3 crystals (as the IHEP contribution to T980) and can build for us a wire profilometer to be installed on the upstream end of the E03 collimator (~\$5k).

IHEP GONIOMETER DESIGN



NEW GONIOMETER COSTS

1. IHEP estimate for new push-pull 2-crystal goniometer:

Mechanics	\$20k
Box, flanges, valves, bellows (mats & manufact)	\$20k
Documentation	\$5k
Controls	\$5k
Tests, custom, shipping	\$10k
Overhead & contingency	\$10k
Total:	\$70k

2. 2007 FNAL estimate for new goniometer:

Design and draft	\$30k
Build	\$60k
Mechanical installation (bellows, valves, etc.)	\$10k
Controls (motors, LVDT etc)	\$10k
Total:	\$110k

NEW IHEP GONIOMETR

