

Abstract Submitted  
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**Electromagnetic resonances of plasma column between two metallic plates** SERGEY DVININ, Lomonosov Moscow State University, VITALY DOVZHENKO, Obukhov Institute of Atmospheric Physics RAS, OLEG SINKEVICH, National Research University Moscow Power Engineering Institute — It is known that there are two types of electrodynamic resonances of bounded supercritical plasma, placed between the two metal planes are possible. The first type is associated with the excitation of surface waves propagating along the lateral surface [1]. The second one is caused by standing surface waves in the sheath at plasma-metal boundary [2 – 4]. This work is concerned with theoretical study of the resonance properties of plasma slab in cases where both effects can be observed together. Resonance densities and frequencies are calculated. Solution of Maxwell's equations is demonstrated that directions of energy flows in first and second cases are opposite. Energy transfer to lateral surface waves is prevailing, if the field frequency is higher than the frequency, corresponding to the geometric plasma-sheath resonance [5]. Amplitude of waves at plasma metal boundary becomes greater in opposite case. Discharge properties in both cases are calculated including joint excitation.

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