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## Universality via the $\bar{d}$ steepest descent method

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### **Abstract**

We will discuss **joint work with Ken McLaughlin** on a new method of asymptotic analysis of matrix-valued Riemann–Hilbert problems that involves dispensing with analyticity in favor of measured deviation therefrom. This method allows the large-degree analysis of orthogonal polynomials on the real line with respect to varying nonanalytic weights with external fields having two Lipschitz–continuous derivatives, as long as the corresponding equilibrium measure has typical support properties. Universality of local eigenvalue statistics of unitary-invariant ensembles in random matrix theory follows under the same conditions.