1128-58-47 **Steve Zelditch***, Steve Zelditch, Department of Mathematics, Northwestern University, Evanston, IL , and **Peng Zhou**. *Interfaces in spectral and Berman kernel asymptotics.*

In Schrodinger equations $h^2\Delta + V$ with $V \geq 0$, it is well-known there for each energy level E there is an allowed region $V \leq E$ and a forbidden region $V > E$, separated by the caustic $V = E$. The asymptotics of spectral projections $\Pi_{h,E}$ kernels abruptly changes along the caustic. In the case of the isotropic Harmonic oscillator, the scaling limit of $\Pi_{h,E}$ is an Airy kernel (precisely the Tracy-Widom Airy kernel in dimension 3). This is probably universal for Schrodinger operators. There is an analogous problem in phase space. If one uses the complex holomorphic representation, there is a zone around the energy surface in which the kernel has an incomplete Gaussian shape, smoothly transitioning from 1 to 0 across the surface. A boundary also provides an interface but time will not permit a discussion of that.

This talk reviews joint work with Boris Hanin and Peng Zhou for Schrodinger operators and Peng Zhou for Bergman kernels which prove the interface asymptotics. (Received February 05, 2017)