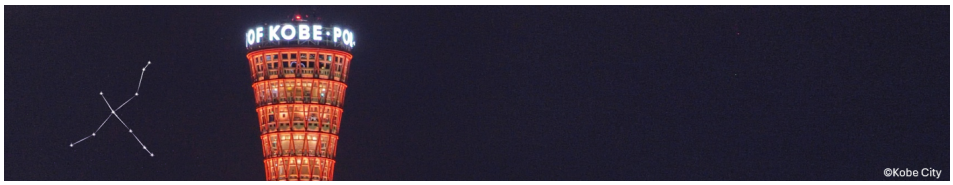

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Status and Plan for the DAQ and Cooling System of a 40-L Gaseous TPC with X/Y Strip Readout

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Particle detectors with sensitivity to the directions of low-energy nuclear recoils open access to previously unprobed physics. Directional detection of coherent elastic neutrino–nucleus scattering (CEvNS) would enable searches for potential beyond-the-Standard-Model (BSM) effects in this interaction and provide a critical capability for exploring regions of dark-matter parameter space obscured by solar-neutrino backgrounds. At present, the only detectors capable of time-resolved directional recoil imaging are gaseous time-projection chambers (TPCs). We report on the status of the DAQ and cooling system for a 40-L gaseous TPC employing Micromegas amplification with orthogonal X/Y strips, VMM3a ASICS, and the CERN Scalable Readout System (SRS) for charge readout. We also discuss future plans and upgrades, including a transition to a trigger-multiplexed DAQ using CERN's eSRS.

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