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Effect of wiggler magnetic field on stimulated surface plasma wave in a semiconductor

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We investigate the impact of externally applied wiggler magnetic field on stimulated surface plasma wave (SPW) produced by the electron hole recombination in a p-n junction semiconductor. Due to the extension of surface plasma wave (SPW) up to the p-n junction, the electron-hole recombination takes place which leads to enhancing the SPW. The wiggler magnetic field plays an important role in the enhancement of SPW as magnetic field modifies the dispersion relation of SPW and also increases the intensity of surface plasma wave.

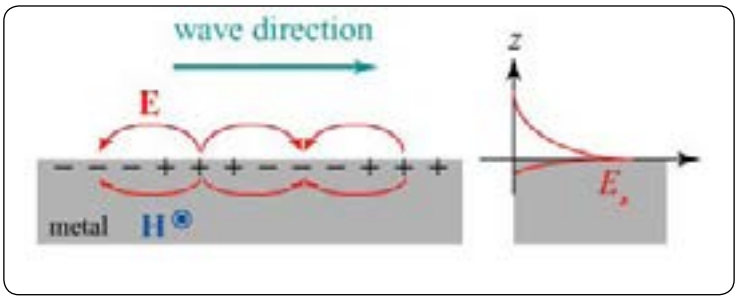

Figure 1: Schematic of metal -vacuum SPW

Recent Publications

1. Gupta D N, Yadav P, Jang D, Hur M S and Suk H (2015) Onset of stimulated Raman scattering of a laser in plasma in the presence of hot drifting electrons. Physics of Plasmas 22: 052101.
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3. Kumar P and Tripathi V K (2013) Terahertz surface plasmons excitation via nonlinear mixing of laser in metal-coated optical fiber. Optical Latters 38:3475–3477.
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Biography

Niti Kant is working at the Department of Physics, Lovely Professional University, Punjab, India. He received PhD in Laser-Plasma Interaction in 2005 from IIT Delhi. His research is focused on the areas of ultra-short intense lasers interaction with plasmas, laser-plasma based accelerators, harmonic generations, quantum plasma and THz radiation. He was Postdoc Fellow at POSTECH, South Korea from Dec. 2005 to Feb. 2007. He has supervised 10 M.Phil and 4 PhD students. He has published more than 50 research papers in various international reputed journals and also presented his research in various national and international conferences in India and abroad.

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