

NEW CLASSES OF SALAGEAN-TYPE MULTIVALENT
HARMONIC FUNCTIONS

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Abstract. New classes of Salagean-type multivalent harmonic functions are introduced. We give sufficient coefficient conditions for these classes. These coefficient conditions are shown to be also necessary if certain restrictions are imposed on the coefficients of these harmonic functions. Furthermore, we determine a representation theorem, inclusion relations, and distortion bounds for these functions.

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REFERENCES

- [1] AHUJA, O.P. and JAHANGIRI, J.M., *On a linear combination of classes of multivalently harmonic functions*, Kyungpook Math J., **42** (2002), 61–70.
- [2] AHUJA, O.P. and JAHANGIRI, J.M., *Multivalent harmonic starlike functions*, Ann. Univ. Marie Curie-Sklodowska, Sect. A, **55** (2001), 1–13.
- [3] CLUNIE, J. and SHEIL-SMALL, T., *Harmonic univalent functions*, Ann. Acad. Sci. Fenn. Ser. A. I Math., **9** (1984), 3–25.
- [4] JAHANGIRI, J.M., MURUGUSUNDARAMOORTY, G. and VIJAYA, K., *Salagean-type harmonic univalent functions*, Southwest J. Pure Appl. Math., **2** (2002), 77–82.
- [5] SĂLĂGEAN, G.S., *Subclasses of univalent harmonic functions*, Complex Analysis-Fifth Romanian Finish Seminar, Bucharest, **1** (1981), 362–372.

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