**MagnetosphericStructure and Dynamics Inferred from Low-Altitude Spacecraft Observations**

V.A. Sergeev 1 , M.V. Kubyshkina 1 and A.V. Artemyev 2

1. Institute of Physics, University of St-Petersburg, St-Petersburg, Russia

2. Space Research Institute, RAS, Moscow, Russia

Understanding of Magnetosphere-Ionosphere coupling is difficult because the (magnetospheric) cause and (ionospheric) consequence should be individually observed by spacecraft in each region, but mapping between these regions is rather uncertain. Using remote sensing of the magnetosphere from ionosphere (based on isotropic precipitation due to curvature-scattering in the magnetospheric current sheet, FLCS)together with measurements of auroras, particle spectra and FACs in the ionosphere madeon each of ninenano-satellites of CINEMA project (now in preparation) provides a great chance to advance in solving these problems. In this talk we briefly show some results obtained as a preparation for this project based on energetic particle observations from ELFIN and POES missions. Particularly we show how the remote sensing can be tested, which different categories of the Isotropy Boundary patterns can be expected (and are observed) in the magnetosphere/ionosphere from existing magnetospheric models, and also discuss some processes which can make difficult to infer true FLCS boundaries. The observations suggest an abundance of non‐trivialtail current sheet structures or a mixed contribution of two different mechanisms in the vicinity of IBe in these cases.