

DISCREPANCY THEORY AND HARMONIC ANALYSIS

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The theory of geometric discrepancy studies different variations of the following question: how well can one approximate a uniform distribution by a discrete one, and what are the limitations that necessarily arise in such approximations. Historically, the methods of harmonic analysis (Fourier transform, Fourier series, wavelets, Riesz products, etc.) have played a pivotal role in the subject. I will give an overview of the problems, methods, and results in the field and discuss some latest developments and connections with other areas of mathematics.