

**A NEW SUBCLASS OF p -VALENT ANALYTIC FUNCTIONS
ASSOCIATED WITH HILBERT SPACE OPERATOR**

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Abstract: In this paper, we define a new subclass of $M(\alpha, A, B, p, \mathbb{T})$ of p -valent analytic functions associated with Hilbert Space operator. For this new subclass of functions, we determine the coefficient estimate, growth and distortion bounds along with extreme points. Furthermore, we consider applications of fractional calculus on functions in this subclass.

Keywords and Phrases: p -valent functions, Hilbert space, coefficient estimates, distortion bounds, extreme points.

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1. Introduction and Preliminaries

Let \mathcal{A}_p denote the class of p -valent analytic functions defined on the open unit disk $\Delta = \{z \in \mathbb{C} : |z| < 1\}$ having the Taylor series expansion

$$f(z) = z^p + \sum_{n=1}^{\infty} a_{n+p} z^{n+p}, \quad z \in \Delta$$

about the origin. Denote by \mathcal{TA}_p the subclass of functions in \mathcal{A}_p of the form

$$f(z) = z^p - \sum_{n=1}^{\infty} a_{n+p} z^{n+p}, \quad a_{n+p} \geq 0. \quad (1)$$