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A CLASS OF ANALYTIC FUNCTIONS BASED ON CONVOLUTION

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Abstract. We introduce a class $TS_p^g(\alpha)$ of analytic functions with negative coefficients defined by convolution with a fixed analytic function $g(z) = z + \sum_{n=2}^{\infty} b_n z^n$, $b_n > 0, |z| < 1$. We obtain the coefficient inequality, coefficient estimate, distortion theorem, a convolution result, extreme points and integral representation for functions in the class $TS_p^g(\alpha)$.

Full text

References

[1] O.P. Ahuja, *Hadamard products of analytic functions defined by Ruscheweyh derivatives*, Current topics in Analytic Funtion Theory (H.M. Srivastava, S. Owa editors) World Scientific, Singapore 1992,
13-29. MR1232426(94j:30006). Zbl 1002.30007.

[2] K. Al-Shaqsi and M. Darus, *Fekete-Szegö Problem for Univalent Functions with Respect to k-Symmetric Points*, The Austral. J. Math. Anal. Appl., **5**(2) (2008) Art. No.6. MR2461677(2009m:30035). Zbl 1165.30308.

[3] M. Haji Mohd, R. M. Ali, S.K. Lee and V. Ravichandran, *Subclasses of Meromorphic Functions Associated with Convolution*, J. Ineq. Appl. Vol. **2009** (2009), Article ID 190291, 10 pages MR2496271(2010k:30009). Zbl 1176.30044.

[4] G. Murugusundaramoorthy and R.K. Raina, *On a certain class of analytic functions associated with a convolution structure*, Demonstratio Mathematica, **41**(3) (2008) 551-559. MR2433307(2009h:30022). Zbl 1176.30044.

[5] St. Ruscheweyh, *New criteria for univalent functions*, Proc. Amer. Math. Soc. **49** (1975), 109-115. MR0367176(51 #3418). Zbl 0303.30006.

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[6] S. Shams, S.R. Kulkarni and J.M. Jahangiri, *On a class of univalent functions defined by Ruscheweyh derivatives*, Kyungpook Math. J. **43** (2003), 579-585. MR2026116(2004j:30026). Zbl 1067.30032.

[7] H. Silverman, *Univalent function with negative coefficients*, Proc. Amer. Math. Soc. **51** (1975), pp. 109-116. MR0369678(51#5910). Zbl 0311.30007.

[8] K.G. Subramanian, T.V. Sudharsan, P. Balasubrahmanyam and H. Silverman, *Classes of uniformly starlike functions*, Publ. Math, Debrecen **53**/3-4 (1998), 309-315. MRMR1657542(99i:30028). Zbl 0921.30007.

[9] S. Sivaprasad Kumar , V. Ravichandran and H. C. Taneja, *Meromorphic Functions with positive coefficients defined using convolution*, J. Ineq. Pure and Appl. Math., **6**(2) (2005), Article No. 58. MR2150912. Zbl 1080.30012.

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