Abstracts

Surface Waves on an Anisotropic Plasma Sheath

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A treatment of the excitation of unidirectional plane surface waves on a perfectly conducting screen covered with an anisotropic plasma sheath is given for the case in which the external magnetic field is oriented parallel to the screen but perpendicular to the direction of propagation. The dispersion relations for the surface waves and their dependence on the strength of the external magnetic field and the sheath thickness, are discussed. For sufficiently small sheath thickness, backward surface waves are found to exist. The powers carried by the surface waves and the space waves are evaluated, and the efficiency of excitation of the surface waves are determined as a function of sheath thickness for a typical set of parameters. The power carried by the forward and backward surface waves are compared for two cases in which, in a given direction, either one or both of these exist.

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