

THE INFLUENCE OF SOLAR RADIATION FLUX ON POSSIBLE STATIONARY AND LOCALIZED STRUCTURES IN IONOSPHERE

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The structure and characteristics of the ionosphere vary in time depending mostly on the solar activity. Since the ionosphere has characteristics of plasma, densities of electrons and ions are very sensitive to electromagnetic disturbances coming from the Earth and outer space, affecting human activities. Ionospheric parameters are strongly influenced by variations of electromagnetic radiation, including variations in intensities of both, spectral lines and continuum. For this reason, theoretical models of the ionosphere are of great importance in understanding and predicting the resulting turbulent regions of the ionosphere. In this work, we develop nonlinear kinetic theory for weakly magnetized electron-ion plasma and discuss possibility to obtain a time stationary, coherent, localized solution. Analyzing general conditions typical for ionosphere, we can make conclusion on the dispersive properties of the considered region, as well as on the possible nonlinearities that could be balanced by dispersion, creating such structures.