

Physics Issues

Minneapolis July 22, 2005

Multisite Aspects

- Multisite aspects:
 - SNOLab
 - Soudan
 - Henderson and Homestake in S2
 -
 - Partnerships?
 -
- Matching of experimental demand to site capacity around the world

Multisite aspects, cont'd

Possible partnerships have not been considered yet

- Sedimentary rock + hard rock
- Large detector + deep detectors
- Role of existing US sites, WIPP,
Soudan

Why DUSEL?

- Be the place to go.
- Depth, distance from accelerators.
- Concern is lab isn't sufficiently ambitious
- Why not just use SNO Lab?

Why not just SNOLab?

- More demand than SNOLab can accommodate. 18 LOIs. 4x too much. Really 2x.
- Demand for R&D space exceeds SNOLab's capability.
- Long-term ownership of the science and the physical plant. Not active mine.
- A LAB for US fundamental science. A local university like environment
 - Theory group, on site facilities, technical support. On site community.
- The US should be a magnet for frontier research and the best scientists, not always a guest in other countries.
- Geosciences, biology
- Megaton detector
- Accelerator
- Security issues.
- Important scientific results need to be checked and verified.
- Critical mass for the program

Timeline, integration

Coordinating the needs for

- Infrastructure
- Low – background counting
- Technical support
- Cryogenic experiment

Need a timeline for experiments in order to estimate demand for technical support, engineering

Experiments

	Access >4000 mwe	Access 6000 mwe
• SuperCDMS	2007	2010
• Majorana M180	2009	2010
• EXO 200	2007	not
• Xenon	100 (10 in LNGS) 2007	

Experiments

- DEAP (LAr dark m) 2007
- Low Background Facility 2006
- COUPP 2007
- CLEAN (LNe solar nu, dm) >2009
- HERON >2010
- LENS >2009
- Accelerators >2009
- DRIFT >2010

- Megaton >2010