1155-42-23 **Betsy Stovall*** (stovall@math.wisc.edu). *An inverse problems approach to some questions arising in harmonic analysis.*

One strategy for developing a proof of a claimed theorem is to start by understanding what a counter-example should look like. In this talk, we will discuss a few recent results in harmonic analysis that utilize a quantitative version of this approach. A key step is the solution of an inverse problem with the following flavor. Let $T : X \to Y$ be a bounded linear operator and let $0 < a \leq \|T\|$. What can we say about those functions $f \in X$ obeying the reverse inequality $\|Tf\|_Y \geq a\|f\|_X$? (Received November 01, 2019)