BOUNDS ON ZALCMAN CONJECTURE AND $H_2(2)$ OF λ-PSEUDO-STARLIKE FUNCTIONS RELATED TO A SHELL-LIKE DOMAIN

GANESH K[†], BHARAVI SHARMA R, HARIPRIYA M,
AND MURUGUSUNDARAMOORTHY G

Abstract. The current work aims at estimating the bounds on few initial coefficients, Fekete-Szegö inequality, Second order Hankel determinant, Zalcman inequality for the functions belonging to the subclasses $\mathcal{L}_\lambda(q)$ and $\mathcal{L}_{\lambda,g}(q)$ of holomorphic functions.

1. Introduction

The family $\mathcal{A}$ of holomorphic functions f defined on the disc $\Delta = \{z \in C : |z| < 1\}$ are of the form $f(z) = \sum\limits_{n=1}^{\infty} a_n z^n$ with $a_1 = 1$.

The subfamily of $\mathcal{A}$ whose members are holomorphic and injective in Δ is designated by S following the rule $f = 0$, $f' = 1$, at $z = 0$.

The geometrical properties between two holomorphic functions G and H can be studied by the concept of subordination, which perhaps expressed as $G \prec H$ and defined by $G(z) = H(w(z))$, $z \in \Delta$, where w is holomorphic function such that $w(0) = 0$ and $|w(z)| < 1, z \in \Delta$. Moreover if the function G is injective in Δ, then the image of Δ under G is contained in the image of Δ under H with $G(0) = H(0)$.

Lawrence Zalcman conjectured that the members of S satisfy the following property

$$|a_m^2 - a_{2m-1}| \le (m-1)^2, \forall m > 2.$$