The Neutrino Landscape and the Purpose of this R&D Facilities Workshop

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Big Neutrino Investment – Appropriate R&D Maximizes Return

• The next decade in accelerator neutrino physics will see a very healthy array of new detector and new technology exploitation…
  – MicroBooNE and NOvA will see through their approved runs
  – SBND and ICARUS will complete the SBN program
  – The ProtoDUNE(s) (single and double phase) will be constructed and operate at CERN
  – The first 10kton DUNE detector will be built
  – R&D and Design of the remaining DUNE detectors will progress

• This represents a huge investment in the physics that can be learnt from accelerator neutrinos

• Ensuring the best return on that investment means sustaining an appropriate level of neutrino detector R&D in the community
Competition for Resources within Neutrinos

• The huge investment that our field is about to make in LBNF/DUNE will squeeze funding to all parts of particle physics

• The project funds for LBNF/DUNE will squeeze funding for neutrino operations, research, and R&D

• It would be very unhealthy for the field to stop all neutrino detector operations or R&D

• But we will not be able to operate all the detectors or do all the neutrino detector R&D that we might want to

• We have to find the right balance
Role of the National Labs

- Our accelerator neutrino community functions best when the US National Labs are facilitating the work of the Universities
  - Providing user facilities
  - Providing expertise and engineering
  - Providing project management
  - Providing a hub for scientific interaction

- This facilitation applies to neutrino detector R&D as well

- In Fermilab’s neutrino division we are trying to significantly up our game when it comes to facilitating the neutrino community

- This workshop and our approach to neutrino detector R&D is part of that process
Purpose of This Workshop

• In order to understand how to balance the competing calls on neutrino resources we need input

• This workshop has been set up by Fermilab’s Neutrino Division to understand how to optimize its investment in detector R&D facilities

• What neutrino detector R&D does the community need to perform in the next few years?

• We cannot guarantee that all requests can be met

• We need to understand how to evolve our facilities to maximize their impact whilst balancing the demands for resources between neutrino projects, operations, research, and detector R&D