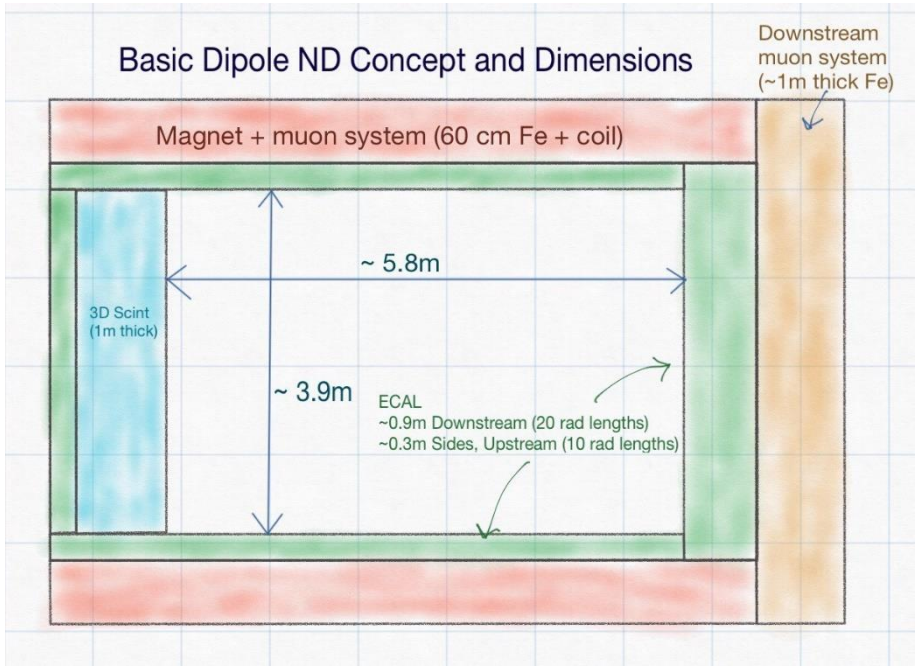
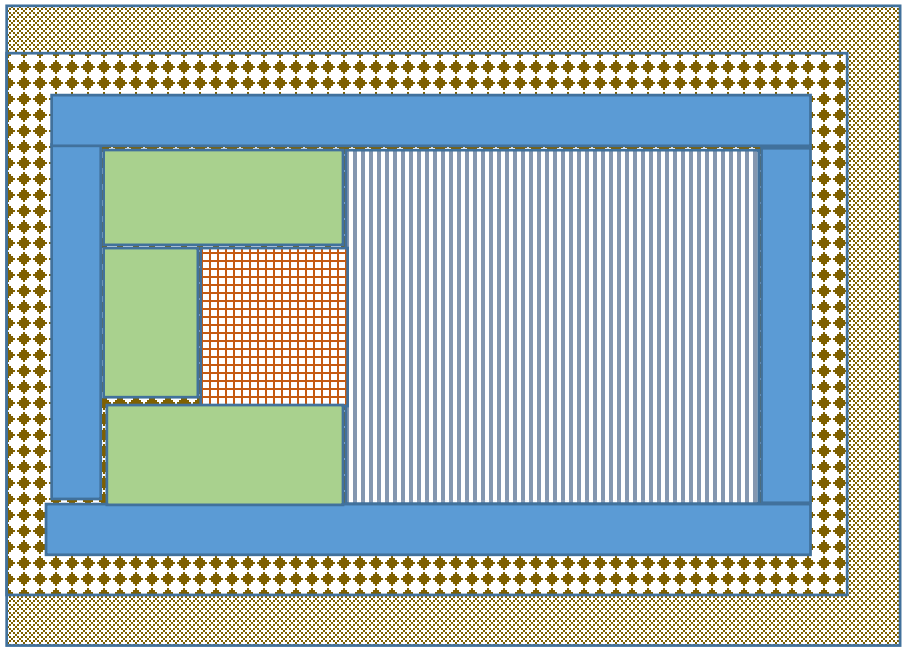
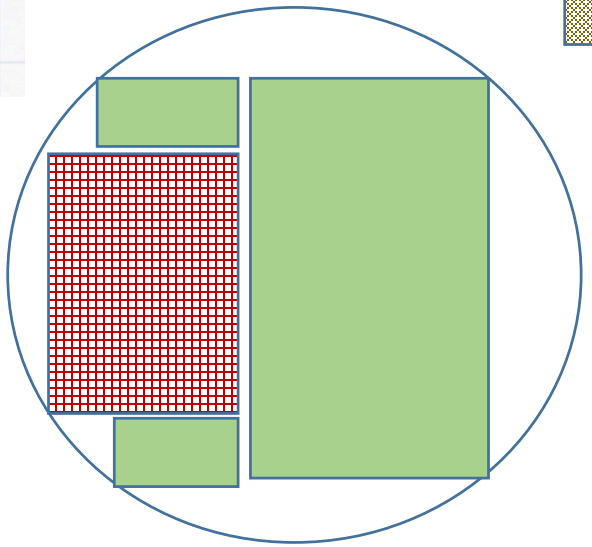
3D scintillator target as part of DUNE ND







S. Manly, M. Kordosky, K-B Luk, A. Weber
DUNE ND workshop
CERN
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Motivation for 3DST target addition to ND:

- Statistics, statistics, statistics
  - Neutrino-electron scattering
  - Coherent scattering
  - Other topologies
  - Statistics even more important with DUNEprism
- Photon containment, can check pizero numbers from trackers with no containment
- Sensitivity to neutrons
- Transparent connection to MINERvA and T2K x-section results
- 3D solves 90 degree reconstruction issue experienced by T2K ND280 and MINERvA
- Synergy with T2K ND280 upgrade, exploring paths for resources

3DST questions:

- neutrino-electron scattering measurement performance?
- What is the angular resolution of the superFGD? (related to above, using energy sharing among cells probably better than going with cell size, perhaps non-aligned cell layering or rotated detector).
- How big?
  - Stats for different topologies
  - Pizero containment
  - Neutrons counting
- What is the additional physics that can be addressed with the 3dST?
- How does 3DST compromise low density tracker sharing magnet?