

Understanding the Universe

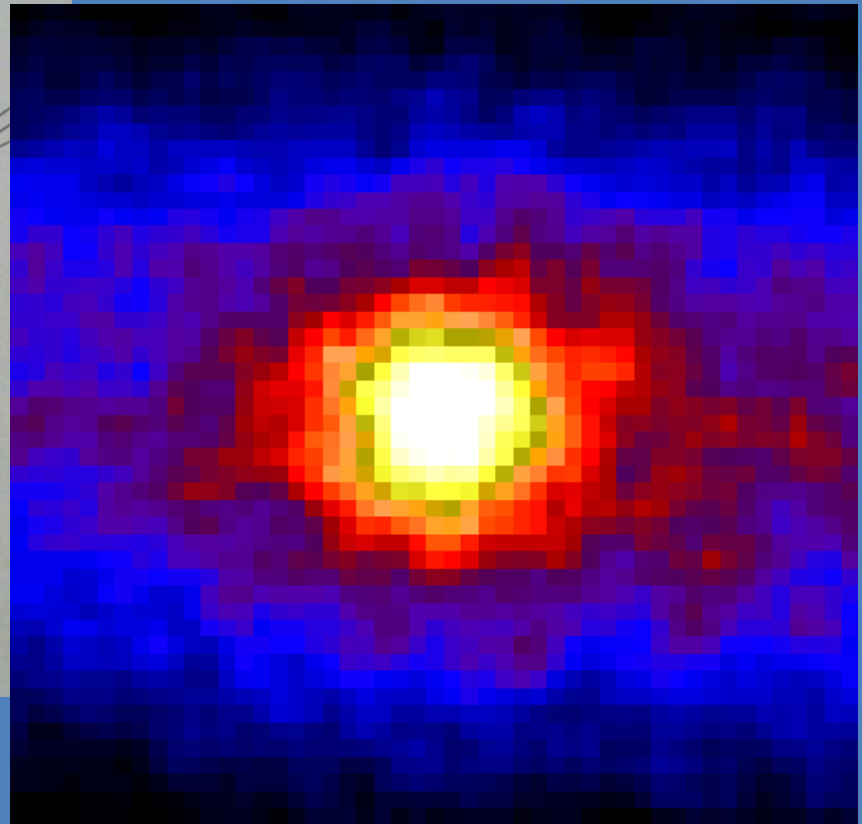
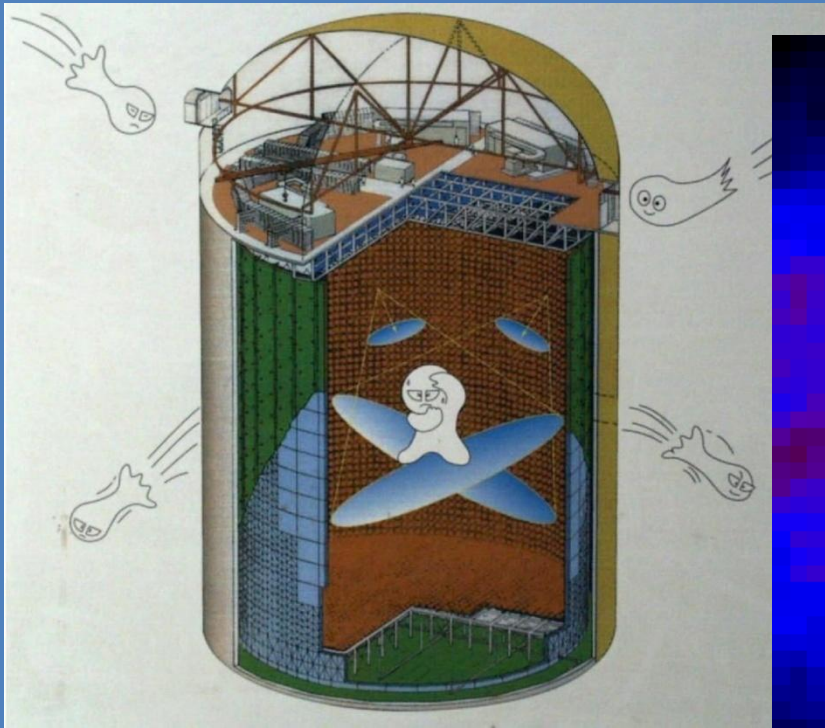


