1093-35-266   **Fioralba Cakoni*** (`cakoni@math.udel.edu`), Department of Mathematical Sciences, University of Delaware, Newark, DE 19716. *Boundary Integral Formulation of the Transmission Eigenvalue Problem for Maxwell's Equations.* Preliminary report.

The interior transmission problem arises in inverse scattering theory for inhomogeneous media. It is a boundary value problem for a coupled set of equations defined on the support of the scattering object and appears in the analysis and solution methods for the inverse medium problem. Of particular interest is the eigenvalue problem associated with this boundary value problem, referred to as the transmission eigenvalue problem and, more specifically, the corresponding eigenvalues which are called transmission eigenvalues. The transmission eigenvalue problem is a nonlinear and non-selfadjoint eigenvalue problem that is not covered by the standard theory of eigenvalue problems for elliptic equations

In this talk we consider the transmission eigenvalue problem for Maxwell's equations and introduce an integral equation method to study the Fredholm property of this problem under weaker assumption on the contrast of the scattering media as previously used in the literature. The main difficulty of our approach is to establish the correct mapping properties of the involved boundary integral operators. This is a joint work with Houssem Haddar. (Received August 18, 2013)

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