



## **On Yuriy Kalyuzhnyj's 50th birthday**

Yuriy Kalyuzhnyj was born on July 20, 1951 in Lviv. Having graduated from the Physics Department of the Lviv University in 1973 he began his work as an engineer at the Institute for Geology and Geochemistry of Fuse Fuels. In 1980 he started the postgraduate course in the Lviv Division of Statistical Physics of the Institute for Theoretical Physics under the supervision of Prof. I.R.Yukhnovskii and Prof. M.F.Holovko. His research work was devoted to the development of the site-site approach in the theory of ion-molecular systems. The results of his studies were summarized in his candidate thesis which was successfully defended in 1987.

Later on using the diagram analysis he developed the general scheme for constructing the multidensity integral equation description of associating fluids with the center-center type of interaction. This method was successfully applied to the

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electrolyte and polyelectrolyte solutions. He showed that the multidensity formalism for ionic fluids essentially extends the integral equation theory into the region of parameters where more traditional theories do not have a convergent solution. The results for the liquid-gas phase diagram of the fluid of charged hard spheres, which are in reasonably good agreement with the existing computer simulation predictions were a great success of this approach.

The consideration of the multidensity integral equation formalism in the limit of complete association enables Yu.Kalyuzhnyj to formulate the atom-atom approach in the theory of molecular fluids. He used this theory to investigate equilibrium properties (distribution functions, equation of state, phase behaviour) of fluids and solutions of charged oligomers. The results of this research were summarized in his doctoral thesis “Equilibrium statistical theory of complex and associating liquids in the atom-atom approach” which Yu.Kalyuzhnyj successfully defended in 2000.

Lately Yu.Kalyuzhnyj has been considering new and important problems in the liquid state theory. Among them there are solvation thermodynamics of the gas solubility at subcritical and near-critical conditions, the structure of the fluids under shear, the modelling of the anomalies of liquid water properties.

Yu.Kalyuzhnyj is a leading researcher of the Institute for Condensed Matter Physics of the National Academy of Sciences of Ukraine. As a research associate he has been working at the universities all over the world, including Charles University (Prague), State University of New York at Stony Brook, University of Tennessee at Knoxville, etc. He is the author of nearly 100 papers published in international journals. Among them there is a chapter in the collective monograph in IUPAC volume on Equations of state for fluids and fluid mixtures (Elsevier 2000).

Yu.Kalyuzhnyj is full of energy and creative plans. The Editorial Board of “Condensed Matter Physics” wish him to stay in a good health, happiness and to be successful in his scientific activity.