...from the bottom of a mine

Robert Svoboda, U.C. Davis

UCDAVIS
UNIVERSITY OF CALIFORNIA

Super-Kamiokande 1992-2007



KamLAND Detector

1999-2004 ⁵⁴

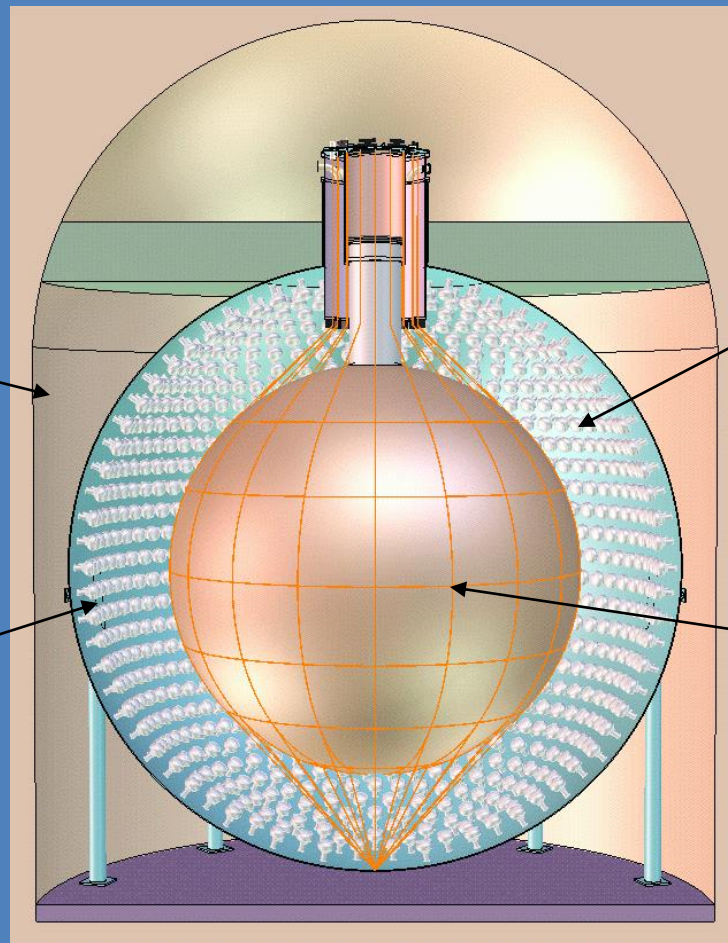
5. Detector Design



1 km deep in
Kamioka Mine

water-filled
active veto

1325 17"
554 20" PMT's

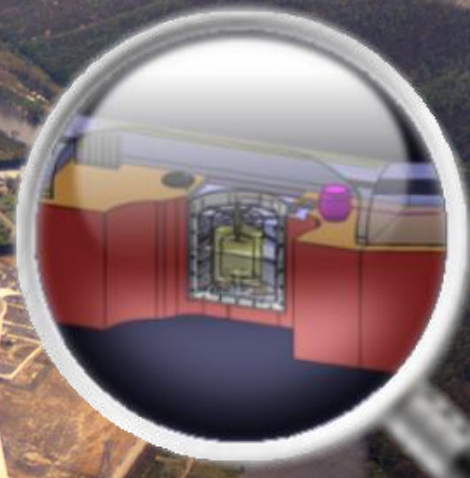


buffer oil
region

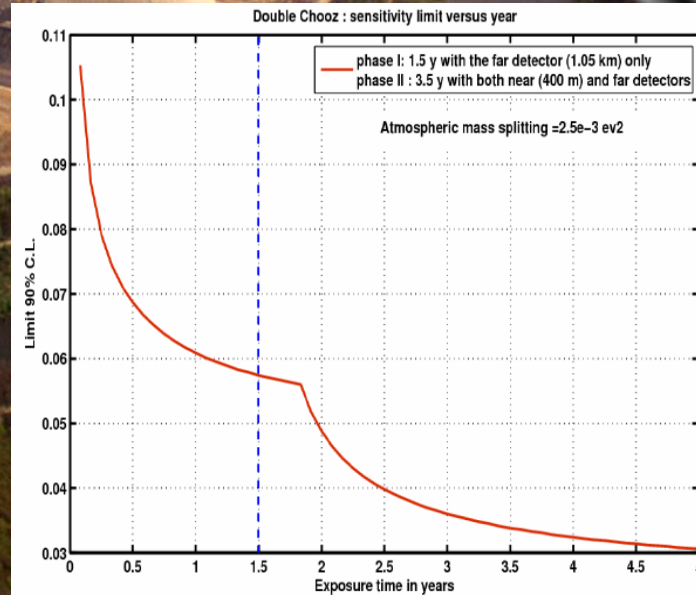
scintillator
filled balloon
6.5 m radius
1000 tons

The Double Chooz Experiment

Run start: July, 2009



Svoboda, Classen, Henson
Goal: measure θ_{13} to see if new experiments could find CP violation

