
**GEOMETRIC MEASURE THEORY
OPTIMAL MASS TRANSPORTATION
AND PARTIAL DIFFERENTIAL EQUATIONS**

The Fourier transform and Hausdorff dimension

PERTTI MATTILA
University of Helsinki

The Fourier transform is a powerful tool for some geometric problems on Hausdorff dimension. I shall present such applications on Hausdorff dimension of orthogonal projections and distance sets. On the other hand, the open problem on the Hausdorff dimension of Besicovitch (or Kakeya) sets is closely related to restriction problems on Fourier transform. I shall discuss this topic, too.