

ON A CLASS OF ANALYTIC FUNCTIONS WITH FIXED
SECOND COEFFICIENT II

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ABSTRACT. Sarangi and Uralegaddi studied the class $\tilde{C}(\alpha)$ consisting of functions

$$f(z) = z - \sum_{n=2}^{\infty} a_n z^n \quad (a_n \geq 0)$$

satisfying $\operatorname{Re}\{f'(z)\} > \alpha$ ($0 \leq \alpha < 1$). We introduce the class $\tilde{C}(\alpha, p)$ ($0 \leq \alpha < 1$, $0 \leq p \leq 1$) of functions $f(z) \in \tilde{C}(\alpha)$ with fixed second coefficient. The object of the present paper is to show coefficient inequalities, distortion theorems and closure theorem for functions $f(z)$ in $\tilde{C}(\alpha, p)$, and to determine the radii of starlikeness and convexity for $\tilde{C}(\alpha, p)$. Further we consider the modified Hadamard product of functions $f(z)$ belonging to the class $\tilde{C}(\alpha, p)$.

I. INTRODUCTION

Let \mathcal{A} denote the class of functions of the form

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

which are analytic in the unit disk $\mathcal{U} = \{z: |z| < 1\}$. Further let $\mathcal{C}(\alpha)$ denote the subclass of \mathcal{A} consisting of functions satisfying

$$(1.2) \quad \operatorname{Re}\{f'(z)\} > \alpha \quad (z \in \mathcal{U})$$

for some α ($0 \leq \alpha < 1$).

In particular, the class $\mathcal{C}(0)$ was studied by MacGregor [1].