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Reactor CEvNS with SBC Liquid Argon Bubble Chambers

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The Scintillating Bubble Chamber (SBC) Collaboration is constructing a 10-kg liquid argon bubble chamber with scintillation readout. The goal for this new technology is to achieve a nuclear recoil detection threshold as low as 100 eV with near complete discrimination against electron recoil events. In addition to a dark matter search, SBC is targeting a CEvNS measurement of MeV-scale neutrinos from nuclear reactors. A high-statistics, high signal-to-background detection would enable precision searches for beyond-standard-model physics. I will discuss the status of SBC, the CEvNS physics reach, calibration and background challenges, and new techniques being considered by SBC to realize a precision sub-keV nuclear recoil calibration, such as nuclear Thomson scattering and Ar-40 neutron capture calibrations.

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