Excitation of THz Surface Megnetoplasmons on Periodic Structure Surface of Magnetised Semiconductor Slab Via by Nonlinear Mixing of Lasers

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Abstract—*In this new mechanism, two lasers normally incident, from free space on the planar structure to generate THz surface magnetoplasmons periodic structure surface of magnetized semiconductor slab. Two lasers normally incident, from free space on the planar structure, exert a difference frequency ponderomotive force on the free electrons of slab, impart oscillatory velocity to electrons in the ripple layer. This velocity beats with surface ripple to produce a nonlinear current that resonantly drives the THz surface magnetoplasmons. In the presence of an applied magnetic field, the surface plasmon (SP) mode splits into two modes—an upper mode and a lower mode. The amplitude of the SP for the upper branch mode is higher than that for the lower mode.*