

1030-30-78

alexander l volberg* (sashavolberg@yahoo.com), Dept Math., MSU, East Lansing, MI 48824.

Minimizing analytic capacity and Buffon needle probability on Pictures.

N-picture is the collection of N disjoint discs on the plane whose sum of radii is 1, and which cannot be put inside the collection of discs of much smaller sum of radii. We minimize two functionals on N-pictures: analytic capacity and Buffon needle probability. We consider multi-dimensional version of this extremal problem too. Certain Cantor sets play an important role in finding the minimizer. The result has relations to estimating the size of level sets of Cauchy and Riesz potentials in the spirit of paper of Anderson-Eiderman (Ann. of Math. 2005). (Received July 18, 2007)