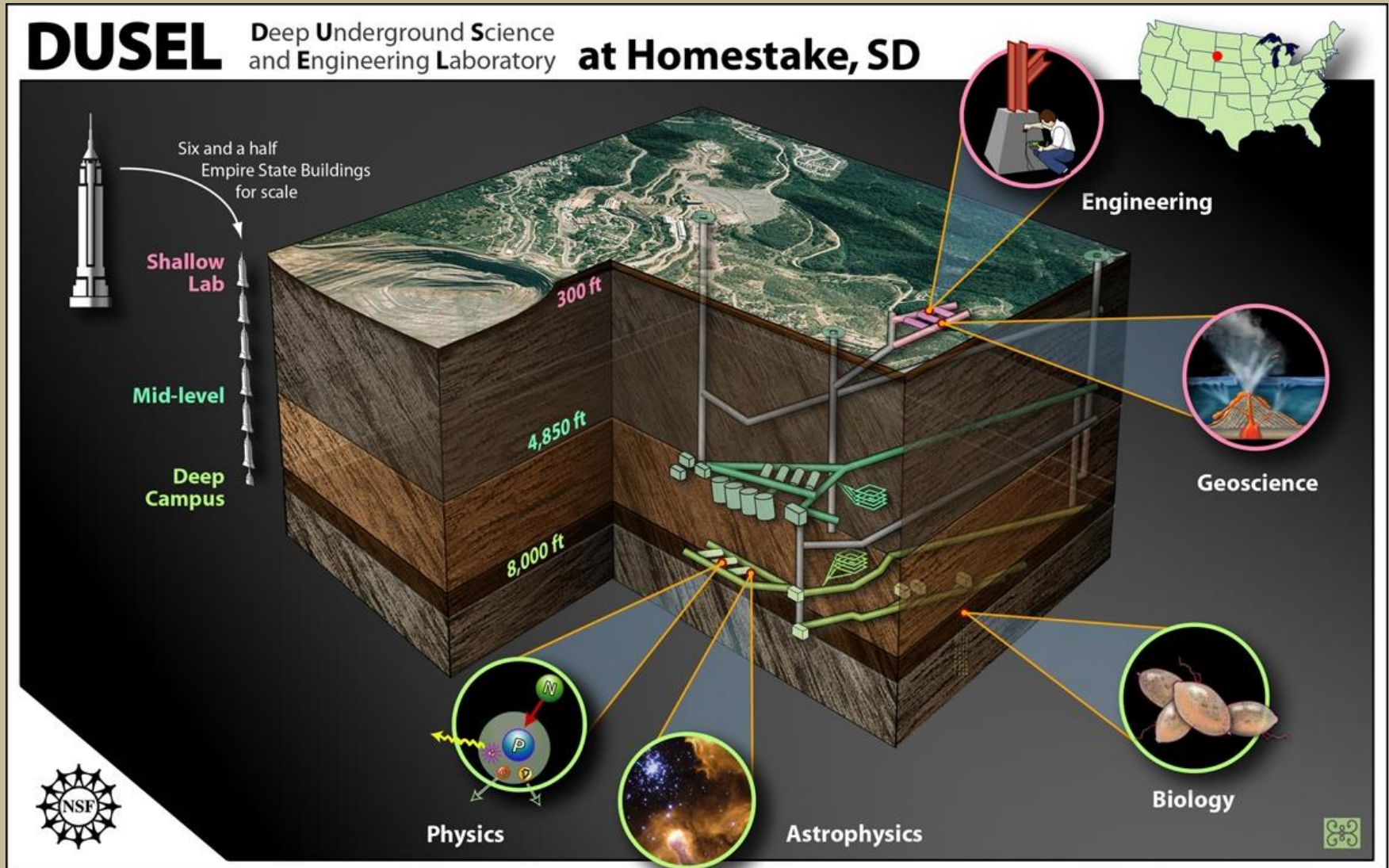


DUSEL Experiment Development and Coordination (DEDC)

Internal Design Review

July 16-18, 2008

Steve Elliott, Derek Elsworth, Daniela