NEW VISION OF THE PHYSICS OF GAS MAGNETRON-TYPE DISCHARGES

O.A. Goncharov, A.M. Dobrovol'skyi, A.M. Evsyukov, I.M. Protsenko, I.V. Litovko[1]

Institute of Physics, Nat. Acad. of Sci. of Ukraine
(*46, Nauky Prosp., Kyiv 03680, Ukraine*)
[1]Institute of Nuclear Research,
Nat. Acad. of Sci. of Ukraine
(*47, Nauky Prosp., Kyiv 03680, Ukraine;*
e-mail: gonchar@iop.kiev.ua)

S u m m a r y

We present the results of complex theoretical and experimental investigations of cylindrical gas discharges in the configuration of crossed electric and magnetic fields inherent to axially symmetric plasma lenses. An original cylindrical sputtering device constructed based on the principles of plasmaoptics is proposed and tested. A new systematic vision of plasmadynamics of gas magnetron-type discharges is formulated. The proposed approach predicts the presence of three quasiautonomous regions in a discharge, where the current transfer is realized by different particles.