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Characterization of PICASSO/PICO superheated liquid detectors

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Low energetic, elastic neutron scattering is an ideal tool to characterize dark matter detectors. At University of Montreal, we use our Tandem Van de Graaff accelerator to calibrate superheated liquid detectors of the PICASSO/PICO dark matter search experiment. Mono-energetic neutrons are produced via the 51V(p,n)51Cr nuclear reaction at well-defined resonance energies in the range of 4 to 120 keV. Different superheated liquids, such as C3F8 and C4F10 were investigated with superheated droplet detectors and bubble chambers. We discuss recent results which show good agreement among different targets and model predictions.

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