

Abstract Submitted
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Modes of Surface Plasmon Polaritons on Optical Transmission through Single and Multiple Layered Arrays RICHARD KYUNG, HEEKYOUNG WOO, Choice Research Group — Metamaterials are artificially created combinations of two different media, which normally consist of a metal and a dielectric. The setup of the metamaterials consisted of four major parts, which included air, metal oxide, metal, and prism. The purpose of this research is to find an example of a metamaterial in which the surface plasmon polaritons(SPP) will occur when a beam of light is entered at a certain angle, through the use of computer programs such as COMSOL and Matlab. In this paper, modes of surface plasmon polaritons have been observed and demonstrated. Using the computer programs, metamaterials with specific dimensions and indices of refractions have been constructed, then simulated photons passing through it. In order to find the accurate incident angle and the effective index, the point at which the reflectivity (the y-axis) reaches zero has been found. This suggests that the light hasnt been reflected; instead, it is now traveling directly parallel to the media inside. The approximate incident angle for a given sample(silver+dielectric) and the effective index are found in this paper.

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