

Oscillations of Fourier Integrals with a Spectral Gap

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I will discuss properties of measures whose Fourier transform vanishes on an interval. I will start by reviewing solutions to the Gap and Type problems in Harmonic Analysis, where such measures appear.

The main new result of the talk is an extension of a theorem by Eremenko and Novikov on the density of the sequence of sign changes of a measure with a spectral gap. The theorem confirmed a conjecture by Gurevich from 1965 and solved one of the problems from Arnold's list (2000). Some of the results in the talk are joint with M. Mitkovski.