

A CERTAIN SUBCLASS OF BI-UNIVALENT FUNCTIONS ASSOCIATED WITH CHEBYSHEV POLYNOMIALS

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Abstract: In the present work, we investigate a new subclass of bi-univalent functions by applying the q -derivative operator associated with Chebyshev polynomials. We find estimates for the general Taylor-Maclaurin coefficients of the functions in this class and also obtain an estimation for the Fekete-Szegő problem for this class.

Keywords and Phrases: Analytic functions, Univalent and Bi-univalent functions, Fekete-Szegő inequality, Chebyshev polynomials and q -derivative operator.

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1. Introduction

We indicate by \mathcal{A} the collection of functions, which are analytic in the open unit disk \mathbb{D} given by

$$\mathbb{D} = \{z \in \mathbb{C} \text{ and } |z| < 1\}$$

and have the following normalized form:

$$f(z) = z + \sum_{n=2}^{\infty} a_n z^n. \quad (1.1)$$

We denote by \mathcal{S} the sub-collection of the set \mathcal{A} consisting of functions which are also univalent in \mathbb{D} . The Koebe one-quarter theorem [5] asserts that the image