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Hybrid Simulation of Propagating Magnetospheric Alfven Wave in the Earth Polar Area GALINA DUDNIKOV, UMD, LYUDMILA VSHIVKOVA — One of the important problems in space physics is the acceleration of electrons in the aurora region. Recent work indicated that electrons are accelerated by the magnetospheric shear Alfven wave which can potentially travel along the Earth's magnetic field lines and can produce aurora. This paper presents the new hybrid code for simulation of the electron acceleration in the polar area of the Earth magnetic field due to propagation of shear Alfven waves on open magnetic field lines. An ion component of plasma is described by a standard set of the MHD equations and electrons are accounted for via the Vlasov equation. To solve the Vlasov equation a particle-in-cell method is used. The series of 2D simulation are presented with emphasis on electron distribution function evolution.

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