

TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, May 5, 2014, 2:40 p.m.

Asymptotic spectral properties of phase space localization operators of Gabor type

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In the first part of my talk I will present a review of basic properties of continuous and discrete Gabor expansions, as well as their origin, the line of development and applications. In the second part I will concentrate on asymptotic spectral properties of localization operators defined in terms of Gabor expansions. I will discuss recent results describing the asymptotic behavior of their eigenvalue distribution with the asymptotic parameter being the Euclidean dilation applied to the localization domain and tending to infinity. The dilation factor can be interpreted in terms of Planck's constant, and the results we obtain as particular cases of the semi-classical limit with the Heisenberg boxes shrinking to points. This line of research originated out of classical works on phase space localization operators done by Ingrid Daubechies, Henry Landau and Harold Widom, and started about 50 years ago.