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Plasmon Interactions in a Lattice of Nanospheres ANDREW WASIL, DOUG ARMSTEAD, Westminster College — A surface plasmon is an oscillation in the electron gas at the surface of a metal. Surface plasmons can couple with a photon to become a surface plasmon polariton (SPP) which has the ability to propagate along the surface of the metal and eventually re-emit the photon. We look at a simulation of SPPs on the surface of conducting spheres, first for an individual sphere and then for a square lattice of spheres using the MIT Electromagnetic Equation Propagation (MEEP) package. We seek to characterize the dispersion of the re-emitted photons, characterized by a map of the electromagnetic field, and determine the relationship between this dispersion and the spacing of the lattice. We also look for the spacing at which an SPP begins to exhibit gap plasmon polariton (GPP)-like behavior.

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