3D MHD SIMULATION OF Z-PINCH IMPLOSION NONUNIFORMITY

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3D simulation of multiwire arrays implosion at Angara-5-1 facility was carried out by means of RMHD code MARPLE-3D with the aim to study plasma instabilities arising at the end of plasma ablation and developing up to the final stage of the wire array implosion.

The numerical results are compared with the experimental data obtained in at Angara-5-1 facility. The computations were applied to multiwire arrays, studied in the paper [1]. Magnetic flux penetration inside multiwire array at the final stage of the wire array implosion was investigated, and the nonuniformity of plasma characteristics was registered.

Plasma emission was reproduced via prolonged plasma ablation model including spatial nonuniformity of plasma production rate as consistent with experimental X-ray images of lower plasma emission areas.

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Computations were carried out using supercomputers K-100 (KIAM RAS), MVS-100K (JSCC RAS) and "LOMONOSOV" (MSU).

References

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