An Investigation on Minimal Surfaces of Multivalent Harmonic Functions

Hakan Mete Taştan, Yaşar Polatoglu

Abstract

The projection on the base plane of a regular minimal surface $S$ in $\mathbb{R}^3$ with isothermal parameters defines a complex-valued univalent harmonic function $f = h(z) + g(z)$. The aim of this paper is to obtain the distortion inequalities for the Weierstrass-Enneper parameters of the minimal surface for the harmonic multivalent functions for which analytic part is an $m$-valent convex function.

2000 Mathematics Subject Classification: Primary 30C99; Secondary 31A05, 53A10, 30C55

Key words and phrases: Minimal surface; multivalent harmonic function; convex function; distortion theorem; isothermal parametrization; Weierstrass-Enneper representation.

References


Hakan Mete Taştan  
İstanbul University  
Department of Mathematics  
Vezneciler 34134, İstanbul, Turkey  
e-mail: hakmete@istanbul.edu.tr

Yaşar Polatoglu  
İstanbul Kültür University  
Department of Mathematics and Computer Science  
Ataköy, 34156, İstanbul, Turkey  
e-mail: y.polatoglu@iku.edu.tr