

Abstract Submitted
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Interior Vector Magnetic Field Monitoring via External Measurements for the SNS Neutron EDM Experiment¹ NIMA NOURI, MICHAEL BROWN, Physics and Astronomy Department, University of Kentucky, ROBERT CARR, BRADLEY FILIPPONE, CHARLES OSTHELDER, Kellogg Radiation Laboratory, California Institute of Technology, BRADLEY PLASTER, Physics and Astronomy Department, University of Kentucky, SIMON SLUTSKY, CHRISTOPHER SWANK, Kellogg Radiation Laboratory, California Institute of Technology — A prototype of a magnetic field monitoring system designed to reconstruct the vector magnetic field components (and, hence, all nine of the $\partial B_i/\partial x_j$ field gradients) within the interior measurement fiducial volume solely from external measurements is under development for the SNS neutron EDM experiment. A first-generation room-temperature prototype array has already been tested. A second-generation prototype array consisting of 12 cryogenic-compatible fluxgate magnetometer probes will be deployed within the cold region of the experiment's 1/3-scale cryogenic magnet testing apparatus. We will report progress towards the development of this second-generation prototype.

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