

**D. V. Soloviov, L. A. Bulavin, V. I. Gordeliy, Yu. E. Gorshkova,  
O. I. Ivankov, Y. S. Kovalev, A. I. Kuklin, T. Yu. Nikolaienko**

**NEUTRON SCATTERING INVESTIGATIONS  
OF THE LIPID BILAYER STRUCTURE PRESSURE DEPENDENCE**

Lipid bilayer structure investigation results obtained with small angle neutron scattering method at the Joint Institute for Nuclear Research IBR-2M nuclear reactor (Dubna, Russia) are presented. Experiment has been performed with small angle neutron scattering spectrometer YuMO, upgraded with the apparatus for performing P-V-T measurements on the substance under investigation. D<sub>2</sub>O-1,2-dipalmitoyl-sn-glycero-3-phosphocholine (DPPC) liquid system, presenting the model of natural live membrane, has been taken as the sample for investigations. The lipid bilayer spatial period was measured in experiment along with isothermal compressibility simultaneously at different pressures. It has been shown, that the bilayer structural transition from ripple (wavelike gel-phase) phase to liquid-crystal phase is accompanied with anomalous rise of isothermal compressibility, indicating occurrence of the phase transition.

*Keywords:* 1,2-dipalmitoyl-sn-glycero-3-phosphocholine, small angle neutron scattering, P-V-T investigations, phase transitions.