



DEPARTMENT OF APPLIED MATHEMATICS

應 用 數 學 系

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Colloquium

Numerical Methods for Transmission Eigenvalues and Invisibility

by

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Abstract

We consider a non-self-adjoint fourth order eigenvalue problem using a discontinuous Galerkin (DG) method. For high order problems, DG methods are competitive since they use simple basis functions and have less degrees of freedom. We propose an interior penalty discontinuous Galerkin method using $C0$ Lagrange elements (C0IP) for the transmission eigenvalue problem and prove the optimal convergence. We also consider invisibility cloaking in acoustic wave scattering. The proposed cloaking device takes a three-layer structure with a cloaked region, a lossy layer and a cloaking shell. This is mainly based on studying a novel type of interior transmission eigenvalue problems and their connection to invisibility cloaking.

Date : 29 December, 2016 (Thursday)

Time : 11:00a.m. – 12:00noon

Venue : TU801, The Hong Kong Polytechnic University

***** ALL ARE WELCOME *****