ABSTRACTS OF PAPERS DEPOSITED AT VINITI*

FLUCTUATION-DISSIPATION THEOREM FOR ELECTRICAL MULTIPOLES†

B. M. Grafov and V. G. Levich

Electrical multipoles are considered, which survive in a steady state when steady currents are passed in local equilibrium. It is considered that heat exchange within the multipoles takes place rapidly, so that the weight of a monopole can be characterized by a single temperature. It is shown that in the absence of dipoles, in general it is impossible to establish a relation between the fluctuation and kinetic characteristics. The fluctuation-dissipation therein only applies under certain conditions, when the power additionally dissipated in the system due to passing additional current through some 'outlet' of the multipole, is completely passed into the multipole through this 'outlet'. As an illustration the fluctuation-dissipation therein is used to find the sound level of a semiconductor transistor. (Deposited in VINITI, No. 3631-71, October 25, 1971.)

ANALYSIS OF CERTAIN INTERPHASE AND DIFFUSIONAL PROCESSES WITH RESPECT TO CONDUCTION FUNCTION PARAMETERS‡

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This article considers a graphical analysis method for the frequency characteristics of 19 equivalent substitution circuits used for describing electrode-solution boundary properties. It is shown that equivalent circuits, composed of the same number of homogeneous linear and nonlinear resistances, have identical frequency characteristics. Design equations are given for identical substitution circuits, and also design equations for elements of substitution circuits based on analysis of a description of the frequency characteristics in a complex conductance plane. The basis for the conclusions is given in an appendix. (Deposited in VINITI, No. 3632-71, October 25, 1971.)

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* All-Union Institute of Scientific and Technical Information.
† Moscow (1971), 14 pages, with bibliography.
‡ Moscow, 34 pages, with figures and bibliography.

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