

INTERFACE PROBLEMS FOR NON-SELFADJOINT MAXWELL EQUATIONS

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Abstract

In this talk, we consider the spectrum of a non-selfadjoint operator pencil generated by the time-harmonic Maxwell problem with a flat interface between two dispersive media.

The dependence on the spectral parameter, i.e. the frequency, appears in the dielectric function and we make no assumptions on its form. In particular, to model dispersive media, the dielectric function is allowed to be complex, yielding a non-selfadjoint problem.

We consider the different types of essential spectrum arising in this model. We will concentrate on some simple examples where the spectrum can be fairly explicitly determined - such as periodic or homogeneous media in each half-space.

This is joint work with Malcolm Brown (Cardiff), Tomas Dohnal (Halle), Karl Michael Schmidt (Cardiff) and Michael Plum (Karlsruhe).