Applied Mathematics

McGill Applied Mathematics Seminar
Joint with the McGill CSE and Analysis Seminars

Friday Feb 9, 2007, 2:00 pm Friday
At McGill, Burnside Hall 1205

" Boundary Integral Equations: Analysis and Applications"

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Coffee and refreshments will be served after the seminar

Abstract:

For a long time boundary integral equations were used to prove the unique solvability of second order boundary value problems. Using indirect boundary integral formulations with single and double layer potentials those considerations led to first and second kind boundary integral equations to be solved. In particular for the latter Neumann series are an appropriate choice. However, there was and there is still an ongoing discussion about the convergence estimates in suitable function spaces.

In this talk we will present some results to prove the contraction property of the double layer potential in fractional Sobolev spaces. These estimates have an deep impact for the design of efficient boundary element methods, i.e. preconditioning and adaptivity. Moreover, there are strong relations with domain decomposition methods and the Dirichlet to Neumann map involved.