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Surface Plasmon Polaritons on Concentric Cylindrical Shells

JAKUB PRITZ, LILIA WOODS, University of South Florida — A theoretical investigation of electromagnetic plasmon modes for multilayered concentric cylindrical shells in the absence of an applied magnetic field is presented. The plasmon excitations in such multiple interface configurations are characterized by the electromagnetic fields. To obtain the dispersion relation for the modes, the Maxwell equations with appropriate boundary conditions are solved numerically. We study the conditions for existence of radiative and nonradiative modes. The effects of varying the different shells radii, their thicknesses and dielectric response functions are also investigated. The physical importance of the different plasmon modes is also discussed.

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