Contribution ID: **125** Type: **Oral**

Scintillating Bubble Chambers for Rare Event Searches

Thursday, 9 November 2023 14:10 (20 minutes)

The Scintillating Bubble Chamber (SBC) collaboration will combine the well-established liquid argon and bubble chamber technologies to search for GeV-scale dark matter and the coherent elastic neutrino-nucleus scattering from MeV reactor antineutrinos. SBC detectors benefit from the excellent electron-recoil insensitivity inherent in bubble chambers with the addition of energy reconstruction provided from the scintillation signal. 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. Two functionally-identical, 10 kg detectors are being built. SBC-LAr10, under construction at Fermilab, will be used for engineering and calibration studies and a potential measurement of the coherent elastic neutrino-nucleus scattering on argon. A low-background version, SBC-SNOLAB, for the dark matter search will be operated at SNOLAB. An overview of scintillating liquid-noble bubble chambers and the physics potential of SBC-SNOLAB and SBC-LAr10 will be presented.

Early Career

Yes

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Session Classification: RDC1+2+7

Track Classification: RDC Parallel Sessions: Cross-Cutting: RDCs 1, 2, and 7