

Abstract Submitted  
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**Light Scattering and the electromagnetic near-field from a nanosphere near to the surface of a semi-infinite medium**<sup>1</sup> LUIS RAMIREZ-RODRIGUEZ, RAUL GARCIA-LLAMAS, Universidad de Sonora — Light Scattering and the near field of a linearly polarized monochromatic electromagnetic wave produced by a nanosphere of radius  $R$  located in vacuum to a distance  $D$  near to the surface of a semi-infinite homogeneous medium is studied theoretically. The space is divided in three regions: I) in the sphere, II) out of the sphere in vacuum III) out of the sphere in the homogenous medium. Using a multipolar expansion and the boundary conditions the Maxwell's equations are solved. As a consequence of the presence of the surface an image mirror of the sphere is considered, then a shift phase produced for this image sphere is assumed, therefore these fields should be written in another reference system, hence the addition theorem for vector spherical wave functions is used.

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