
EMANUEL CARNEIRO, IMPA - Rio de Janeiro

Fourier optimization problems in number theory

Fourier optimization problems appear naturally within several different fields of mathematics, particularly in analysis and number theory. These are problems in which one imposes certain conditions on a function and its Fourier transform, and then wants to optimize a certain quantity. A recent example is given in the proof of the optimal sphere packing in dimensions 8 and 24. In this talk I want to show how certain optimization problems of this sort appear in the theory of the Riemann zeta-function, prime gaps and weighted inequalities.