Some applications of Toeplitz determinants

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We will review some of the applications of the asymptotic results on Toeplitz determinants obtained in recent years in collaboration with Thomas Bothner, Tom Claeys, Percy Deift, and Alexander Its. In particular, we will discuss problems about eigenvalues of Toeplitz matrices, a one-dimensional Bose gas, moments of characteristic polynomials of random matrices, and a transition between random matrix and Poisson statistics for a log-gas.

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