

# Neutrinos at LBNL

## Snowmass discussions

1. Beyond ton-scale NLDBD
2. Opportunity at the 4th DUNE cavern



# I. Beyond ton-scale NLDBD

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- Panel members:
  - ▶ Tanner Kaptanoglu; Yury Kolomensky; Dan McKinsey; Yuan Mei; Alan Poon
- Format:
  - ▶ Brief intro and ideas from each panelist
  - ▶ Questions and discussion  
*please raise your hand or put comments in chat*

# Questions

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- Goal: what is the most compelling science case, and how can LBNL can best position ourselves to influence / determine the future of the field, and to take a lead role in that future?
- Is there a more productive way to frame discussion / different question to address?
- What complementarities exist between technologies and/or physics topics?
- Would we benefit from a comprehensive internal study, looking outside our own focus areas? (Equivalent to the MH study done ~ 8 years ago). Or does this overlap with the Snowmass process itself, can we leverage that?
- Does it benefit us to try to converge behind a single option, or are we best remaining maximally broad?
- How can lab resources (e.g. LDRD) help us achieve our goals?

# Ideas

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- Multi disciplinary task force
- Theorists: e.g. request Hitoshi, Wick to help organise
- Reach out to NSD & PD leadership
- Target NLDBD sensitivity but focus on breadth of physics program, and complementarity between efforts (tech and physics), what does LBNL bring to each effort
- Identify areas to dedicate resources to optimally enhance / further critical efforts
- Small group, monthly reports / discussions in INPA slot
- How to leverage lab resources, raise awareness at lab level e.g. area / institutional LDRD

## 2. 4th DUNE Cavern

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- Panel members:
  - ▶ Morgan Askins; Dan Dwyer; Kevin Lesko; Callum Wilkinson
- Format:
  - ▶ Brief intro and ideas from each panelist
  - ▶ Questions and discussion  
*please raise your hand or put comments in chat*

# Questions

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- Goal: how do we identify the most compelling use case for the 4th cavern, that also addresses p5 priorities?
- Is there a more productive way to frame discussion / different question to address?
- How can LBNL influence the process by which a decision gets made?
- How to influence P5 priorities?
- What complementarities exist between technologies and/or physics topics?
- Would we benefit from a comprehensive internal study, looking outside our own focus areas? (Equivalent to the MH study done ~ 8 years ago). Or does this overlap with the Snowmass process itself, can we leverage that?
- Should we seek to converge behind a single option, or are we best remaining maximally broad?
- How can lab resources (e.g. LDRD) help us achieve our goals?

# Ideas

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- Support mechanism for large, but non-project specific, R&D effort
- Need to consider ND constraints when looking at FD choice
- Can a G3 DM experiment (or other options) be installed and removed before a LAr module is installed? Need to understand funding profile.
- Can you use DUNE as a veto? (For a 3rd module) — parasitically use the cryo infrastructure etc (too cold for Xe...)
- How to address stove piping in the field — both at the agency and community level — to enhance the US scientific program