1154-46-1033 **Cheng Cheng** and **Ingrid Daubechies***, ingrid@math.duke.edu. *Phase Retrieval for Windowed Fourier Transform samples.*

When a square integrable function $f \in L^2(\mathbb{R})$ consists of several "components" that are widely separated in time-frequency space, it is hard to retrieve f from the knowledge of the magnitudes $(|\langle f, g_{m\alpha,n\beta}\rangle|)_{m,n\in\mathbb{Z}}$, where $g_{a,b}(x) = \exp(2\pi iax)g(x-b)$. The instability of the phase retrieval problem (determining f from the $|\langle f, g_{a,b}\rangle|$) has been discussed in a number of recent papers. When g is a Gaussian, and one considers a and b as continuous variables, Grohs and Rathmair expressed this instability, in *Stable Gabor Phase Retrieval and Spectral Clustering*, in terms of a Cheeger constant that quantifies the "delocalization" of $|\langle f, g_{a,b}\rangle|$. We show a similar result for the discrete case, where $a = m\alpha$, $b = n\beta$, with $m, n \in \mathbb{Z}$; we extend this to other functions g than Gaussians.

The presentation will start by a brief review, focusing on the link between "separation" and "instability", before describing the authors' recent results and open problems. (Received September 12, 2019)