

NUMERICAL SIMULATION OF THE STRUCTURE OF A SPHERICAL GLOW DISCHARGE

Yu.I. Lelyukh

The Gas Institute, Nat. Acad. of Sci. of Ukraine
(39, Degtyarivs'ka, Kyiv 03113, Ukraine;
e-mail: *yult84@ukr.net*)

S u m m a r y

The problem of determination of parameters of a stationary glow discharge is considered in the general formulation. A system of coupled nonlinear equations includes the balance equation with regard for diffusion processes for electrons and ions, as well as the Poisson equation for the electric potential. The nonlinear boundary-value problem is solved by the modified parameter continuation method. A special attention is paid to the study of the dependence of discharge characteristics on the diffusion processes and constants in the first Townsend coefficient. The electron temperature is considered constant.