Leitner, Larry Murdoch, Tullis C. Onstott and Hank Sobel



Large Underground Xenon Experiment

LUXX

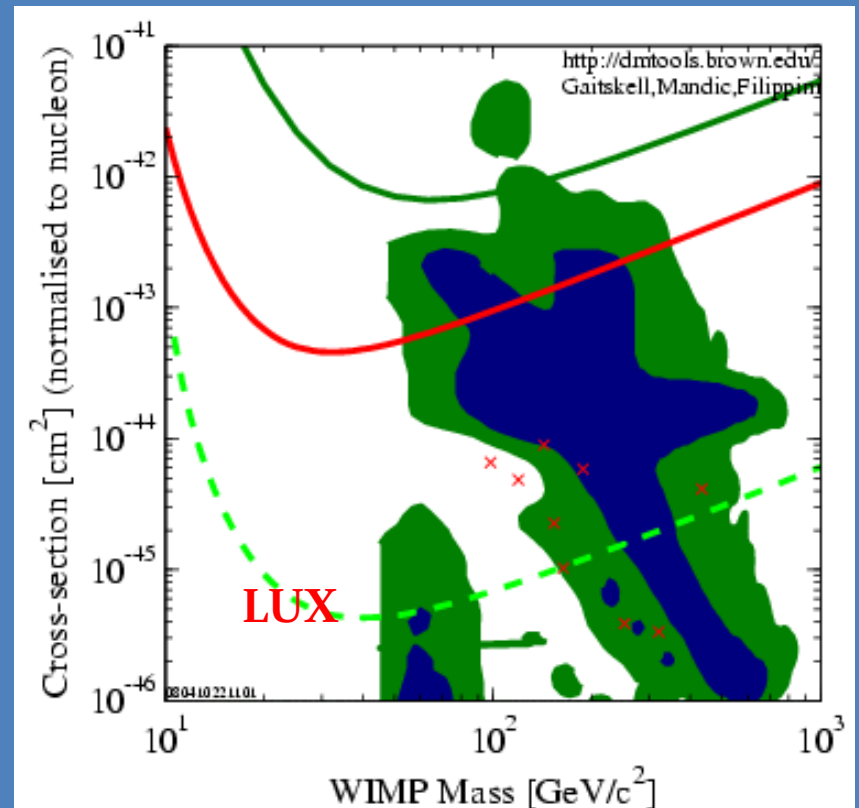
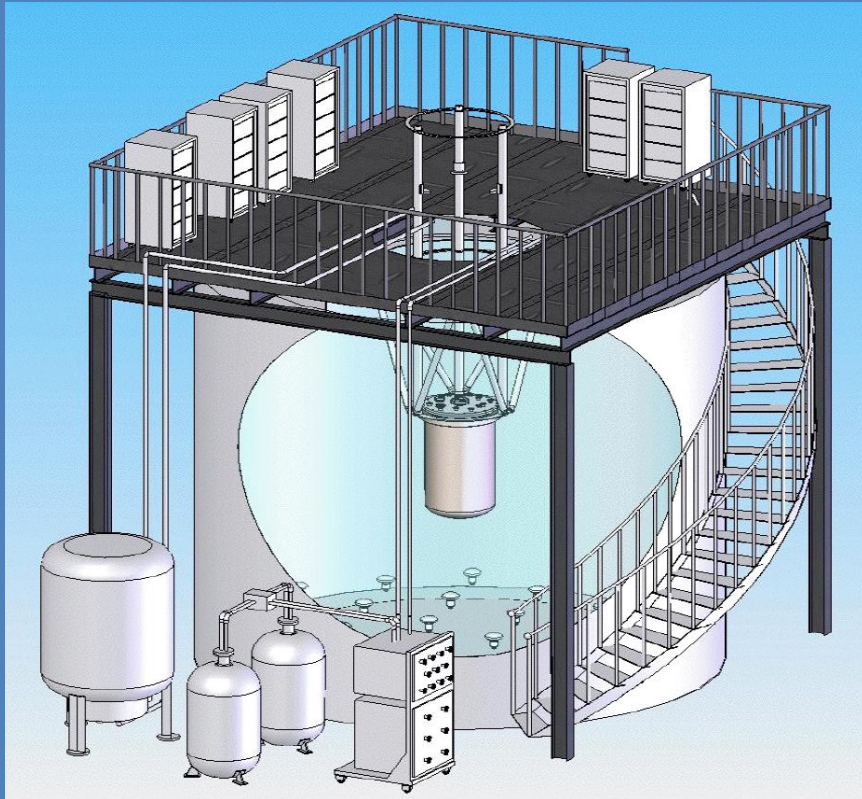




