Contribution ID: **1387** Type: **Oral (Student, In Competition) / Orale (Étudiant(e), inscrit à la compétition)**

Improved dark matter search results from PICO-2L Run 2

Monday, June 13, 2016 4:45 PM (15 minutes)

New data are reported from a second run of the 2-liter PICO-2L C_3F_8 bubble chamber with a total exposure of 129 kg-days at a thermodynamic threshold energy of 3.3 keV. These data show that the measure taken to control particulate contamination in the superheated fluid resulted in the absence of the anomalous background events observed in the first run of this bubble chamber. One single nuclear-recoil event was observed in the data, consistent both with the predicted background rate from neutrons and with the observed rate of unambiguous multiple-bubble neutron scattering events. The chamber exhibits the same excellent electron-recoil and alpha decay rejection as was previously reported. These data provide the most stringent direct detection constraints on weakly interacting massive particle (WIMP)-proton spin-dependent scattering to date for WIMP masses < 50 GeV/c^2.

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