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Asymptotic zero distribution of hypergeometric polynomials. (English) Zbl 0935.33004

Numer. Algorithms 21, No. 1-4, 147-156 (1999).

The paper is devoted to the asymptotic zero distribution of hypergeometric polynomials of the form

$$F(-n, kn + 1; (k + l)n + 2; z), \quad k, l, n \in \mathbb{N}.$$

The equations of the curves are given, on which the zeros lie asymptotically as $n \rightarrow \infty$. Furthermore it is shown that for $l = 0$ the zeros cluster on the loop of a suitable lemniscate L_k as $n \rightarrow \infty$. Similar results are presented for other functions related to hypergeometric polynomials, including Jacobi polynomials and associated Legendre functions.

Reviewer: [J.Saurer \(Regensburg\)](#)

MSC:

[33C20](#) Generalized hypergeometric series, ${}_pF_q$

[33C45](#) Orthogonal polynomials and functions of hypergeometric type (Jacobi, Laguerre, Hermite, Askey scheme, etc.)

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Keywords:

[asymptotic zero distribution](#); [hypergeometric polynomials](#); [Jacobi polynomials](#); [Legendre functions](#)

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