1031-35-123   **Charles L Epstein*** (`cle@math.upenn.edu`), 209 S. 33rd Street, Philadelphia, PA 19104.
Boundary value problems for Maxwell's equations in exterior domains. Preliminary report.

The Maxwell equations are a first order elliptic system with a vast array of important applications in physics and engineering. We describe recent work, joint with Leslie Greengard, on the numerical solution of the problem of scattering time harmonic E-M waves by a bounded perfect conductor D. This entails a proof of the folklore physics theorem that an outgoing solution to Maxwell's equation is determined by the normal components of the electric and magnetic fields along bD, and the analysis of a system of integral equations on bD, connected to a non-self adjoint boundary value problem. (Received August 07, 2007)