

## STANFORD PROBABILITY SEMINAR

**Toufic Suidan**, UC Santa Cruz

**Monday, 6 March 2006**

**4:15pm** (Refreshments at 4pm in the 1st Floor Lounge)

Sequoia Hall, Room 200

### **Random Matrix Central Limit Theorems for Non-Intersecting Random Walks**

**Abstract.** Many combinatorial and probabilistic models connected to random matrix theory can be analyzed by studying various non-intersecting random walks with very specific increment distributions. This talk will focus on removing the specific nature of the increment distributions in certain scaling regimes. The Tracy-Widom and sine kernel distributions of random matrix theory are shown to be limiting distributions for natural quantities associated to the non-intersecting random walks in the above mentioned scaling regimes. The resulting theorems can be viewed as central limit theorems for non-intersecting random walks with general increments. Strong approximation and Riemann-Hilbert techniques are used in the proofs. This is joint work with Jinho Baik.