

STATISTICAL THEORY OF ELECTRON
DIFFUSION PROCESSES IN AN ELECTRON
SUBSYSTEM WITHIN THE GENERALIZED
“JELLIUM” MODEL

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S u m m a r y

A generalized approach, which takes into account the influence of the discreteness of an ionic subsystem for investigation of ionic and electronic structures of a semibounded metal is proposed. The generalized equation of electron diffusion for an inhomogeneous electron gas is obtained on the basis of the generalized “jellium” model. The calculation of quasiequilibrium partition function by the method of functional integration in the case of the local pseudopotential of the electron-ion interaction of a metal surface is presented. The connection of quasiequilibrium distribution functions of electrons with the electrochemical potential by proper cumulant averages of the “jellium” model is obtained. In the linear approximation by electrochemical potential, the relation with the time-dependent density functional theory (TDDFT) is obtained.