

Quantum dots and Jack polynomials

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The talk will discuss a random-matrix approach to quantum transport in chaotic quantum dots with one non-ideal lead and Dyson's symmetry parameter 1, 2 and 4. The reflection eigenvalues (the fundamental quantities of the theory) are shown to form a novel probability ensemble, described in terms of Jack polynomials, which are objects appearing in various settings in mathematics and physics; an introduction to this subject is given. This ensemble reveals links to various challenging mathematical questions.