

PICOLite: A bubble chamber to search for light WIMPs

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The COUPP and PICASSO collaborations have recently combined efforts to develop superheated-liquid dark matter detectors under the new name PICO. The first joint effort is a refurbishing of the old COUPP-4 bubble chamber detector with 2 liters of perfluoropropane (C₃F₈) as a new target fluid. This project, known as PICOLite, will have excellent sensitivity to ~ 10 GeV WIMPs by virtue of the light nuclear targets and the inherent superb gamma rejection for nuclear recoil thresholds as low as 3 keV. PICOLite is projected to provide a definitive test this year of the recent dark matter hints in this mass range from CDMS-II, CoGent and other experiments.

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