

COEFFICIENT BOUNDS FOR NEW FAMILIES OF BAZILEVIČ AND ϕ -PSEUDO-STARLIKE BI-UNIVALENT FUNCTIONS ASSOCIATED WITH SAKAGUCHI TYPE FUNCTIONS

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Date of Receiving : 19. 08. 2022
Date of Revision : 10. 10. 2022
Date of Acceptance : 10. 10. 2022

Abstract. In this research paper, we introduce and study two new families $\mathcal{Z}_{\Sigma}(\theta, \eta, \phi, t; \alpha)$ and $\mathcal{Z}_{\Sigma}^*(\theta, \eta, \phi, t; \beta)$ of normalized holomorphic and bi-univalent functions which involve the Sakaguchi type Bazilevič functions and Sakaguchi type ϕ -pseudo-starlike functions. We establish the bounds for the initial Taylor-Maclaurin coefficients $|a_2|$ and $|a_3|$ for functions in each of these new families. Further, certain several special cases and consequences for our results are also pointed.

1. Introduction

Let \mathcal{A} be the family of holomorphic functions in the open unit disk

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

and have the following normalized form:

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

We also denote by \mathcal{S} the subclass of \mathcal{A} consisting of functions which are also univalent in \mathbb{U} .

A function $f \in \mathcal{A}$ is said to be Bazilevič function in \mathbb{U} if (see [12])

$$\Re \left(\frac{z^{1-\eta} f'(z)}{(f(z))^{1-\eta}} \right) > 0 \quad (z \in \mathbb{U}; \eta \geq 0).$$

2010 *Mathematics Subject Classification.* 30C45, 30C50.

Key words and phrases. Holomorphic functions, Bi-Univalent functions, Bazilevič functions, ϕ -Pseudo-starlike functions, Sakaguchi type functions, Coefficient estimates.

Communicated by. Murat Çağlar

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