

Stanford Department of Mathematics Colloquium

A NEW FORMALISM FOR ELECTROMAGNETIC SCATTERING IN COMPLEX GEOMETRY

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Abstract

We will describe some recent, elementary results in the theory of electromagnetic scattering. There are two classical approaches that we will review – one based on the vector and scalar potential and applicable in arbitrary geometry, and one based on two scalar potentials (due to Lorenz, Debye and Mie), valid only in the exterior of a sphere. In trying to extend the Lorenz-Debye-Mie approach to arbitrary geometry, we have encountered some new mathematical questions involving differential geometry, partial differential equations and numerical analysis.

This is joint work with Charlie Epstein, and will be accessible to advanced undergraduates and graduate students in mathematics and physics.

Thursday, Nov. 20,
4:15 p.m.
Bldg. 380, Room 380-W.

<http://math.stanford.edu/coll/0809/>