On Fourier uncertainty and extremal problems

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The uncertainty principle states, broadly, that one cannot have an unrestricted control of a function and its Fourier transform simultaneously. This paradigm is related to different sorts of Fourier optimization problems, where one imposes conditions on a function and its transform and seeks to optimize a certain quantity of interest. We will discuss an uncertainty principle involving the signs of a function and its transform, some extremal problems, and connections to other fields.