

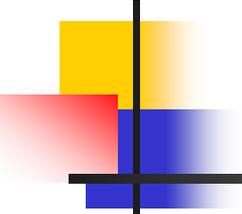
NuMI Offaxis Costs and Whither Next

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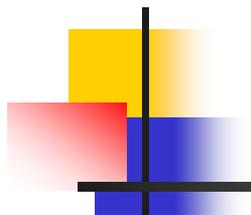
Cambridge Offaxis workshop

January 12, 2004



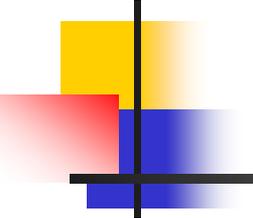
Costs

- We have tried to cost, in a uniform manner, 4 kinds of detectors based on different technologies:
 - RPC's with x and y readout on each chamber
 - RPC's with alternating 1-D readout
 - Segmented liquid scintillator
 - Segmented solid scintillator
- The current estimates are still very preliminary:
 - No independent verification as yet
 - Burdens assumed identical for all items
 - No significant optimization performed



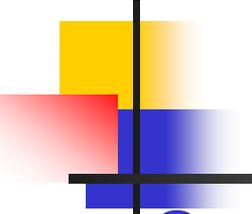
Cost Comparison

Item	RPC 2-D readout	RPC 1-D readout	Solid scintillator	Liquid scintillator
Absorber	12.6	12.6	13.3	12.1
Active Detector M&S	40.7	36.2	57.9	29.2
Active Detector labor	16.3	14.5	20.3	7.3
Readout and DAQ	8.3	4.5	6.1	5
Shipping	2.2	2.2	3	1
Installation	2.6	2.6	5.8	4.7
Enclosure	25	25	28	31
Sub-total	107.7	97.6	134.4	90.3
EDIA (25%)	26.9	24.4	33.6	22.6
Project management (8%)	8.6	7.8	10.8	7.2
Overhead (20%)	21.5	19.5	26.9	18.1
Contingency (40%)	43.1	39.0	53.8	36.1
Total	207.9	188.4	259.4	174.3



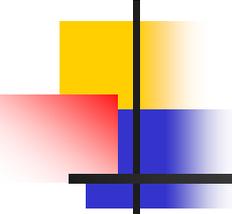
Current Activities

- We have submitted an R&D Proposal to NSF for 3 years
- We are working on a proposal to Fermilab for off-axis experiment to be considered at June 2004 PAC meeting
- Next year will be focused on R&D and cosmic ray test
- Construction funds for the experiment could come from NSF MRE program or from DOE
- We are aiming for start of construction in 2006; data taking with partial detector in 2008
- In parallel 4 Divisions of American Physical Society are organizing a 7-month long workshop on neutrino physics to be concluded with a potential “roadmap” in summer ‘04



Possible Time Scenario

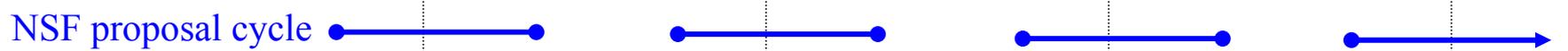
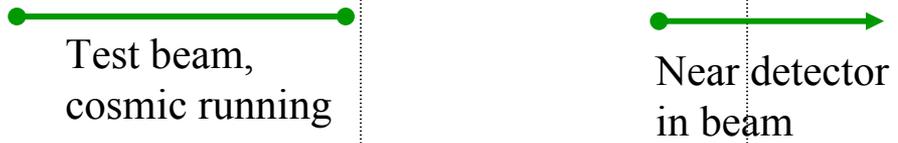
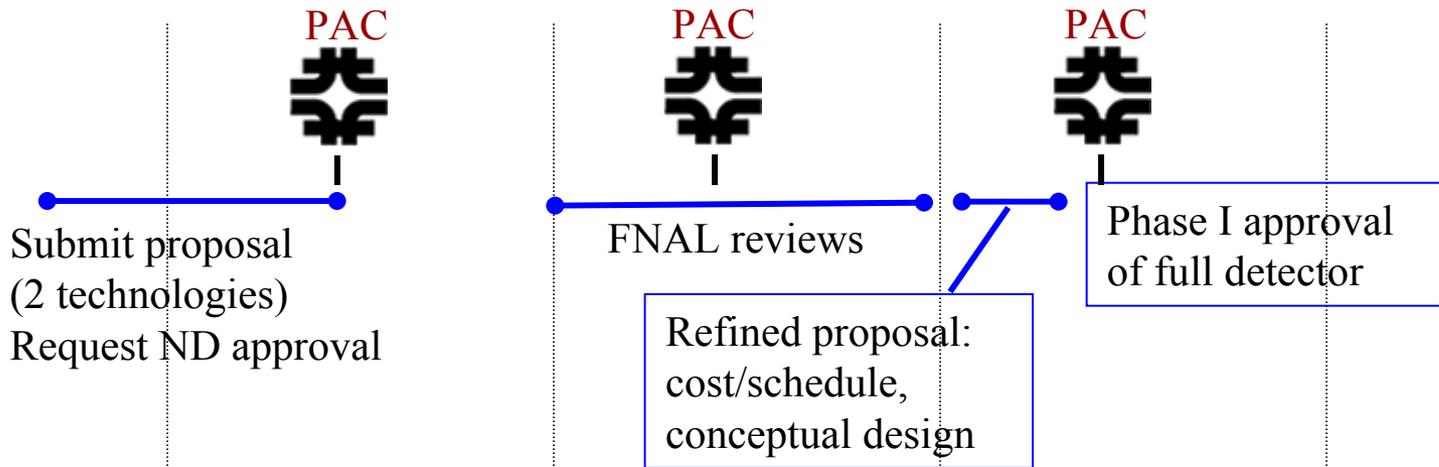
- Spring 2004 - R&D funds from NSF
- June 2004 - Stage 1 Approval from Fermilab
- Summer 2004 - APS study report finished
 - Initial funding proposed for FY06 (Oct. 1, 2005)
- December 2004 - final technology decision
 - Proposal update document submitted to Fermilab
- June 2005 - Final approval by Fermilab
 - Construction funds requested for FY07
- October 2006 - Start of construction
- September 2008 - start of data with 25% of detector
- September 2010 - detector construction completed



Final comments re schedule

- The schedule outlined is the technically feasible one with some optimistic assumptions about flow of funds
- The NuMI Off-axis Experiment projected cost is essentially the same as the cost of the whole NuMI project - beam, detectors, conventional construction (~\$175M)
- The latter will take 5 years of funding to complete - mainly because of delay in completion of underground excavation work

FNAL



- R&D: Year 1
 - Test beam prototype
 - Cosmic ray test
 - ND, FD engineering
- R&D: Year 2
 - ND construction
 - FD engineering
- R&D: Year 3
 - FD engineering
- MRE Proposal

NSF

