Gautschi, Walter; Milovanović, Gradimir V.
Orthogonal polynomials relative to a generalized Marchenko-Pastur probability measure.
(English) Zbl 07411104

Summary: The Marchenko-Pastur probability measure, of interest in the asymptotic theory of random matrices, is generalized in what appears to be a natural way. The orthogonal polynomials and their three-term recurrence relation for this generalized Marchenko-Pastur measure are obtained in explicit form, analytically as well as symbolically using Mathematica. Special cases involve Chebyshev polynomials of all four kinds. Supporting Matlab software is provided.

MSC:
33Cxx Hypergeometric functions
15B52 Random matrices (algebraic aspects)

Keywords:
orthogonal polynomials; generalized Marchenko-Pastur measure; three-term recurrence relation

Software:
OPQ; Matlab; Mathematica; DLMF; OrthogonalPolynomials

Full Text: DOI

References:
[8] Marchenko, VA; Pastur, LA, Distribution of eigenvalues for some sets of random matrices (Russian), Mat. Sb., 72, 507-536 (1967) - Zbl 0152.16101

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