

The Scintillating Bubble Chamber

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The Scintillating Bubble Chamber (SBC) collaboration is developing novel particle detectors sensitive to low-energy (sub-keV) nuclear recoils by combining existing bubble chamber technology with liquid noble detectors. This approach leverages the insensitivity to electronic recoils characteristic of bubble chambers alongside the scintillation yield from a liquid noble active medium. SBC aims to achieve lower detection thresholds through a multi-channel readout including acoustic, imaging, and scintillation signals. The collaboration is currently commissioning two identical 10-kg detectors: SBC-LAr10 and SBC-SNOLAB. SBC-LAr10, located at Fermilab will focus on detector calibration and CEvNS studies, while SBC-SNOLAB will be purpose-built for dark matter searches in the low-background environment at SNOLAB. This talk will provide an overview of scintillating liquid noble liquid bubble chambers and the current status of both detectors.

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