Goal: 20 times more sensitive than CDMS/XENON₁₀ experiments.

Svoboda, Classen, Tripathi, Sweany, Walsh, Wu

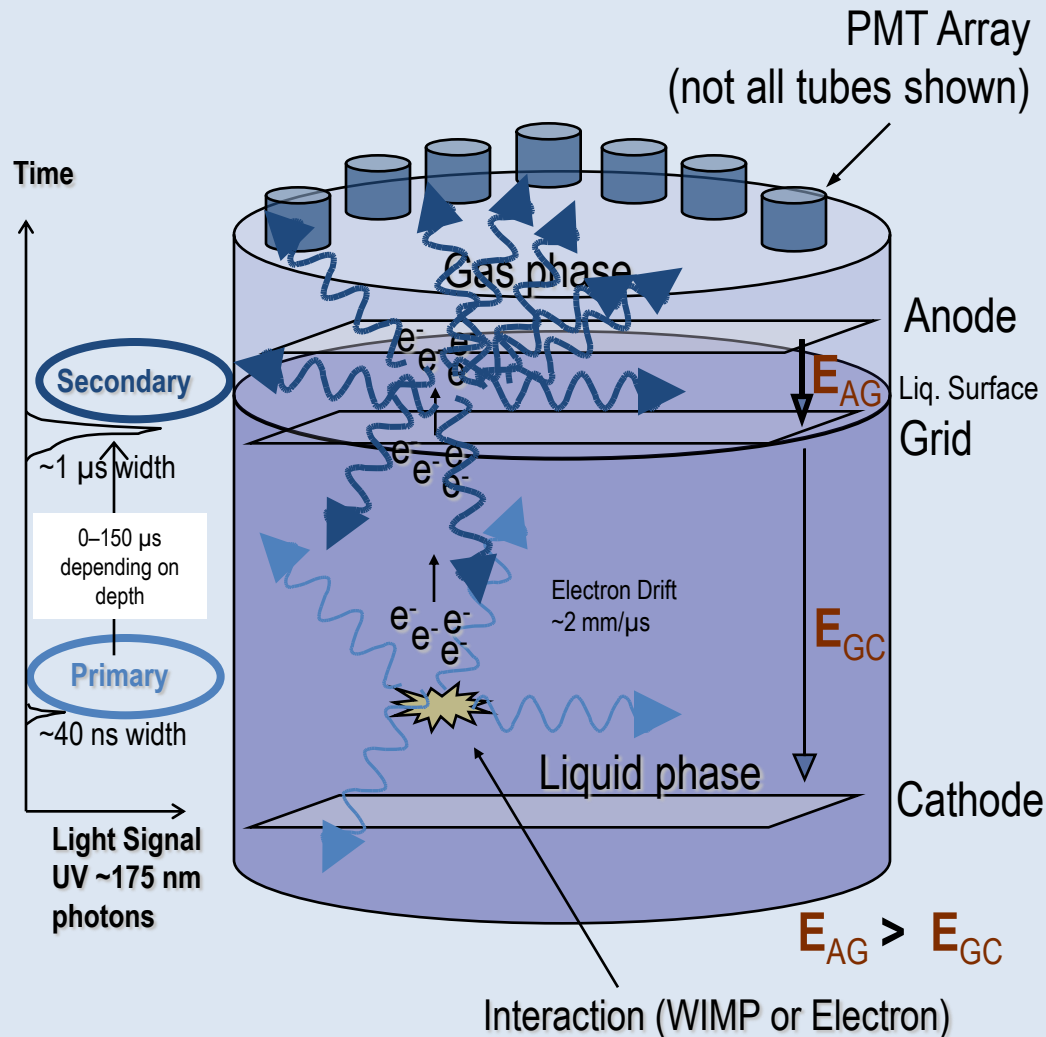
Under construction,
Start running summer 2009.



