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Universality at the edge of the spectrum in Wigner random matrices. (English)

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Summary: We prove universality at the edge for rescaled correlation functions of Wigner random matrices in the limit $n \rightarrow +\infty$. As a corollary, we show that, after proper rescaling, the 1st, 2nd, 3rd, etc. eigenvalues of Wigner random Hermitian (resp. real symmetric) matrix weakly converge to the distributions established by *C. A. Tracy* and *H. Widom* in 1994 [Commun. Math. Phys. 159, No. 1, 151–174 (1994; Zbl 0789.35152)] (for Hermitian matrices) in the G.U.E. case and in 1996 [Commun. Math. Phys. 177, No. 3, 727–754 (1996; Zbl 0851.60101)] (for symmetric matrices) in G.O.E. case.

MSC:

- 82B41 Random walks, random surfaces, lattice animals, etc. in equilibrium statistical mechanics
- 60B99 Probability theory on algebraic and topological structures
- 60F99 Limit theorems in probability theory
- 82B44 Disordered systems (random Ising models, random Schrödinger operators, etc.) in equilibrium statistical mechanics

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