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The Center for Structural Molecular Biology (CSMB) at Oak Ridge National Laboratory (ORNL). V.S. Urban¹, W.T. Heller¹, G.W. Lynn¹, G.D. Wignall², K. Weiss¹, D.A.A. Myles¹, ¹Chemical Sciences Div. and ²Condensed Matter Sciences Div., ORNL, Oak Ridge, TN 37831.

The CSMB at ORNL is developing facilities and techniques for the characterization and analysis of biological systems at the High Flux Isotope Reactor (HFIR) and the Spallation Neutron Source (SNS). The cornerstone of the effort is a small angle neutron scattering instrument (Bio-SANS) currently under construction at HFIR that will be dedicated to the analysis of the structure, function and dynamics of complex biological systems. In support of this program, we are developing advanced computational tools for neutron analysis and modeling, alongside a supporting biophysical characterization and X-ray scattering infrastructure. Specifically, we established a Bio-Deuteration Laboratory for *in vivo* production of H/D labeled macromolecules that will permit selected parts of macromolecular structures to be highlighted and analyzed *in situ* using neutron scattering. These new facilities will make ORNL a world-leading scientific center and user facility for neutron-based studies of bio-molecular structure and function.

Sponsored by the Office of Biological and Environmental Research, U.S. Department of Energy, under contract No. DE-AC05-00OR22725 with Oak Ridge National Laboratory, managed and operated by UT-Battelle, LLC.