

The scintillating bubble chamber at SNOLAB

The Scintillating Bubble Chamber (SBC) collaboration is developing liquid-noble bubble chambers sensitive to sub-keV nuclear recoils. These detectors combine the excellent electron-recoil insensitivity inherent in bubble chambers with the ability to reconstruct energy based on the scintillation signal for further background reduction. The targeted nuclear recoil threshold of 100 eV is made possible by the high level of superheat attainable in noble liquids while remaining electron-recoil insensitive. SBC-SNOLAB will probe the spin-independent dark matter-nucleon cross section down to 10^{-43} cm² at 1 GeV/ c^2 with a 10-kg-year exposure. An overview of scintillating liquid-noble bubble chambers along with the status and physics potential of SBC-SNOLAB will be presented.

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