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PICO-60-RSU: A buffer liquid free bubble chamber to search for dark matter

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The PICO collaboration uses superheated liquid detectors, or “bubble chambers”, to search for dark matter. Recent operation of the PICO-2L and PICO-60 detectors at SNOLAB allows the most stringent constraints for WIMP dark matter interaction in the spin-dependent sector despite the presence of an anomalous background attributed to the presence of dust particulates in the superheated fluid. In this talk I will present the design of a 60kg bubble chamber in a new “Right-Side-Up” (RSU) configuration that eliminates the need for a buffer fluid and places the particulate generating materials in an inactive region of the detector.

Author: GIROUX, Guillaume (Queen’s University)

Presenter: GIROUX, Guillaume (Queen’s University)

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