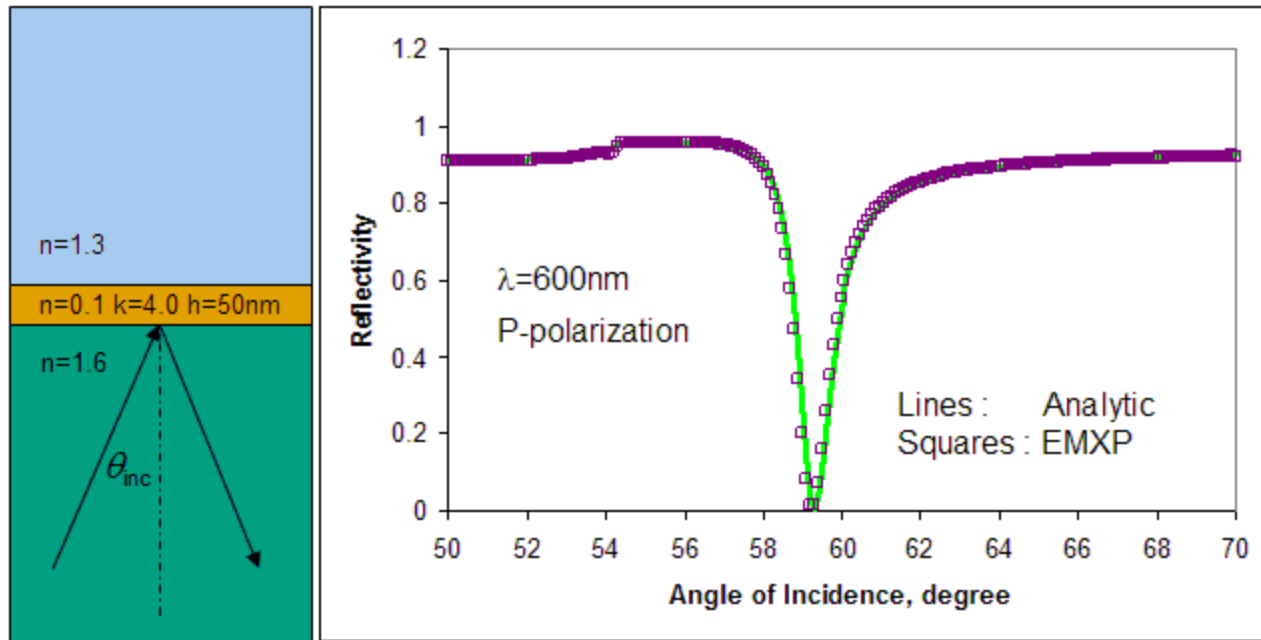


Simulation of Surface Plasmon Resonance by Attenuated Total Reflection

A surface plasmon is a trapped surface mode of electromagnetic waves that propagates along the interface between a metal and a dielectric. It is a result of collective oscillation of electrons at the metal-dielectric interface. One way to excite a SP is via attenuated total reflection by a p-polarized incident planewave. The resonant coupling from the incident EM wave to the surface EM wave is indicated by a sharp drop of the reflectivity at a certain angle of incidence.



The above example simulates the surface plasmon excitation using Kretschmann-Raether method. The SPR is produced at the interface between the metal ($n=0.1$ $k=4.0$) and the dielectric ($n=1.3$) using a p-polarized planewave at the angle of incidence of about 59.3 degree.