1027-60-45   **Jose Ramirez** and **Brian Rider*** (`brider@euclid.colorado.edu`), Mathematcis Department, UCB 395, CU Boulder, Boulder, CO 80309, and **Balint Virag**. *Beta Tracy-Widom laws, random Schroedinger, and diffusion.*

The beta ensembles of Random Matrix Theory are natural generalizations of the Gaussian Orthogonal, Unitary, and Symplectic Ensembles, these classical cases corresponding to beta = 1, 2, or 4. We prove that the largest eigenvalues in the general case have limit laws described by the low lying spectrum of certain random Schroedinger operators. This provides a new characterization of the celebrated Tracy-Widom laws (now for all beta). As a corollary, there is a second, and also new, characterization in terms of the explosion probability of an associated one-dimensional diffusion. These descriptions even have applications, allowing for information on the shape of the "beta Tracy-Widom" distributions. (Received February 06, 2007)

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