

THE BINARY SOLUTION DENSITY SPATIAL  
DISTRIBUTION WITHIN A PLANAR LAYER  
IN THE VICINITY OF THE LIQUID-VAPOUR  
CRITICAL POINT

*L. A. Bulavin, D. A. Gavryushenko, V. M. Sysoev,  
O. O. Starovoitov*

Taras Shevchenko Kyiv National University  
(6, Academician Glushkov Prosp., Kyiv 03127, Ukraine;  
e-mail: *alexst@alfacom.net*)

S u m m a r y

As result of solving the isoperimetric problem on minimization of the free energy of a binary fluid under the condition of a fixed number of particles, we deduce a differential equation for the local density of the components, which allows one to calculate the density profiles and to study the thermodynamic properties of fluids in a widerange of thermodynamic variables including the vicinity of the critical point. The constructed profiles indicate an essential change of density in the system volume in the vicinity of the critical point.