

SELF-STRUCTURING OF THE IONOSPHERIC PLASMA UNDER THE ACTION OF POWERFUL ELECTROMAGNETIC WAVE

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Abstract:

The forming of density irregularities along the geomagnetic field is investigated. First, scattering of the pumping wave on the density gradients results to excitation of upper hybrid oscillations trapped inside the density depletions. Second, diffraction of the electromagnetic wave on the system of depletions produces bunches of density striations. Third, radiation and absorption of Z-mode waves by trapped upper hybrid oscillations self-structure the different depletions inside the bunch. All these processes result the anomalous absorption of the pumping wave, scattering to another waves, plasma heating and electron acceleration.