

Mehler-Heine asymptotics for multiple orthogonal polynomials

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Mehler-Heine asymptotics describe the behavior of orthogonal polynomials near the edges of the interval where the orthogonality measure is supported. For Jacobi polynomials and Laguerre polynomials this asymptotic behavior near the hard edge involves Bessel functions J_α . We show that the asymptotic behavior near the endpoint of the interval of (one of) the measures for multiple orthogonal polynomials involves a generalization of the Bessel function. The multiple orthogonal polynomials considered are Jacobi-Abel polynomials, Jacobi-Piñeiro polynomials, multiple Laguerre polynomials, multiple orthogonal polynomials associated with modified Bessel functions (of the first and second kind), and multiple orthogonal polynomials associated with Meijer G -functions.