# Fluctuating dynamics of non-thermal solar plasmas in gravitoelectrostatic sheath fabric

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A modified model formalism for the small-scale radial fluctuations excitable in the non-thermal solar plasma system on the basis of the non-extensive gravito-electrostatic sheath (GES) model fabric, which intercouples the solar interior plasma (SIP) and the solar wind plasma (SWP) via the interfacial diffused solar surface boundary (SSB), is reported. The constitutive electrons are thermostatistically framed in the  -distribution laws via the Tsallis thermostatistics. In contrast, the heavier ions are treated as an inhomogeneous fluid. The turbulent degrees of freedom are accounted through the Larson nonlinear logatropic barotropic (logabarotropic) equation of state. A spherically symmetric wave analysis over the perturbed GES structure results in two distinct forms of linear dispersion laws (SIP plus SWP). A numerical illustrative platform for the dispersion analysis specifically shows that an anti-kink-type (kink-type) impulsive rarefactive (compressive) propagatory boost is experienced by the fluctuations at the heliospheric core (photospheric SSB). We see that the thermostatistical parameter, the Tsallis power-law tail index  -parameter, acts as a unique form of acceleration agency for both the SIP and SWP fluctuations to proliferate. It implicates that this factor enhances the phase and amplitude coordination among the various wave spectral components of the GES exobase. The explored semi-analytic results are finally contextualized in the realistic domains of the collective excitation of the naturalistic helioseismic waves and the SSB oscillations.