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MARX-STROHHACKER INEQUALITY FOR MOCANU-JANOWSKI α-CONVEX FUNCTIONS

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Abstract. Let Ω be the class of functions $w(z)$ regular in the unit disc $D = \{z : |z| < 1\}$ with $w(0) = 0$, and $|w(z)| < 1$. For arbitrarily fixed real numbers $A \in (-1, 1]$ and $B \in [-1, A)$, let $P(A,\ B)$ be the class of regular functions $p(z)$ in D such that $p(0) = 1$, and $p(z) \in P(A,\ B)$ if and only if $p(z) = \frac{1+Aw(z)}{1+Bw(z)}$ for every $z \in D$, for some $w(z) \in \Omega$.

In the present paper we apply the subordination principle to give new proofs for some results concerning the class $M(\alpha, A,\ B)$ of functions $f(z)$ regular in D with $f(0) = 0$, $f'(0) = 1$ satisfying the condition: $M(\alpha, A,\ B)$ if and only if $\left[(1-\alpha)z\frac{f'(z)}{f(z)} + \alpha\left(1 + z\frac{f''(z)}{f'(z)}\right)\right] = p(z)$, for all z in D and for some $p(z) \in P(A,\ B)$ $(A \in (-1, 1], B \in [-1, A), 0 \leq \alpha < 1)$.

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REFERENCES

[1] Bernardi, S.D., *New distortion theorems for functions of positive real part and applications to the partial sums of univalent convex functions*, Proc. Amer. Math. Soc., **1** (1974), 113–118.

[2] Goodman, A.W., *Univalent functions, Vol I, II*, Mariner publishing Company Inc., 1983.

[3] Jack, I.S., *Functions starlike and convex of order* α, J. London Math. Soc., **3** (1971), 469–474.

[4] Mocanu, P.T. *Une propriété de convexité geénéralisée la théorie de la représentation conforme*, Mathematica (Cluj), **11(34)** (1969), 127–133.

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