2 km Jobs and Plans

- Presentation at the end of August should make the case for a 2km detector complex.
- We should be finished/finishing the detector based jobs now. (Good progress in last month).
- We need to concentrate on the physics studies now. We must start the physics studies even as we finish the detector work.
- I will list the jobs/questions we want to address. We might not be able to do all of it. Is there anything we are forgetting?

Chris Walter
7/14/2004

Detector Issues

- KTON
  - Compare G4 kton simulation with kton data
  - Tune standard SK tools
  - Polfit
  - Modify MRD geometry
  - Check relative performance of 8”/20” tubes
  - Calibration Ideas for WC tank to reduce fiducial error and measure ringcounting error. Also address other possible systematic WC/SK differences.
- FGD/MRD
  - Add FGD/MRD output to ROOT output
  - Add Liquid Ar option
  - Add reconstruction tools for FGD

Done/Almost Done

Physics Issues (1st page)

- How well can we measure N/F ratio?
- How well can we predict the SK flux, if we have 280 and 2km flux measurements?
- How sensitive is the N/F ratio to multiple hadron models?
- How well can we measure ν_e BG?
- Make sensitivity plots for disappearance/appearance:
  - What technique shall we use for N/F error propagation?
  - Sensitivity lines as a function of N/F error
  - Show effect both for limit and measurement of nue(near CHOOZ)

Physics Issues (2nd page)

- Study how measuring at 2km compares to relying on HARP/MIPP data and the offaxis effect on the stability of the energy spectrum. *The high energy tail may not be stable to different hadronic production models.*
- How well can we measure nonQE/QE in the FGD.
  - Can exclusive measurements help ?(lAr option)
  - Can we measure difference between H2O and C/Ar by comparing events in the two detector subsystems?
- What about FGD only (or FGD with water target)?