

Comments for panel

We are in a unique situation – a compelling set of scientific questions, and a unique opportunity to address them.

- 1) for neutrino oscillations – **need** massive detector, and intense beam at a significant distance – Parke talk this morning The FNAL-DUSEL link is ideal – max. detector mass at DUSEL
- 2) For proton decay **need** massive detector at sufficient depth, ~ 4000mwe –
- 3) For SN neutrinos, prompt and relic, **need** low reactor backgnd- Homestake is far from the belt of U.S. power reactors
- 4) Scientific merit - This program has been given high priority by the P5 panel, and as we heard this morning from Stuart Raby by the Theory White Paper and by numerous other review and advisory groups
- 5) We have **two excellent, complementary technologies** at different stages of maturity. Thus, there is an obvious plan – immediately construct a detector array of the mature technology, **water Cerenkov**, and support an aggressive development program for the other, **liquid argon tracking**.
- 6) This scientific quest is best carried out as an international collaboration. There are **strong, parallel efforts in both technologies in the US, in Europe and in Japan**. Let's get together and let's get going.
- 7) We have another challenge – **streamline the Governmental review and decision making process** so that we can get started. Surely, we should be able to construct the detector – beam system in less time than it took to get to the Moon (9 years, if I remember correctly).

To summarize, the discovery potential of such a detector is high. It could of course be built in modules , each of about 140 kilotons, and at least five such modules would be needed to achieve the desired goals. Because of its unique multi-purpose value and its physics significance, such a Large Size Detector at DUSEL, coupled to a long baseline neutrino beam (which could be provided for example by Fermilab), would be one of the greatest assets to the U.S. and the world as a whole. It would greatly complement the physics that may be learned from the forthcoming Large Hadron Collider and would thereby enhance the U.S. High Energy Physics efforts at the very highest energy frontiers.