

Generalized sign Fourier uncertainty

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Abstract. We consider a generalized version of the sign uncertainty principle for the Fourier transform, first proposed by Bourgain, Clozel and Kahane [4] and revisited by Cohn and Gonçalves [11]. In our setup, the signs of a function and its Fourier transform resonate with a generic given function P outside of a ball. One essentially wants to know if and how soon this resonance can happen, when facing a suitable competing weighted integral condition. The original version of the problem corresponds to the case $P = \mathbf{1}$. Surprisingly, even in such a rough setup, we are able to identify sharp constants in some cases.

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