

Geophysical Research Abstracts,  
Vol. 10, EGU2008-A-03455, 2008  
SRef-ID: 1607-7962/gra/EGU2008-A-03455  
EGU General Assembly 2008  
© Author(s) 2008



## Numerical study of particle transport and acceleration

L.M. Zelenyi (1), A.V. Artemyev (3,1), **H.V. Malova** (2,1), A.V. Milovanov (4,1), G. Zimbardo (5,6)

(1) Space Research Institute, RAS, Profsoyusnaya street 84/32, Moscow, Russia (hmalova@yandex.ru) , (2) Nuclear Physics Institute, Moscow State University, Moscow, Russia, (3) Faculty of Physics, Moscow State University, Moscow, Russia, (4) Department of Physics and Technology, University of Tromso, N-9037 Tromso, Norway (5) Dipartimento di Fisica, Università della Calabria, I-87036 Arcavacata di Rende, Italy(6) Istituto Nazionale di Fisica della Materia, Unitza di Cosenza, I-87036 Arcavacata di Rende, Italy

We consider two coupled effects: particle transport and acceleration by the random 2D ensemble of planar electromagnetic waves propagating in all directions with the same phase velocity. Both particle spatial transport and acceleration in a general case are non-diffusive and crucially depend on the topology of dynamic magnetic field, which we quantify as a set number of magnetic field particles meet moving along their trajectories. Final distribution function of particles acquires well developed power law tail  $F(w) \sim w^{-4}$ . This work was partially supported by the INTAS 06-1000017-8943. A.V.M. was supported by the Norwegian Research Council under the project No 171076/V30.