72nd Midwest PDE Seminar

Purdue University, November 16–17, 2013

Hussein Awala, *Temple University* Sat, Nov 16, 5:20–5:40, REC 122

On the mixed boundary value problem for the Laplacian in polygonal domains in two dimensions

Abstract. Boundary value problems with mixed Dirichlet and Neumann boundary conditions model a series of physical and engineering phenomena such as conductivity, heat transfer, wave phenomena, electrostatics, metallurgical melting, and stamp problems in elasticity and hydrodynamics. In this talk I will discuss some recent results about the well-posedness of the mixed problem for the Laplacian on curvilinear polygons in two dimensions. The tools employed to obtain these results are a mixture of Calderon-Zygmund theory and Mellin transform techniques.This is joint work with Irina Mitrea and Katharine Ott.