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Asymptotics of orthogonal polynomials via the Riemann–Hilbert method

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Abstract

There are various ways to find asymptotic behaviour of orthogonal polynomials. For instance, one can use the Lionville-Green (or WKB) approximation in differential equation theory, the steepest descent method for contour integrals, or three-term recurrence relations. In this lecture, I will present asymptotic expansions of several orthogonal polynomials by using the Riemann–Hilbert method.