Fekete-Szego Problem for New Subclasses of Univalent Functions with bounded positive real part

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Abstract

In this paper we solve Fekete-Szego problem for $M_\lambda(\alpha,\beta)$ in the open unit disk Δ which maps Δ onto the strip domain ω with $\alpha < Re\omega < \beta$.

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1 Introduction

Let A denote the class of functions $f(z)$ of the form :

$$f(z) = z + \sum_{n=2}^{\infty} a_n z^n \tag{1}$$

which are analytic in the open unit disck $\Delta = \{z \in C : |z| < 1\}$. The subclass of A, Consisting of all univalent functions $f(z)$ in Δ is denoted by S.
Let f and g be analytic in Δ. The function f is subordinate to g, written $f \prec g$ or $f(z) \prec g(z)$, if there exists an analytic function ω such that $\omega(0) = 0$, $|\omega(z)| < 1$, and $f(z) = g(\omega(z))$ on Δ.
Authors in [1,3] proved Fekete-Szego problem for subclasses of univalen functions, In this paper we introdused new subclasses of univalent functions and we solved Fekete-Szego problem for the subclasses. We denoted the subclasses with $M_\lambda(\alpha,\beta)$.

2 Main results

To prove our main results we shall need the following definitions and lemmas.

Definition 2.1. : Let α and β be real numbers such that $0 \leq \alpha < 1 < \beta$. The function $f \in A$ belongs to the class $\nu(\alpha,\beta)$ satisfies the following inequality;

$$\alpha < Re\{(\frac{z}{f(z)})^2 f'(z)\} < \beta \qquad (z \in \Delta). \tag{2}$$

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