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A SUBCLASS OF HARMONIC FUNCTIONS DEFINED BY A CERTAIN FRACTIONAL CALCULUS OPERATORS

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Abstract: In this paper a subclass of p-valent harmonic functions in the open unit disc is introduced by making use of a certain fractional calculus operator and some properties such as coefficient estimates, distortion theorem and extreme points are studied.

Keywords and Phrases: Open Unit disk, Multivalent Functions, Harmonic Functions.

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1. Introduction

A continuous function f = u + iv is a complex valued harmonic function in a complex domain C, if both u and v are real harmonic in C. In any simply connected domain $D \subseteq C$, we can write f=h+$\bar{g}$. We call h the analytic part and g the co-analytic part of f. A necessary and sufficient condition for f to be locally univalent and sense-preserving in D is that $|h'(z)| > |g'(z)|$ in D (see Clunie and Sheil-Small [3]).

Denote by M(p) the class of functions f=h+$\bar{g}$, that are harmonic multivalent and sense-preserving in the unit disk U=$\{z \in C : |z| < 1\}$. The class M(p) was studied by Ahuja and Jahangiri [1] and class M(p) for p=1 was defined and studied by Jahangiri et. al. in [5]. For f=h+$\bar{g} \in M(p)$, we may express the analytic functions