The Fourier transform and Hausdorff dimension

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The Fourier transform is a useful tool for many problems on Hausdorff dimension, such as projections and intersections. I shall discuss some such applications. On the other hand, the open problem of Hausdorff dimension of Kakeya (or Besicovitch) sets is closely related to restriction and other phenomena of modern Fourier analysis. It is also related to dimension estimates for projections. These too will be discussed during the course.