

Abstract Submitted
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Vortices in Dipole Radiation Near a Mirror XIN LI, HENK ARNOLDUS, Mississippi State University — The emission of radiation by a linearly oscillating electric dipole is drastically altered when the dipole is close to the surface of a mirror. The energy is not emitted along optical rays, as for a free dipole, but as a set of four optical vortices. The field lines of energy flow spiral around a set of two lines through the dipole. At a larger distance from the dipole singularities and isolated vortices appear. It is shown that these interference vortices are due to the vanishing of the magnetic field at their centers. In the plane of the mirror there is a singular circle with a diameter which is proportional to the distance between the dipole and the mirror. Inside this circle, all energy flows to a singularity on the mirror surface.

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