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Novel Cross Section Measurements through Absolute High-Precision Cold Neutron Fluence Determination HANS MUMM, National Institute of Standards and Technology, E. ADAMEK, University of Hawaii, J. CAYLOR, University of Tennessee, M. DEWEY, C. HADDOCK, National Institute of Standards and Technology, D. GILLIAM, Retired, E. PIROVANO, Physikalisch-Technische Bundesanstalt, E. SCOTT, National Institute of Standards and Technology — The National Institute of Standards and Technology has developed an instrument (Alpha-Gamma) that utilizes the interaction of neutrons with a totally absorbing 10B target to precisely measure the flux of a well-collimated monochromatic neutron beam. This measurement provides a calibration of the 6Li (n,alpha) 3H based flux monitor used in the NIST beam-based neutron lifetime experiment to better than 0.1 % and is now being utilized in novel, 0.2 % level, measurements of the 235U neutron-induced fission and 6Li cross sections. These ancillary measurements will provide systematically independent determinations of these important quantities. The results of recent and ongoing measurements will be presented, and planned operations will be discussed.

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