

BOUNDS OF A SECOND HANKEL DETERMINANT FOR A NEW FAMILY OF ANALYTIC FUNCTIONS

Anuradha Vishnoi, Arvind Kumar Sharma and Saurabh Porwal*

Department of Mathematics,
Janta Mahavidyalaya,
Ajitmal - 206121, Auraiya, Uttar Pradesh, INDIA

E-mail : anuvishnoi16@gmail.com, aksharma.maths@gmail.com

*Department of Mathematics
Ram Sahai Rajkiya Mahavidyalaya,
Bairi, Shivrajpur, Kanpur - 209205, Uttar Pradesh, INDIA

E-mail : saurabhjcb@rediffmail.com

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Abstract: The main object of this research article is to obtain sharp upper bound of second Hankel determinant for a new family of analytic functions defined by q -calculus. Relevant connections between the results presented here and various well-known findings are briefly discussed.

Keywords and Phrases: Analytic function, Hankel determinant, Schwarz function, q -calculus.

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1. Introduction

Let $\mathcal{A}$ stand for the family of functions of the form

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

which are analytic within the open unit disc $\mathbb{U} = \{z : z \in \mathbb{C} \text{ and } |z| < 1\}$ and $\mathcal{S}$ denote the subclass of $\mathcal{A}$ which are univalent in $\mathbb{U}$.