

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

The strahl as a source of electrostatic whistler waves in the solar wind turbulence VALENTIN SHEVCHENKO, VITALY GALINSKY, ECE UCSD
— According to observations, the solar wind electron distribution consists of a dense core component (95% of the total electron density) and the suprathermal population (5%) that consists of halo with Maxwellian distribution with hotter temperature and of so-called strahl with a narrow pitch angle distribution directed along the magnetic field. This distribution can be unstable with regards to excitation of lower hybrid waves at anomalous Doppler resonance when the energy source of instability is parallel motion of electrons.¹ We investigated the nonlinear dynamics of instability in local approximation by using a hybrid method on resonant numeric simulations. The dynamics of wave power spectrum as well as the strahl distribution function were studied for different distribution function over parallel velocities of strahl electrons. The halo formation is discussed.

¹Shevchenko V., and V. Galinsky, Nonlinear Processes in Geophysics (submitted) (2010).

Valentin Shevchenko
ECE UCSD

Date submitted: 21 Jul 2010

Electronic form version 1.4