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John J. Benedetto* (jjb@math.umd.edu) and **Weilin Li**. *Super-resolution by means of Beurling minimal extrapolation*. Preliminary report.

We address the super-resolution question: Given spectral data defined on a finite set of d -dimensional multi-integers; of all complex Radon measures on the d -dimensional torus, whose Fourier transform equals this data, does there exist exactly one with minimal total variation? We first note that this is a mathematical formulation of a large class of super-resolution problems that arise in image processing. We prove a theorem that has quantitative implications about the possibility and impossibility of constructing such a unique measure. Our method introduces the notion of an admissibility range that fundamentally connects Beurling's theory of minimal extrapolation with the Candes and Fernandez-Granda theory of super-resolution. The method is also well-suited for the construction of explicit examples. (Received July 04, 2016)