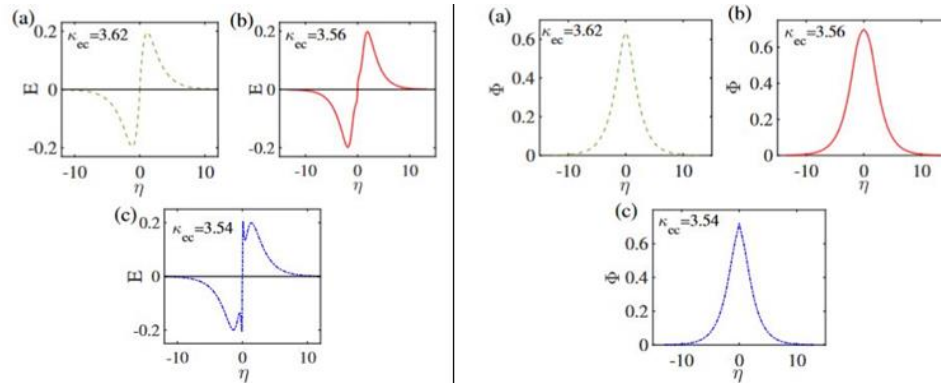


Nonlinear electrostatic waves in non-Maxwellian Space plasmas: overview of recent advancements

Ioannis Kourakis^{1,2,3,4}, Steffy Sara Varghese^{1,2}, Kuldeep Singh²

¹Space and Planetary Science Center, Khalifa University, Abu Dhabi, United Arab Emirates, ²Mathematics Department, Khalifa University, Abu Dhabi, United Arab Emirates, ³Hellenic Space Center, Athens, Greece, ⁴National and Kapodistrian University of Athens, Physics Department, Athens, Greece

This presentation aims to provide an overview of the current state of the art in regards with the formation and dynamics of electrostatic nonlinear structures in Space plasmas. Some of the topics to be covered include electrostatic solitary waves (ESWs) in non-Maxwellian Space plasmas [1], supersolitons [2] and flat-topped solitary waves, related to different types of bipolar pulses occurring in Space observations. We will discuss the underlying mechanisms involved in the formation and propagation of these structures, and how these are manifested at different spatiotemporal scales in various plasma situations. In particular, we shall focus on non-Maxwellian planetary environments, where kappa-distributed electrons are observed, and on how suprathermal electrons statistics may affect the morphology and propagation characteristics of ESWs. Some recent results [3-5] regarding the structural characteristics of “non-conventional” ESW waveforms occurring on planetary magnetospheres (e.g. flat-top solitons, supersolitons) will be presented and discussed.



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