PHOTOCATHOD	GOOD	BAD	WHAT WE INTEND TO DO
Metallic[E] (*Cu, Mg, Ag*, etc.)	• Easy to obtain/handle • Still widely-used • Does not require UHV • QE remains constant for long period of time • Fast response time (~10^{-15}s) • Low dark currents	• Low QE (~10^{-4}) • No systematic study of effective cleaning & rejuvenating method, especially *in-situ* at photoinjector	• Study possible ways to increase QE by reducing work function (ion milling, surface texturing, etc.) • Perform systematic studies on effective cleaning & rejuvenating methods – sputtering, laser rastering, etc.
Semiconductor (*Cs_2Te, K_2Te, GaN*, etc.)	• High QE (0.05 – 0.3) • Photoelectrons have lower energy spread (in principle) than metallic	• Requires UHV • Surface deteriorates with O_2 • Longer response time than metallic (~10^{-13}s) • Initial QE has short lifetime	• Set up fabrication system to make photocathodes (especially Cs_2Te) • Study efficient method of transfer (load-lock) from fabrication chamber to accelerator • Test performance in accelerator • Investigate possible coatings to protect surface • Explore new candidates (K_2Te, GaN)
Negative Electron Affinity (*GaAs family, GaP*, etc.)	• Even higher QE than semiconductor (0.1 – 0.6) • Widely used in PMT • Possible source of polarized electrons (GaAs)	• Requires UHV • Even longer response time than semiconductor (~10^{-9}s)	Similar plan as semiconductor photocathodes
Liquid Metal, Superconducting compatible (*Nb, NbN*, etc.)	• Possible use in superconducting RF photoinjector	• Very little is known in accelerator situation • QE yet to be determined – probably same as metallic	• Initiate preliminary exploration • Lay groundwork for future research endeavor