

SUBORDINATION AND SUPERORDINATION FOR CERTAIN ANALYTIC FUNCTIONS CONTAINING FRACTIONAL INTEGRAL

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Abstract. The purpose of the present article is to derive some subordination and superordination results for certain normalized analytic functions involving fractional integral operator. Moreover, this result is applied to find a relation between univalent solutions for fractional differential equation.

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References

- [1] K. Balachandar and J. P. Dauer, *Elements of Control Theory*, Narosa Publishing House, 1999.
- [2] T. Bulboaca, *Classes of first-order differential superordinations*, Demonstr.Math. **35** (2) (2002), 287-292. [MR1907301](#)(2003m:30054). [Zbl 1010.30020](#).
- [3] Nak Eun Cho, Oh Sang Kwon, S. Owa and H. M. Srivastava, *A class of integral operators preserving subordination and superordination for meromorphic functions*, Appl. Math. and Compu. **193** (1) (2007), 463-474. [MR2385804](#)(2009a:30054).
- [4] R. F. Curtain and A. J. Pritchard, *Functional Analysis in Modern Applied Mathematics*, Academic Press. 1977. [MR0479787](#)(58 #2). [Zbl 0448.46002](#).
- [5] R. W. Ibrahim and M. Darus, *Subordination and superordination for univalent solutions for fractional differential equations*, J. Math. Anal. Appl., vol. **345**, no. 2, (2008), 871-879. [MR2429186](#). [Zbl 1147.30009](#).

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<http://www.utgjiu.ro/math/sma>

- [6] S. S. Miller and P. T. Mocanu, *Differential Subordinants: Theory and Applications*, Monographs and Texbooks in Pure and Applied Mathematics, vol **225**, Marcel Dekker, New York, 2000. [MR1760285](#)(2001e:30036). [Zbl 0456.30022](#).
- [7] S. S. Miller and P. T. Mocanu, *Subordinants of differential superordinations*, Complex Variables, **48** (10) (2003), 815-826. [MR2014390](#)(2004i:30015). [Zbl 1039.30011](#).
- [8] H. M. Srivastava and S. Owa, *Univalent Functions, Fractional Calculus, and Their Applications*, Halsted Press, John Wiley and Sons, New York, Chichester, Brisbane, and Toronto, 1989. [MR1199135](#)(93f:30003). [Zbl 0683.00012](#).

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