

Uniform convergent expansions of integral transforms: Application to special functions

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SUMMARY

Series expansions of special functions with respect to different systems of functions are interesting representations from an analytical and numerical point of view. Usually, existing expansions for these functions are not simultaneously valid for small and large values of the variables. In this work, we face the problem of designing a general theory of uniform convergent expansions of special functions in terms of elementary functions valid in a large region of the complex plane that includes small and large values of the variables. Error bounds and numerical experiments showing the accuracy of the approximations are given, and its application to important special functions.

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