

A CLASS OF HARMONIC STARLIKE FUNCTIONS WITH RESPECT TO SYMMETRIC POINTS ASSOCIATED WITH THE SRIVASTAVA–WRIGHT GENERALIZED HYPERGEOMETRIC FUNCTION

R. M. EL-ASHWAH, M. K. AOUF, A. SHAMANDY AND S. M. EL-DEEB

Abstract. Making use of Srivastava-Wright operator we introduced a new class of complex-valued harmonic functions with respect to symmetric points which are orientation preserving, univalent and starlike. We obtain coefficient conditions, extreme points, distortion bounds, convex combination.

Mathematics subject classification (2010): 30C45.

Keywords and phrases: Harmonic, univalent, Srivastava-Wright operator, symmetric points.

REFERENCES

- [1] O. P. AHUJA AND J. M. JAHANGIRI, *Multivalent harmonic starlike functions*, Annal Univ. Mariae Curie-Sklodowska, Sec. A, 55 (2001), 1–13.
- [2] H. AL-KHARSANI AND R. A. AL-KHAL, *Univalent harmonic functions*, J. Ineq. Pure and Appl. Math., 8 (2007), Art. 59, 1–8.
- [3] Y. AVCI AND E. ZLOTKIEWICZ, *On harmonic univalent mappings*, Annal. Univ. Mariae-Curie Sklodowska Sect. A, 44 (1990), 1–7.
- [4] J. DZIOK AND R. K. RAINA, *Families of analytic functions associated with the Wright generalized hypergeometric function*, Demonstratio Mathematica, 37 (2004), 533–542.
- [5] J. DZIOK, R. K. RAINA AND H. M. SRIVASTAVA, *Some classes of analytic functions associated with operators on Hilbert space involving Wright hypergeometric function*, Proc. of Jangjeon Math. Soc., 7 (2004), 43–55.
- [6] J. DZIOK AND H. M. SRIVASTAVA, *Certain subclasses of analytic functions associated with the Wright generalized hypergeometric function*, Integral Transform Spec. Funct., 14 (2003), 7–18.
- [7] J. M. JAHANGIRI, *Harmonic functions starlike in the unit disc*, J. Math. Anal. Appl. 235 (1999), 470–477.
- [8] J. M. JAHANGIRI, G. MURUGUSUNDARAMOORTHY AND K. VIJAYA, *Starlikeness of Rucheweyh type harmonic univalent functions*, J. Indian Acad. Math. 26 (2004), 191–200.
- [9] J. M. JAHANGIRI, Y. C. KIM AND H. M. SRIVASTAVA, *Construction of a certain class of harmonic close-to-convex functions associated with the Alexander integral transform*, Integral Transforms Spec. Funct., 14 (2003), 237–242.
- [10] V. KIRYAKOVA, *Criteria for univalence of the Dziok-Srivastava and the Srivastava-Wright operators in the class A*, Appl. Math. Comput. 218 (2011), 883–892.
- [11] G. MURUGUSUNDARAMOORTHY, K. VIJAYA AND M. K. AOUF, *A class of harmonic starlike functions with respect to other points defined by Dziok-Srivastava operator*, J. Math. Appl. (2008), 113–124.
- [12] R. K. RIANA AND T. S. NAHER, *A note on boundedness properties of Wright's generalized hypergeometric function*, Annal. Math. Blaise Pascal, 4 (1997), 83–95.
- [13] R. K. RIANA AND T. S. NAHER, *On characterization of certain Wright's generalized hypergeometric functions involving certain subclasses of analytic functions*, Informatica 10 (1999), 219–230.
- [14] R. K. RIANA AND T. S. NAHER, *On univalent and starlike Wright's hypergeometric functions*, Rend. Sem. Math. Univ. Pavoda, 95 (1996), 11–22.

- [15] K. SAKAGUCHI, *On a certain univalent mapping*, J. Math. Soc. Japan 11 (1959), 72–75.
- [16] H. M. SRIVASTAVA, *Some Fox-Wright generalized hypergeometric functions and associated families of convolution operators*, Appl. Anal. Discrete Math. 1 (2007), 56–71.
- [17] H. M. SRIVASTAVA AND P. W. KARLSSON, *Multiple Gaussian Hypergeometric Series*, Halsted Press (Ellis Horwood Ltd, Chichester), John Wiley and Sons, New York, Chichester Brisbane and London 1985.
- [18] E. M. WRIGHT, *The asymptotic expansion of the generalized hypergeometric function*, Proc. London Math. Soc., 46 (1946), 389–408.