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Michel LEDOUX* (ledoux@math.univ-toulouse.fr), Institut de Mathématiques de Toulouse, Université de Toulouse, F-31062 Toulouse, France. *Concentration inequalities for eigenvalues of random matrices.*

We survey recent developments on concentration and deviation inequalities for spectral measures and extremal eigenvalues of classes of random matrices. Concentration inequalities for spectral measures develop at the correct large deviation rate. The study of concentration and deviation inequalities, as well as variance bounds, for extremal eigenvalues at the fluctuation regime towards the Tracy-Widom distribution is more delicate. We present several approaches developed recently towards this goal, moment recurrence equations for the classical orthogonal polynomial ensembles, combinatorial estimates on families of Wigner matrices, and analysis of (Hermite and Laguerre) tridiagonal models (that leads to the best known estimates so far). (Received February 06, 2009)