

Abstract Submitted  
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**The Temperature Dependence of UCN Wall Losses in Material Bottles Coated with Deuterated Polystyrene**<sup>1</sup> M.D. COOPER, Y. BAGDASAROVA, S.M. CLAYTON, S.A. CURRIE, W.C. GRIFFITH, T. ITO, M.F. MAKELA, C. MORRIS, M.S. RAHAMAN, J.C. RAMSEY, A. SAUNDERS, Los Alamos National Laboratory, Los Alamos, NM 87545, R. RIOS, Idaho State University, Pocatello, ID 83209 — Ultra-cold neutrons (UCN) from the LANSCE super-thermal deuterium source were used to fill an acrylic bottle coated with deuterated polystyrene. The bottle was constructed to minimize losses through the filling valve. The storage time was extracted from a series of measurements where the number of neutrons was counted after they were held in the bottle for durations varying from 60-1200 s. The data were collected at temperatures of 18, 40, 65, 105, and 295 K. The data has been analyzed in terms of the ratio of the imaginary to real part of the wall potential. The analysis considers the velocity dependence of the probability per bounce of wall loss. The implication of these measurements for the SNS electric dipole moment search will be presented.

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