

## **Seminar in Nonlinear Systems**

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*Quantum Chaos, Classical Delocalization  
and Quantum Localization:  
The Strange Case of the Non-compact Cusp*

Tuesday, October 26, 2004

4:00 pm

Pierce 218

*Abstract:* I will review some basic concepts of Semiclassical Quantum Chaos (Quantization, Wigner Distribution, Quantum Ergodicity, etc.) and show how they apply to the case of the planar billiard  $Q$  delimited by the positive  $x$ -semiaxis, the positive  $y$ -semiaxis, and the graph of  $f(x) = (x + 1)^{-2}$ . We will see that a commonly accepted definition of Quantum Ergodicity (the Schnirelman Theorem) applies, but it does not make much sense from a physical point of view. This is due to a curious *anti-tunnel* effect that occurs in non-compact cusps.

Refreshments at 3:50pm