The Normal Hierarchy and Structural Issues

- Sensitivity will require going beyond "tonne scale"
- Cost will become a (bigger) issue
- And then $/"number"---compared to (say) collider experiments problematic
- Also need enough physics topics to support scientists (e.g., PhD dissertations)
- Either need to upgrade/re-use existing detector or facility
- Or move toward a multipurpose experiment…but:
  - Neutrino physics in US funded by multiple offices and agencies
  - Multipurpose detector would naturally (by design) span most or all of these
  - Each office or agency will want the other to pay for it
  - (Particularly if a new "hole" needs to be excavated)
- New technologies also "sell" well both to agencies and our colleagues
- Some agencies like particular technologies more than others

The Normal Hierarchy and Technical Issues

- Either need new (cheaper) enrichment processes (magnetic sorting…?)
- Or be big enough to use natural element
- Either cleaner materials
- Or big enough to strictly fiducialize (or both)
- Better background tagging
- Or very high statistics (or both)
- Discovery most convincing with a zero-signal control comparison
- And across more than one isotope (could be same detector)
- But want signal to be unambiguous even without that