

FOURIER INTERPOLATION PAIRS AND MODULAR FORMS

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This lecture is about Fourier uniqueness and Fourier interpolation pairs, some explicit constructions of such pairs and their applications. Suppose that we have two subsets X and Y of the Euclidean space. Can we reconstruct a function f from its restriction to the set X and the restriction of its Fourier transform to the set Y ? We are interested in the pairs (X, Y) such that the answer to the question above is affirmative. In this talk I will give an overview of recent progress on explicit constructions and existence results for Fourier interpolation pairs and corresponding interpolation formulas. Also I will try to convince you that explicit Fourier interpolation is a useful gadget in solving optimization problem and analyzing differential equations.