



6th Symposium on Analysis and PDEs

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June 1, 3:30–3:55pm

Randomly Homogenized Boundary Obstacle Problem.

The aim of the talk is to study a problem motivated by a mathematical model of semipermeable membranes. The basic question we aim to address is the regularity property for the homogenized solution to a boundary obstacle problem in a perforated domain, where the holes are periodically distributed and have random shape and size. We obtain uniform $C^{1,1/2}$ estimates up to the boundary for the solution independent of the penalty constant λ which appears in the homogenized equation. This allows us to prove uniform convergence to the regular $C^{1,1/2}$ solution of the Thin Obstacle Problem.