Operator-difference method for astrophysical MHD problems.

Sergey Moiseenko(1), Gennadii Bisnovatyi-Kogan(1,2), Nikolai Ardelyan(3)

(1)Space Research Institute, Moscow, Russia

(2)National Research Nuclear University "MEPhI", Moscow, Russia

(3)Department of Computational Mathematics and Cybernetics, Moscow State University, Moscow, Russia

We represent some features of the application of completely conservative Lagrangian operator-difference numerical scheme on triangular gird of variable structure to the simulation of the magnetohydrodynamical(MHD) astrophysical problems. The application of the Lagrangian grid requires its remapping during the evolution of the fluid flow. There are different ways of interpolation of the grid functions on a remapped grid. We discuss in detail the procedure of conservative remapping of grid functions during grid reconstruction procedure. The scheme described in the paper gave us possibility to simulate different astrophysical problems.