South East Asian J. of Mathematics and Mathematical Sciences
Vol. 15, No. 3 (2019), pp. 41-52

ISSN (Online): 2582-0850

ISSN (Print): 0972-7752

SOME PROPERTIES OF SUBCLASSES OF ANALYTIC FUNCTIONS WITH NEGATIVE COEFFICIENTS

N. Shilpa

PG Department of Mathematics,
JSS College of Arts, Commerce and Science,
Ooty Road, Mysore, Karnataka - 570 025, INDIA

E-mail : drshilpamaths@gmail.com

(**Received:** *Aug. 13, 2019* **Accepted:** *Dec. 13, 2019* **Published:** *Dec. 31, 2019)*

Abstract: The object of the present paper is to define a new subclass $\mathcal{T}^{\zeta}_{m,\lambda}(A, B, \gamma)$ of analytic functions whose non-negative coefficients from the second onwards are negative by using the differential operator $D^{\zeta}_{m,\lambda}$. We derive some interesting properties like coefficient inequalities, distortion bounds, convolution conditions and a result which unifies radii of close-to-convexity, starlikeness and convexity.

Keywords and Phrases: Analytic functions, Modified Hadamard product, Coefficient inequalities, Convolution conditions, Al-Oboudi operator.

2010 Mathematics Subject Classification: 30C45.

1. Introduction

Let $\mathcal{A}$ be the class of analytic univalent functions f normalized by

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

which are analytic in the open unit disc $\mathcal{U}$.

Let $\mathcal{T}$ denote the subclass of analytic functions in $\mathcal{U}$, consisting of functions whose non-zero coefficients from the second onwards are negative, that is an analytic function $f \in \mathcal{T}$ if it has a Taylor expansion of the form

$$f(z) = z - \sum_{k=2}^{\infty} a_k z^k, \quad a_k \geq 0. \tag{1.2}$$