ON A SUBCLASS OF CLOSE-TO-CONVEX FUNCTIONS

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Abstract

In this paper, we introduce a new subclass $K_s(\lambda, A, B)$ of close-to-convex functions. Such results as inclusion relationships, coefficient estimates, distortion and covering theorems for this class are proved. The results presented here would provide extensions of those given in earlier works. Several other new results are also obtained.

Keywords: Analytic functions, Starlike functions, Close-to-convex functions, Hadamard product (or convolution), Subordination between analytic functions.

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1. Introduction

Let $S$ denote the class of functions of the form:

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

which are analytic and univalent in the open unit disk

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

Let $K$ and $S^\ast(\alpha)$ denote the usual subclasses of $S$ whose members are close-to-convex and starlike of order $\alpha$ ($0 \leq \alpha < 1$) in $U$, respectively.

In a recent paper, Gao and Zhou [1] discussed a class $K_s$ of analytic functions related to the starlike functions, a function $f \in S$ is said to be in the class $K_s$ if it satisfies the inequality:

$$\Re \left( \frac{z^2 f(z)}{g(z)g(-z)} \right) < 0 \quad (z \in U),$$

where $g(z)$ is an analytic function in $U$ with $g(z) \neq 0$.

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