

## Computation

To calculation of classical orthogonal polynomials

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Decision of scientific and technical problems is connected with investigations and computing of special functions, among them, to classical orthogonal polynomials (OP) too.

Specifically, using Legendre polynomials systematic as coordinate systems, Vekua created the theory of elastic plates and shells. This theory has immediately relations to the works, widely representing on these both conferences. In this connection, the computation of OP has but not only general scientific and technical profit This problem represents for us important practical meaning.

As there are well-known, the calculation of basic functions [1], connected with OP, can be computing in two ways: by three-point recurrence relations, or by decompositions with a preliminary finding zeros of OP . As theoretical investigations proved and numerical experiments verified, that computation of values of polynomials by composition more preferable, than to use recurrence expressions. However, the immediately use of decompositions of Legendre type OP requires some modifications since applications of corresponding methods of numerical analysis [2] gives unsatisfactory results. By modify decompositions elaborating T.Vashakmadze , we created standard programs calculated OP having order of thousand , with 50 significant digit of a decimal place.

1. T.Vashakmadze. The Theory of Anisotropic Elastic Plates. Kluwer Academic Publisher. Dordrecht / Boston /London, 1999.
2. J.Wilkinson. The Algebraic Eigenvalue Problems. Oxford, 1965.