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Building a scintillating bubble chamber at Fermilab

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The Scintillating Bubble Chamber (SBC) Collaboration is rapidly developing liquid-noble bubble chambers to detect sub-keV nuclear recoils. Demonstrations in liquid xenon at the few-gram scale have confirmed that this technique combines the event-by-event energy resolution of a liquid-noble scintillation detector with the world-leading electron-recoil discrimination capability of the bubble chamber, and in fact maintains that discrimination capability at much lower thresholds than traditional Freon-based bubble chambers. The promise of unambiguous identification of sub-keV nuclear recoils in a scalable detector makes this an ideal technology for both GeV-mass WIMP searches and CEvNS detection at reactor sites. I will present progress toward building SBC's first 10-kg liquid argon bubble chamber at Fermilab and the collaborations future plans with regard to WIMPs and reactor CEvNS.

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