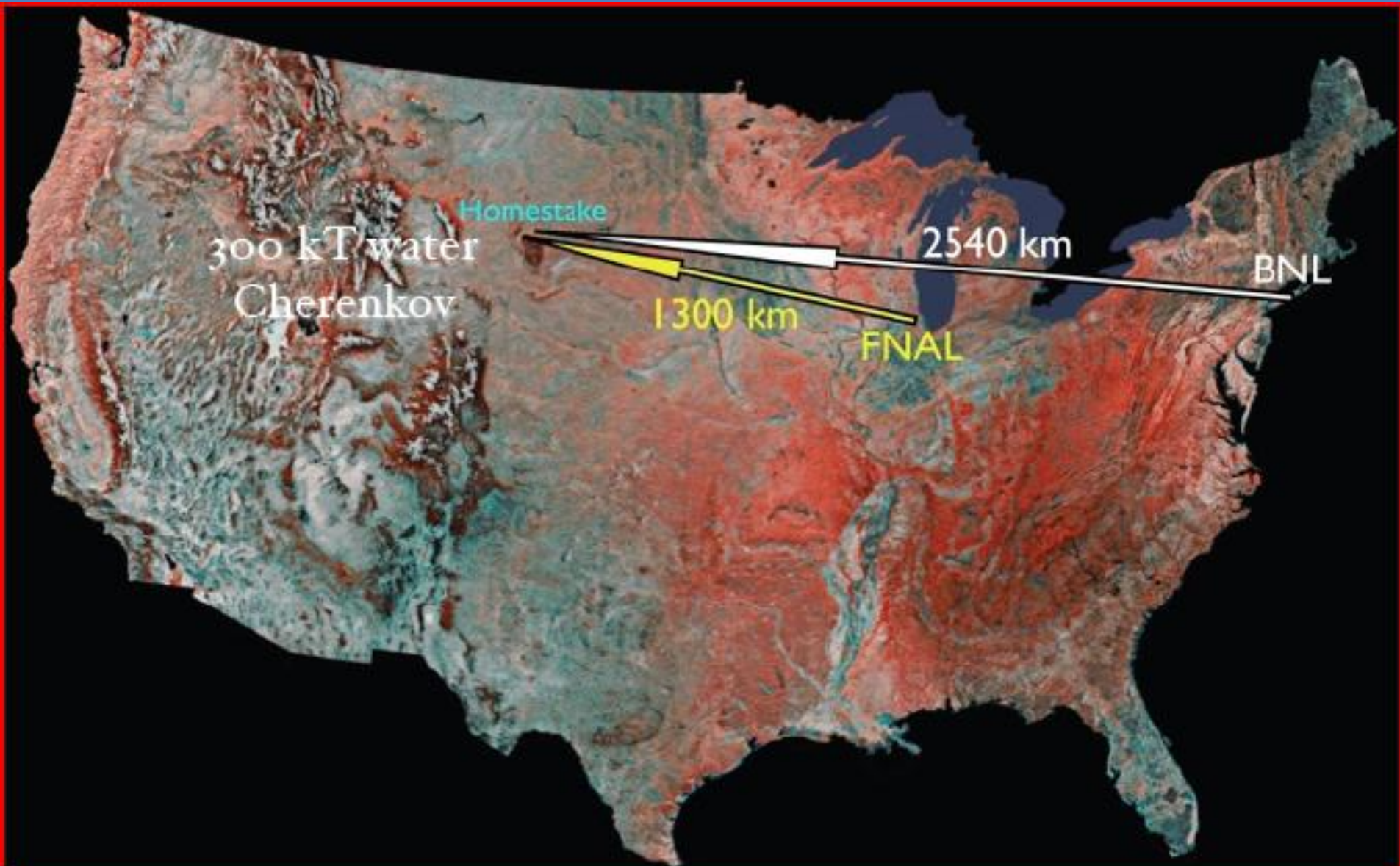
Cryostat Assembly



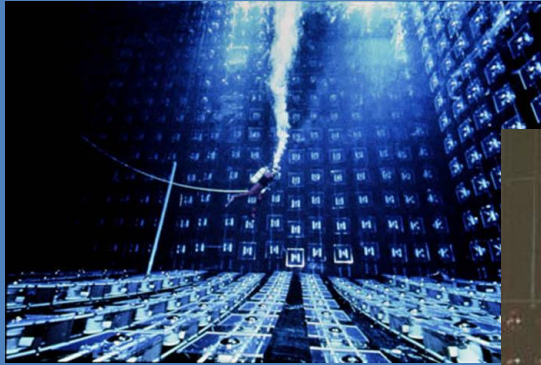
How to Look? Here's one way...



