W0059

Cold Neutrons for Biology and Technology. S.H. White(1), J.A. Dura(2), C.F. Majkrzak(2), M. Loesche(2,3) , S. Krueger(2), (1)Dept. of Physiology & Biophysics, Irvine, CA 92697, (2)NIST Center for Neutron Research, NIST, Gaithersburg, MD 20899, (3)Biophysics Dept., Johns Hopkins Univ., Baltimore, MD 21218.

A new NIH-funded bioengineering research partnership, Cold Neutrons for Biology and Technology (CNBT), consisting of investigators from NIST, the NIH and six universities: the Univ. of California Irvine, Univ. of Penn., Rice Univ., Duke Univ., Carnegie-Mellon Univ., Johns Hopkins Univ., has recently been established at NIST. The CNBT partnership is committed to the development of advanced neutron scattering instrumentation devoted to basic and applied studies of membranes and membrane components. A next-generation advanced neutron diffractometer/reflectometer, fully dedicated to biological membrane studies, has been built at the NIST Center for Neutron Research (NCNR). In addition, 10% of a small-angle neutron scattering (SANS) spectrometer, currently operating at the NCNR, will be dedicated to studies of biological membrane systems. New sample environments, optimized for membrane research, are being designed and built for both instruments under the partnership. Biological structure studies will be augmented by advanced molecular dynamics methods in order to produce three-dimensional structural models from the neutron diffraction or SANS data.