Abstract Submitted
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The Effects of Kinetic Alfven and Whistler Wave Turbulence and the Evolution of Electron Distribution in Solar Wind Plasma MANISH MITHAIWALA, NRL Plasma Physics Division, LEONID RUDAKOV, Icarus Research Inc. NRL Plasma Physics Division, GURUDAS GANGULI, CHRIS CRABTREE, NRL Plasma Physics Division — The high beta solar wind plasma turbulence is dominated by the kinetic Alfven waves (KAW) [1]. Though the measured high-energy tail on the electron distribution function can be a signature of the presence of whistler waves (WW) as well [2]. In Maxwellian plasma both KAW and WW are Landau damped at high beta, and only for the specific case of WW with $k_\perp = 0$ is there no Landau damping. Due to the inhomogeneous solar wind plasma these parallel propagating WW should quickly develop large perpendicular wavenumbers $\langle k_\perp \rangle > \left\langle k_{||} \right\rangle$. However, as we have shown recently using measured KAW spectra, Landau damping establishes a plateau in the parallel electron distribution function and damping is strongly diminished [3]. The theory of WW in high beta inhomogeneous plasma will be presented and the impact of the electron cyclotron resonance with WW on the evolution of the electrons high energy tail will be discussed. Supported by ONR.

[1] O. Alexandrova *et. al.*, PRL (2009) ; F. Sahraoui *et. al.*, PRL (2010).
[2] T. Nieves-Chinchilla and A. F. Vin˜as, JGR (2008).
[3] L. Rudakov *et. al.*, Phys. Plasma, **18**, 012307 (2011).

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