

## SOME COEFFICIENT INEQUALITIES AND DISTORTION BOUNDS ASSOCIATED WITH CERTAIN NEW SUBCLASSES OF ANALYTIC FUNCTIONS

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*Abstract.* The authors introduce and investigate two new subclasses  $\mathcal{M}^*(\alpha)$  and  $\mathcal{N}^*(\alpha)$  of normalized analytic functions satisfying certain coefficient inequalities in the open unit disk  $\mathbb{U}$ . The main results of the present paper provide various interesting properties of functions belonging to the classes  $\mathcal{M}^*(\alpha)$  and  $\mathcal{N}^*(\alpha)$ . Some of these properties include (for example) several coefficient inequalities, distortion bounds, and inclusion relationships for the function classes which are considered here.

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### REFERENCES

- [1] P. L. DUREN, *Univalent Functions*, Grundlehren der Mathematischen Wissenschaften **259**, Springer-Verlag, New York, Berlin, Heidelberg and Tokyo, 1983.
- [2] A. W. GOODMAN, *Univalent Functions*, Vol. I, Polygonal Publishing House, Washington, New Jersey, 1983.
- [3] S. OWA, H. M. SRIVASTAVA AND N. SAITO, *Partial sums of certain classes of analytic functions*, Internat. J. Comput. Math., **81**, (2005), 1239–1256.
- [4] T. SEKINE, S. OWA, *Certain subclasses of starlike functions of order  $\alpha$* , Pan Amer. Math. J., **5**, 1 (1995), 95–100.
- [5] H. SILVERMAN, *Univalent functions with negative coefficients*, Proc. Amer. Math. Soc., **51**, (1975), 109–116.
- [6] H. M. SRIVASTAVA, S. OWA (Editors), *Current Topics in Analytic Function Theory*, World Scientific Publishing Company, Singapore, New Jersey, London and Hong Kong, 1992.