

APPROXIMATION BY COMPLEX q -LORENTZ POLYNOMIALS,
 $q > 1$

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Abstract. In this paper, for $q > 1$ we obtain quantitative estimate in the Voronovskaja's theorem and the exact orders in simultaneous approximation by the complex q -Lorentz polynomials of degree $n \in \mathbb{N}$, attached to analytic functions in compact disks of the complex plane. The geometric progression order of approximation q^{-n} is attained, which essentially improves the approximation order $1/n$ for the case $q = 1$, obtained in the very recent paper [2]. Also, some approximation properties of the iterates of these complex q -polynomials are studied.

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Key words. Complex q -Lorentz polynomials, $q > 1$, quantitative exact estimates, Voronovskaja's theorem, iterates, compact disks of the complex plane.

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