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SOLUTION OF MAGNETOGASDYNAMICS PROBLEMS WITH THE HELP OF HIGH PERFORMANCE COMPUTER SYSTEMS

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New approach to an obtaining of the equations of magnetic gas dynamics is offered. This approach is based on complex-valued locally Maxwellian distribution function. By means of the approach the equations of ideal magnetic gas dynamics are received. The analog of quasidynamic system of the equations is also constructed, describing magnetic and gasdynamic processes taking into account dissipation of an impulse and energy. The elaborated kinetic models and numerical algorithms of their analysis were tested on the example of well-known tasks. The offered algorithms easily adapt to architecture of modern high-performance computer systems.

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