

ALTERNATIVE METHOD OF THE ASYMPTOTIC EXPANSION

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Based on [1, 2], we consider an analogue of the asymptotic expansion method for linear operator differential equations using orthogonal polynomials. Classically, the asymptotic method presents the solution as a power series of the parameter around a specific point, while using orthogonal polynomials we obtain an interval approximation of the parameter, which is derived from explicit formulas using recurrence relations. Corresponding formulas for the coefficients in the case of classical orthogonal polynomials are presented in an explicit form.

References

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2. Vashakmadze, Tamaz; Vashakmadze, Tamara. *On homogeneity of Vekua theory of plates and shells for anisotropic nonhomogeneous mediums*. Reports of enlarged session of the seminar of VIAM, v.S, N2, 1993, 107-110.