

**A CLASS OF PARABOLIC STARLIKE FUNCTIONS
DEFINED BY MEANS OF A CERTAIN
FRACTIONAL DERIVATIVE OPERATOR**

H. M. Srivastava ¹, A. K. Mishra ² and M. K. Das ³

Abstract

By making use of a certain fractional derivative operator, the authors introduce a class

$$\mathcal{SP}_\lambda(\alpha, \beta) \quad (0 \leq \lambda < 1; 0 \leq \alpha < 1; 0 < \beta < \infty)$$

of parabolic starlike functions in the open unit disk \mathbb{U} . Several basic properties and characteristics of functions belonging to the class $\mathcal{SP}_\lambda(\alpha, \beta)$ are investigated here. These include the determination of the associated Carathéodory (or extremal) function and various inclusion, subordination, and growth theorems. Some class-preserving operators and integral transforms are also considered.

2000 *Mathematics Subject Classification*: Primary 26A33, 30C45; Secondary 33C15

Key Words and Phrases: uniformly convex functions, parabolic starlike functions, fractional derivative, Carathéodory (or extremal) function, subordination between analytic functions, Hadamard product (or convolution)