SPECIFIC FEATURES OF MOTION OF CATIONS AND ANIONS IN ELECTROLYTE SOLUTIONS

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S u m m a r y

The nature of mobility of ions and water molecules in dilute aqueous solutions of electrolytes (at most fifteen water molecules per ion) is investigated. It is shown that the behavior of the mobility coefficients of water molecules and ions, as well as the self-diffusion coefficients of water molecules, are determined by the radii of their hard shells rather than by the effect of the hydrogen bond network. It is established that the influence of hydration effects on the density of the system and the self-diffusion coefficients of water molecules does not exceed several per cent. Based on microscopic concepts, it is shown that the different behaviors of a K^+ cation and an F^- anion with equal rigid radii are in good agreement with specific features of the intermolecular interaction described by the generalized Stillinger–David potential [1, 2].