Table Adapted from A. Mastbaum

Table adapted from G. Orebi Gann

		Priorities		
Physics	**Size**	**Ring Imaging**	**Light Yield**	**Cleanliness**
NLDBD	~ few kt	Medium	Very high	Very high
Low-E solar ν (<1 MeV)	~ 10 kt	High	Very high	Very high
High-E solar ν (>1 MeV)	> 50 kt	High	Low	High
Geo/reactor $\bar{\nu}$	~ 10 kt	Low	High	Medium
DSNB	> 50 kt	Low	High	Medium
Long-baseline ν	> 50 kt	Very high	Low	Low
Nucleon decay	> 100 kt	High	High	Low

Target Material	WbLS • Good Cher/scint ratio • Good optics (maybe?) • Low(ish) Cost • Tunable light yield • neutrino NC reaction on O • Low scint yield • High density • Low index of refraction • High(ish) Z • Hard (er) to clean	Liquid Scintillator • Good scint light yield • High index (good Chertons) • Easy to clean • Poor(er) optics • High cost • Poor Cher/scint ratio	Fast Liquid Scintillator • Good recon • Good multi-site • Easy to clean • Poor(er) optics • High cost • Poor Cherenkov ID	Slow Liquid Scintillator • Great Cher/scint separation • Easy to clean • Poor(er) optics • High cost • Poor multi-site/recon	LAr • ”Perfect” Cher/scint separation • Easy to clean from heavy contaminants (U, Th) • Great optics • Super scint light yield • Great PSD (a/b) • Intrinsic bkds: 39Ar, 42Ar/42K, 38Cl • High multiple scattering • Requires WLS • cryostat reduces fid. Vol
Photon Sensors/collectors	LAPPDs • Excellent timing • High pixelization • Dichroicons with planar sensors? • Low(er) QE than HQE PMTs • High cost	R14688s (Eos) • Very good timing • Very good QE f • Not cheap/m^2	R7081s (ICECUBE) • Cheap(er) per m^2 • Very good QE • Poor(er) timing • Needs pressure test	SiPMs • Excellent QE • Excellent timing • Problematic dark rate • Very expensive/m^2	Dichroicons • Excellent Cher/scint sep even in fast, high ly scintillator • Cost ~ sensor cost • Response is complex • Cher yield is low
Location	SURF FD4 • Exists! • Beam physics • Good depth • But DUNE • Shape not optimal	SURF Other • Better shape? • No DUNE • Good depth • Beam physics • Does not exist	SNOLAB • Better shape? • No DUNE • Excellent dept • Does not exist • No beam		