Contribution ID: **35** Type: **Talk**

Searching for dark matter with PICO bubble chambers

Friday 27 March 2020 15:15 (15 minutes)

The PICO collaboration searches for dark matter particles using superheated fluid detectors, or bubble chambers, filled with fluorine-rich targets. These detectors can be made inherently insensitive to electron recoils, while additional background suppression is achieved with the acoustic signature of the bubble nucleation that allows the identification of alpha particles. In this talk I will present recent results obtained with the PICO bubble chambers that operated at SNOLAB, including the latest results of the PICO-60 detector that set the most stringent constraints on the WIMP-proton spin-dependent coupling. I will also present on the current status of the PICO Collaboration's commissioning at SNOLAB of a 40-liter bubble chamber with a novel design, and on the progress of PICO-500, the next generation ton-scale PICO bubble chamber.

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Session Classification: Session 13

Track Classification: Non-directional direct dark matter detection