

NUMERICAL SIMULATION OF THE SHOCK WAVE PROPAGATION IN THE PLASMA CHANNEL OF HIGH-CURRENT DISCHARGE IN HIGH DENSITY GAS

*Triaskin J. V.,^{*1,2} Pinchuk M. E.²*

¹*SPbSU, Saint Petersburg, Russia,* ²*IEE RAS, Saint-Petersburg, Russia*

**jaroslav.triaskin@spbu.ru*

Numerical simulation of the shock wave propagation in discharge chamber with the high-current discharge channel in high density hydrogen (0.1 ÷ 32 MPa) was carried out by the finite-differences method. The source of the disturbance (shock wave) is a discharge in the interelectrode gap, it gap is located along the axis of the cylindrical chamber [1]. The numerical and experimental results on the wall and the axis of the channel have been compared. A qualitative match has been achieved [1,2]. In the experiments, for the first approximation, the numerical scheme of Lax-Vendroff [3] can be used for modeling the shock wave in the chamber of the high-current discharge to evaluate of the pressure, density, temperature and other hydrodynamic fields.

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