

Calderón-Zygmund Analysis Seminar

Monday, February 1st, 3:45 pm

Title: Sharp convergence rates for Darcy's Law

Zhongwei Shen

Abstract. In this talk I will describe a recent work on the convergence rates for Darcy's law. We consider the Dirichlet problem for the steady Stokes equations in a periodic perforated and bounded domain. We establish the sharp convergence rate for the solutions as the period converges to zero. This is achieved by constructing two boundary correctors to control the boundary layers created by the incompressibility condition and the discrepancy of the boundary values. One of the correctors deals with the tangential boundary data, while the other handles the normal boundary data.