

Restriction of exponential sums to hypersurfaces

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Abstract

The last decade has witnessed a revolution in the circle of problems concerned with proving sharp moment inequalities for exponential sums on tori. This has in turn led to a better understanding of pointwise estimates, but this topic remains extremely challenging. One way to bridge the gap between global and pointwise behavior is to study the restriction of exponential sums to submanifolds of the torus. In my talk I will explore the behavior of lower dimensional Weyl sums and toral Laplace eigenfunctions, restricted to hypersurfaces. The proofs will involve decoupling, a Fourier analytic tool that has recently found a broad range of applications in many areas of mathematics.