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ELECTRIC FIELD DURING TRANSIENT PROCESS OF CONFIGURATION CHANGING OF WATER MICRO-INCLUSIONS IN LIQUID DIELECTRICS

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Abstract

Mathematical modeling and analysis of the distribution of the electric field near closely located water microinclusions in a liquid dielectric under the transitional process of changing their shape and mutual arrangement are performed. With continuous deformation, convergence and fusion *of microinclusions, a dynamic problem was solved to determine their shape and relative position at each instant of time under the action of electrical and mechanical forces. The dependence of the rates of deformation, approach and merging of inclusions (which determine the duration of the transient process upon reaching the equilibrium form of the resulting inclusion) is investigated from the initial distance of the inclusions and on the strength of the external electric field.* References 16, figures 5.

Key words: electric field, water microinclusions, liquid dielectric, dynamic problem, mathematical modeling, transient process, equilibrium form.

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