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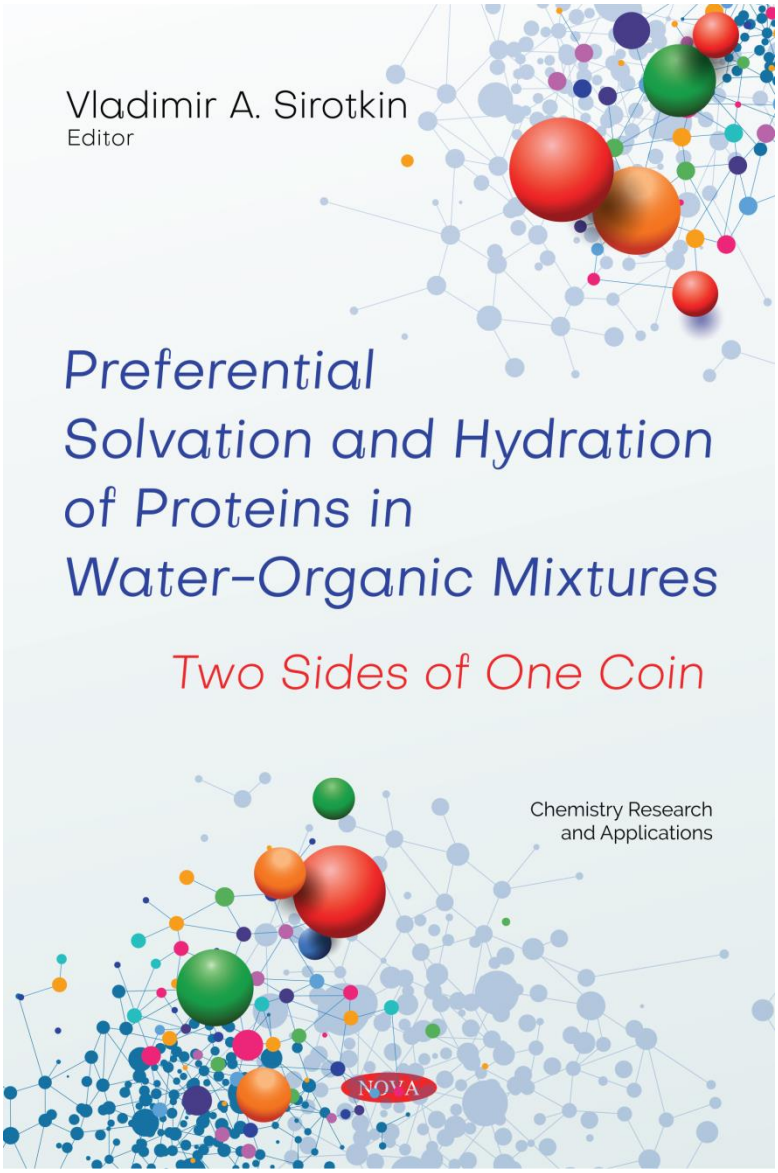

Chapter 1

Analysis of Preferential Solvation and Hydration of Binary and Ternary Mixtures: Methodology

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ABSTRACT

This chapter describes the basic principles of a novel methodology to investigate preferential interactions in binary and ternary mixtures. Our methodology for binary mixtures is based on an analysis of the densities of water-organic solvent and water-protein systems. Our approach for ternary water-protein-organic solvent mixtures is based on a simultaneous analysis of absolute values of the water and organic solvent sorption. Advantages of our approach: (i) The preferential interaction parameters can be determined in the entire range of water content in organic liquids. (ii) Our approach facilitates the individual evaluation of the Gibbs energies of water and organic solvent.

Keywords: Methodology, Preferential Solvation and Hydration, Water, Organic solvent, Binary mixtures, Thermodynamic Functions.

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