



Hamilton Institute

Approximation in Hardy classes, with applications to inverse problems

Professor Jonathan R. Partington
School of Mathematics, University of Leeds

Tuesday, December 14th, 2004

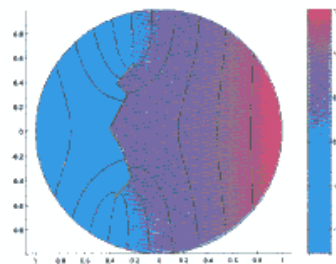


Abstract

We formulate and solve an easily-stated Hilbert space approximation problem, which we then apply in a variety of situations. The basic set-up considered in this lecture is that of the Hardy spaces of analytic functions in a region (here, the disc or an annulus), and the reconstruction of analytic functions from partial and corrupted measurements.

As an application, we consider a selection of inverse problems, including (i) detection of cracks or sources in a 2-dimensional material, and (ii) obtaining full boundary data for solutions to the Laplace equation, in each case using measurements made only on a subset of the boundary. There are potential applications in engineering and medicine.

It is hoped also to mention briefly some further applications of the basic approximation problem in control theory and signal processing.



Venue: Seminar Room, Hamilton Institute, Rye Hall,
NUI Maynooth

Time: 1.00 - 2.00pm (followed by tea/coffee)

Travel directions are available at www.hamilton.ie