

LBL Paper Draft and Plans

Physics Papers: Plan

- Three standalone papers extracted from the physics volume of the TDR
 - LBL
 - SNB capabilities
 - BSM, including baryon number violation
- Content
 - TDR contains a lot of real physics content, but was written for multiple purposes/audiences
 - Educate reviewers
 - Respond to reviewer questions
 - Demonstrate collaboration has thought about significant challenges
 - Describe detector requirements
 - **Describe the analyses**



Physics papers pick out the analysis descriptions

LBL Paper Outline

Draft taken from overleaf this morning
posted in same Indico entry as this talk

- Introduction
- Flux and uncertainties
- Neutrino interactions and uncertainties
- Near detector sim/reco
- Far detector sim/reco
- Far detector event rate and oscillation parameters
- Detector uncertainties
- Sensitivity methods
- Sensitivities
- Impact of ND



Only change in order from TDR –
reads more like a regular
analysis paper

Changes Relative to TDR

- Introduction:
 - Add brief introduction to DUNE experiment
 - Remove much of the motivation and theory discussion
- Flux:
 - Add figures from tools chapter of TDR that were referenced here
- Interactions:
 - Remove significant amounts of discussion leaving primarily a summary of the nominal interaction model and what uncertainties are considered
- ND:
 - Remove discussion of samples not included in current analysis
- FD:
 - Add brief discussion of simulation (in TDR this was in tools chapter)
 - Move spectra and event rates here
- Detector Uncertainties:
 - No major changes

(cont)

- Methods
 - Reworked a bit to be less repetitive
- Sensitivities
 - No major changes
- Impact of ND
 - No major changes

Plan Going Forward

- Callum will be primary working group lead for this paper
- Callum has some proposed changes relative to this draft – discuss today
- One week working group review period starting soon
- APB appoints analysis review committee (drawn from collaborators not closely associated with the analysis)
- Full collaboration review after ARC review complete