

Suppose that the discrete Fourier transform of the signal $f : \mathbb{Z}_N^d \rightarrow \mathbb{C}$ is transmitted, and the frequencies $\{\widehat{f}(m)\}_{m \in S}$ are lost. Under what reasonable assumptions can we recover the signal f exactly? This problem is closely connected with the Fourier uncertainty principle and its various manifestations touch upon many areas of mathematics. The main thrust of this talk is the use of discrete restriction theory as a unifying concept that allows one to address the cases when the set of lost frequencies is random, as well as situations when S is given in a concrete form.