NON–LINEAR OPERATOR AND THE SUFFICIENT CONDITIONS OF UNIVALENCE WITH APPLICATIONS

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Abstract. In the present paper, by using a nonlinear operator, we obtain a general theorem of univalence which refines and generalizes many results. Some applications of the main results are also considered.

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REFERENCES

[1] J. W. ALEXANDER, *Functions which map the interior of the unit circle upon simple region*, Annals of Math. **17** (1915), 12–22.

[2] A. BARICZ AND B. FRASIN, *Univalence of integral operators involving Bessel functions*, Appl. Math. Lett., **23** (4) (2010), 371–376.

[3] S. D. BERNARDI, *Convex and starlike univalent functions*, Trans. Amer. Math. Soc. **135** (1969), 429–449.

[4] N. N. PASCU, *On a univalence criterion. II*, in: Itinerant Seminar on Functional Equations, Approximation and Convexity (Cluj-Napoca, 1985), pp. 153–154, Preprint 86–6, Univ. Babes-Bolyai, Cluj-Napoca, 1985.

[5] D. BREAZ AND N. BREAZ, *Two integral operators*, Studia Univ. Babeş-Bolyai Math. **47** (2002), no. 3, 13–19.

[6] N. BREAZ, V. PESCAR AND D. BREAZ, *Univalence criteria for a new integral operator*, Math. Comput. Modelling **52** (2010), no. 1–2, 241–246.

[7] B. C. CARLSON AND D. B. SHAFFER, *Starlike and prestarlike hypergeometric functions*, SIAM, J. Math. Anal. **15** (1984), no. 4, 737–745.

[8] R. J. LIBERA, *Some classes of regular univalent functions*, Proc. Amer. Math. Soc. **135** (1969), 429–449.

[9] S. S. MILLER AND P. T. MOCANU, *Differential Subordinations: Theory and Applications*, Series in Pure and Applied Mathematics, No. 225. Marcel Dekker, Inc., New York, 2000.

[10] G. I. OROS, G. OROS AND D. BREAZ, *Sufficient conditions for univalence of an integral operator*, J. Inequal. Appl. **2008** (2008), art. ID 127645, 1–7.

[11] V. PESCAR, *Univalence of certain integral operators*, Acta Univ. Apulensis Math. Inform. **12** (2006), 43–48.

[12] V. PESCAR, *On the univalence of an integral operator*, Appl. Math. Lett. **23** (2010), no. 5, 615–619.

[13] V. PESCAR AND D. BREAZ, *Some integral operators and their univalence*, Acta Univ. Apulensis Math. Inform. **15** (2008), 147–152.

[14] V. RAVICHANDRAN, *Criteria for univalence of certain integral operators*, Acta Univ. Apulensis Math. Inform. **17** (2009), 141–149.

[15] C. SELVARAJ, K. R. KARTHIKEYAN, *Sufficient conditions for univalence of a general integral operator*, Bull. Korean Math. Soc. **46** (2009), no. 2, 367–372.

[16] H. M. SRIVASTAVA AND S. OWA, *Current Topics in Analytic Function Theory*, World Scientific Publishing Company, Singapore, New Jersey, London and Hong Kong, 1992.

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