

STUDIES OF THE SELF-DIFFUSION OF ALCOHOL  
IN ALCOHOLIC ELECTROLYTE SOLUTIONS  
BY QUASIELASTIC SCATTERING  
OF SLOW NEUTRONS

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S u m m a r y

The method of quasielastic scattering of slow neutrons has been used to study the influence of a solvent on the self-diffusion processes in the aqueous and alcoholic solutions of LiCl and CoCl<sub>2</sub> electrolytes with various concentrations. Values of the molecular self-diffusion coefficient of the solvent in the indicated solutions have been determined, and the decomposition of the self-diffusion coefficient into the one-particle and collective contributions has been made. It has been found that the self-diffusion coefficients in the LiCl—ethanol and CoCl<sub>2</sub>—ethanol systems are much lower than those in the corresponding aqueous solutions within the whole range of concentrations. A substantial growth of the collective contribution to the self-diffusion coefficient with increase in the ion concentration in alcoholic solutions has been detected. It evidences for a substantial enhancement of the short-range orientational order in the solvent, which is caused by the introduction of ions into alcohol, in comparison with analogous aqueous electrolyte solutions.