Thanks

Thank you to the DUNE near detector group for your tremendous work. The progress since February has been remarkable. Today's presentations were focused, on time, and on topic.

Committee considers these essential:

- DUNE should have an array of LAr detectors in its ND complex.
- The off-axis measurement concept on an argon target (DUNE-PRISM) is needed from Day 1.
- There must be some kind of magnetized spectrometer downstream of the LAr ND that also moves off-axis.
- An on-axis beam monitor is required that is capable of accurately measuring beam center, profile, and rates on a few days' timescale.

Highly desirable:

- Measuring neutrino interactions on a gaseous argon target is compelling, with 4π coverage
- Material between the LAr and downstream spectrometer should be minimized as much as is reasonable, especially dead material
- Some sort of ECAL is desirable around the gaseous argon detector (to be optimized with respect to channel count and mass distribution for physics performance and cost)
- Run plan that approximates uniform sampling of off-axis locations vs. time (i.e. return to on-axis frequently)
- Consider possibilities of beam monitoring over wider range of angles in both transverse directions

Concerns:

- Consider options for more robust t_0 determination in gaseous TPC or show that current design is good enough
- Carbon target seems to have weak motivation in terms of the oscillation measurements on Ar, although it’s fine just as target mass for beam stability monitoring
- Is a fixed on-axis spectrometer really needed when you can move the LAr+MPD on-axis?
- We worry whether the beam profile measurement is being done over a wide enough distance

Conclusion

- You have made a convincing case that DUNE requires a highly capable near detector to achieve its physics goals.
- The proposed design seems sufficient to achieve the required sensitivity goals.