Experimental Study of the Heat Transport Processes in Dusty Plasma Fluid

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The results are given of an experimental investigation of heat transport processes in fluid dusty structures in rf-discharge plasmas under different conditions: for discharge in argon; and for discharge in air under an action of electron beam. The analysis of steady-state and unsteady-state heat transfer is used to obtain the coefficients of thermal conductivity and thermal diffusivity under the assumption that the observed heat transport is associated with a thermal conduction in dusty component of plasmas. The temperature dependence of these coefficients is obtained, which agrees qualitatively with the results of numerical simulation for simple monatomic liquids.