



PURDUE UNIVERSITY

Department of Mathematics Colloquium

Speaker: Professor Alexander Volberg, Michigan State University
Title: "Singular Integrals in Bad Medium and Geometric Measure Theory"
Date: Tuesday, October 20, 2009
Time: 4:30 P.M.
Place: MATH 175

Abstract

Vitushkin explored a very enigmatic connection between analytic capacity and Geometric Measure Theory. He put forward the question about the "equivalence" of analytic capacity and so-called Buffon needle probability. To solve this type of problem one should develop the theory of singular integrals in bad medium. We will describe the status of this problem presently. This will bring us naturally to a seemingly elementary problem of estimating the Buffon needle probability of finite collection of disks located in Cantor pattern. We will indicate the relation of this problem with percolation on graphs, tiling, Besicovitch projection theorem, and Kakeya problem.

Refreshments will be served in the Math Library Lounge, 4:00 P.M.