



Contribution ID: 12

Type: **Presentation**

Liquid-Noble Bubble Chambers for WIMP and CENNS Detection

Sunday, 24 September 2017 09:00 (20 minutes)

Our group at Northwestern recently demonstrated the world's first scintillating bubble chamber, observing simultaneous scintillation and bubble nucleation by nuclear recoils in superheated liquid xenon (arXiv:1702.08861). These detectors already promise unmatched background rejection in searches for canonical WIMP dark matter, and we are beginning to explore the low-threshold (≤ 1 keV recoil) capabilities of these devices. Our goal is to establish sensitivity to GeV-mass WIMPs and to coherent elastic scattering of reactor neutrinos. I'll describe the current state of our R&D program and plans for the coming year.

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Session Classification: Sunday Morning 1

Track Classification: Applications (dark matter, neutrino, precision frontier, medicine, etc.)