Abstract of

Electronically tunable mirror with surface plasmons

Yu Wang
Jet Propulsion Laboratory, California institute of Technology, Pasadena, CA 91109

Surface plasmon tunable filter is a new technology under development at Jet Propulsion Lab. This technology can be used to build a tunable mirror. When a white light is incident on a metal/EO material interface, in certain condition, surface plasmon waves can be excited at one metal/EO material interface; those photons in surface plasmon resonance wavelength range will be converted into the energy of free electrons in the metal. When using rhodium or nickel as the metal, the bandwidth of surface plasmon resonance can cover all oft he visible spectrum. This surface plasmon resonance depends on the dielectric constants of both the metal and the EO material. If a voltage is added on the EO material to change its dielectric constant, the reflectivity of the interface will bc able to change from less than O. 50/0 to over 80°/0.