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Asymptotic approximations of integrals: an introduction, with recent developments and applications to orthogonal polynomials. (English) Zbl 1122.41018

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In this paper the authors discuss the concept of asymptotic expansion and its applications. It focuses the attention on special functions defined through integrals and considers their approximation by means of asymptotic expansions. It is a paper type survey. Introduction. Asymptotic theory of integrals, applications of Watson's Lemma. The saddle point method, summability methods, distributional methods. Asymptotic relations in the Askey scheme I. A simplified saddle point method. Applications to families of polynomials.

Reviewer: [Francisco Perez Acosta \(La Laguna\)](#)

MSC:

[41A60](#) Asymptotic approximations, asymptotic expansions (steepest descent, etc.) Cited in **3** Documents

[33C65](#) Appell, Horn and Lauricella functions

Keywords:

asymptotic expansions of integrals; asymptotic of orthogonal polynomials

Full Text: [EMIS](#) [EuDML](#)