

ON NUMERICAL SIMULATION OF MAGNETOSPHERIC ELECTRON FLUXES

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Abstract

Recently we have considered an importance of synchrotron radiation (SR) of the energetic magnetospheric electrons in deceleration of several MeV electrons confined in geomagnetosphere during their radial diffusive transport into inner magnetosphere. Numerical solution of the diffusion equation with a code based on finite differences technique and taking into account Coulomb losses and wave-particle interactions was obtained with and without the inclusion SR losses. The results showed that energy losses from relativistic (more than 1 MeV) electrons substantially influence energy and space distributions of fluxes at L less 3. But there was doubt about importance of SR losses in formation of electron fluxes with the lower energy. We develop other computer code for numerical solution of diffusion equation for electrons, based on finite element technique. In the paper we are communicating results of 2D solution of transport equation for magnetospheric electrons.