

INFLUENCE OF EXTERNAL ELECTRIC FIELDS ON MEMBRANE POTENTIALS

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S u m m a r y

General notions of the thermodynamics of irreversible processes are used to study membrane potentials in the presence of external electric fields. A formula for the Nernst concentration potential is derived giving the dependence of membrane potential not only on ion concentrations and external fields, but also on the electrodynamic characteristics on both sides of membranes. The calculation of the electrodiffusive distribution of ion concentrations under the action of an external electric field and the derivatives of permittivity with respect to the concentration allows us to estimate the numerical values of membrane potentials in the presence of external electric fields.