Contribution ID: **4** Type: **Contributed Oral**

Updates on the Scintillating Bubble Chamber Experiment

Sunday, 15 February 2026 11:45 (15 minutes)

The Scintillating Bubble Chamber (SBC) collaboration combines historic bubble chamber technologies with the scintillation properties of liquid nobles to create a detector uniquely suited to low threshold rare event searches. The collaboration has built two nearly identical assemblies; SBC-LAr10 is being used for calibration studies at Fermilab and planned future coherent elastic neutrino-nucleus scattering research, and SBC-SNOLAB is bound for a low background dark matter search. SBC uses a superheated xenon-doped liquid argon active volume, allowing for event by event scintillation-based energy discrimination, electron-recoil insensitivity, and a projected 100 eV threshold. The cryogenic nature of the detector presents motivation for an investigation into the low temperature properties of both the argon active volume and CF₄ hydraulic fluid at the 30 PSI operating pressures of the detector. This investigation is being conducted with a novel combination of bulk fluid and molecular dynamics simulation approaches. This presentation will update on the current status of both SBC-LAr10 and SBC-SNOLAB, as well as briefly discussing the potential for calculating cryogenic physical and thermal properties of the detector constituents.

Your current academic level

MSc student

Your email address

19emhw@queensu.ca

Affiliation

Queen's University

Supervisor email

kenneth.clark@queensu.ca

Supervisor name

Dr. Ken Clark

Primary author: WYMAN, Ezri (Queen's University)

Presenter: WYMAN, Ezri (Queen's University)

Session Classification: Dark Matter

Track Classification: Dark matter searches