DUSEL LONG BASELINE EXPERIMENT



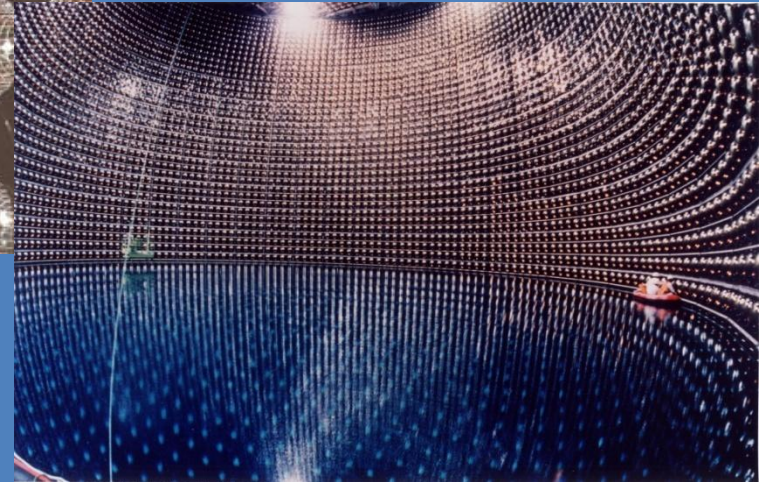
WC Detector Development



IMB
3 ktons



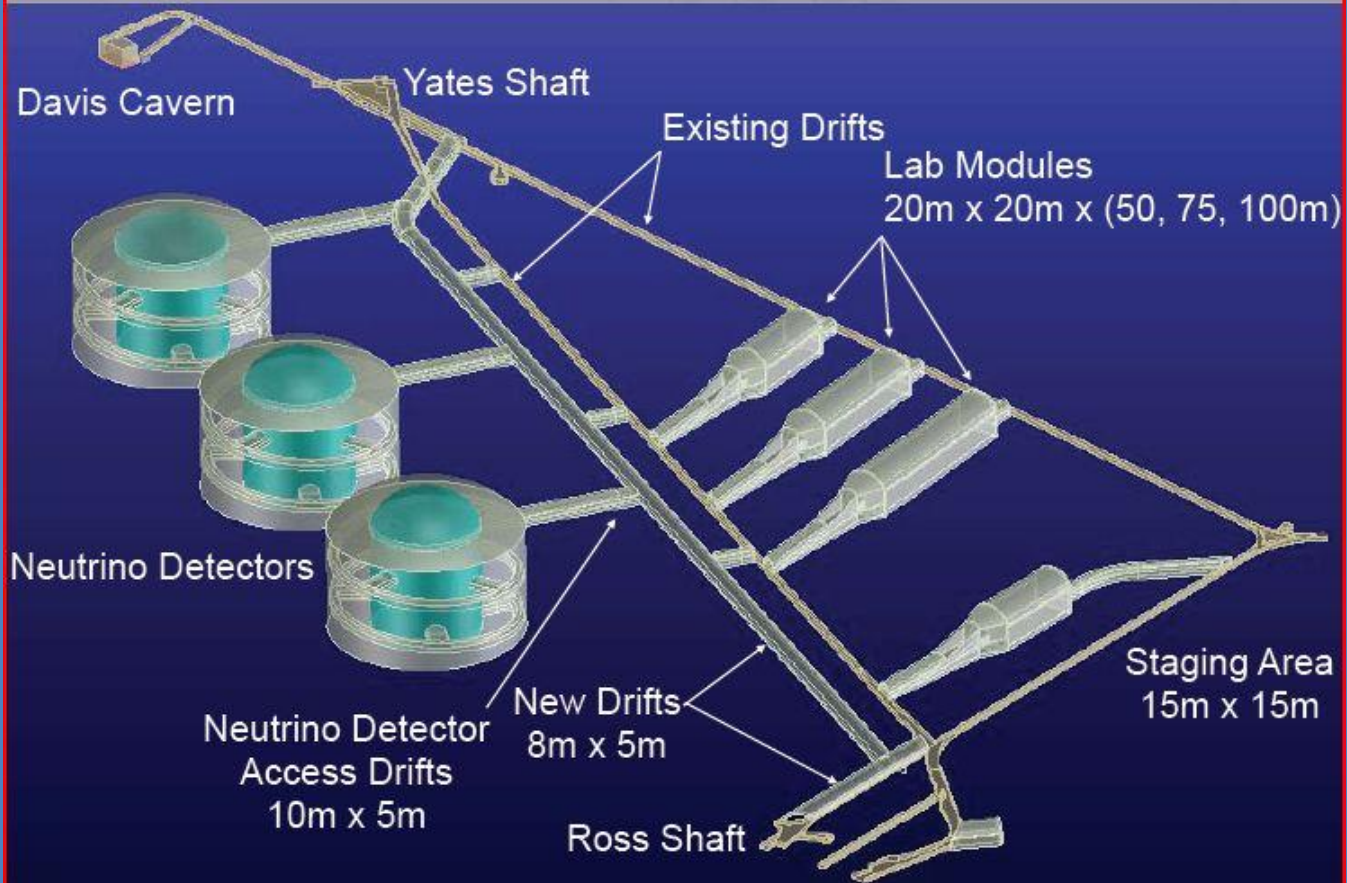
Kamiokande
1 kton



Super-Kamiokande
22 ktons

