Zhongwei Shen (University of Kentucky, USA)

Boundary Regularity Estimates in Periodic Homogenization

In this talk I will provide a survey on recent progress on uniform regularity estimates in periodic homogenization. We consider boundary value problems for a family of second-order elliptic systems in divergence form with rapidly oscillating periodic coefficients. We are interested in sharp regularity estimates, up to the boundary and uniform with respect to the parameter ϵ. Both Dirichlet and Neumann boundary conditions are considered. The results to be discussed include Hölder estimates, Lipschitz estimates, $W^{1,p}$ estimates, and Rellich estimates.