

Orthogonal polynomials and special function solutions of Painlevé equations

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Special function solutions of the Painlevé equations $P_{II}-P_{VI}$ can be expressed as Wronskian determinants involving classical special functions. By rewriting these Wronskians as Hankel determinants with a suitable weight function $w(x)$ on the real line or in the complex plane, and using the family of orthogonal polynomials with respect to $w(x)$, one can obtain asymptotic results of the special function solutions. In this talk we investigate this methodology for special function solutions of P_{IV} .