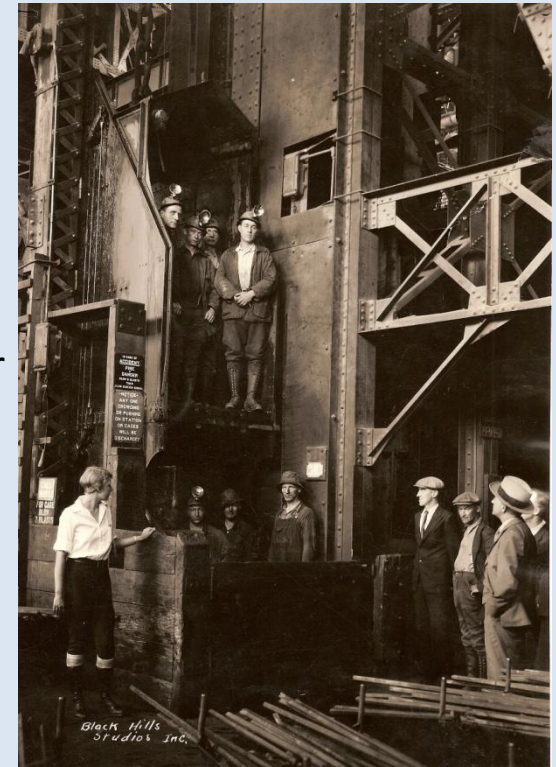
DUSEL 300 ktons

4850 Level Conceptual Layout



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Current Issues:
Depth Document
Election of Chair
Mission Statement
White Paper
Collaboration Governance