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High Pressure Gas TPC

One of the dominant sources of systematic uncertainty in the HK CPV search will stem from neutrino-nucleus interaction modelling. Gas TPC detectors, which have fine-grained final-state particle reconstruction, excellent particle identification, low particle momentum thresholds, and the ability to change target nucleus, provide a unique opportunity for neutrino-nucleus interaction-model discrimination and generator tuning. Because of the high fluxes of accelerator beam neutrinos in the HK era, it will be feasible to use detectors with gas as the primary neutrino target as part of the near detector suite. Recent progress toward high pressure gas TPCs will be surveyed.

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