

Some Preserving Subordination and Superordination of the Liu-Owa Integral Operator

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Abstract

In this paper, we obtain some subordination and superordination-preserving results of the Liu-Owa integral operator. Sandwich-type result is also obtained.

KeyWords: Analytic function; Liu-Owa operator; Hadamard product; Differential subordination; Superordination.

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References:

1. Aouf M.K.: Inequalities involving certain integral operator. *J. Math. Inequal.* **2**(2), 537–547 (2008)
2. Choi J.H., Saigo M., Srivastava H.M.: Some inclusion properties of a certain family of integral operators. *J. Math. Anal. Appl.* **276**, 432–445 (2002)
3. Gao C.-Y., Yuan S.-M., Srivastava H.M.: Some functional inequalities and inclusion relationships associated with certain families of integral operator. *Comput. Math. Appl.* **49**, 1787–1795 (2005)
4. Jung T.B., Kim Y.C., Srivastava H.M.: The Hardy space of analytic functions associated with certain one-parameter families of integral operators. *J. Math. Anal. Appl.* **176**, 138–147 (1993)
5. Liu J.-L., Owa S.: Properties of certain integral operators. *Int. J. Math. Math. Sci.* **3**(1), 69–75 (2004)
6. Miller S.S., Mocanu P.T.: Differential subordinations and univalent functions. *Michigan Math. J.* **28**(2), 157–172 (1981)
7. Miller S.S., Mocanu P.T.: Univalent solutions of Briot–Bouquet differential equations. *J. Differ. Equ.* **56**(3), 297–309 (1985)
8. Miller, S.S., Mocanu, P.T.: *Differential Subordinations: Theory and Applications*, Series on Monographs and Textbooks in Pure and Applied Mathematics, vol. 225, Marcel Dekker, New York and Basel (2000)
9. Miller S., Mocanu P.T.: Subordinants of differential superordinations. *Complex Var. Theory Appl.* **48**(10), 815–826 (2003)
10. Pommerenke, C.: *Univalent Functions*, Vandenhoeck and Ruprecht, Göttingen (1975)

Some inclusion relationships and integral-preserving properties of certain subclasses of α -valent meromorphic functions associated with a family of linear operator

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Abstract

By making use of a general linear operator we introduce several new subclasses of multivalent meromorphic functions and investigate various inclusion relationships. Several interesting integral-preversing properties are also discussed.

KeyWords: Analytic function; Liu-Owa operator; Hadamard product; Differential subordination; Superordination. p -valent meromorphic functions; Hadamard product; linear operator; integral-preserving properties; inclusion relationships.

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References:

1. AGHALARY, R.: *Some properties of a certain family of meromorphically univalent functions defined by integral operator*, Kyungpook Math. J. **48** (2008), 379–385.
2. AOUF, M. K.: *New criteria for multivalent meromorphic starlike function of order α* , Proc. Japan Acad. Ser. A Math. Sci. **69** (1993), 66–70.
3. AOUF, M. K.— SHAMANDY, A.— MOSTAFA, A. O.— EL-EMAM, F. Z.: *Argument estimates of certain meromorphically p -valent functions associated with a family of linear operator*, Math. Slovaca (To appear).
4. CHO, N. E.— NOOR, K. I.: *Inclusion properties for certain classes of meromorphic functions associated with the Choi-Saigo-Srivastava operator*, J. Math. Anal. Appl. **320** (2006), 779–786.
5. JACK, I. S.: *Functions starlike and convex of order α* , J. London Math. Soc. (2) **3** (1971), 469–474.
6. KUMAR, V.— SHUKLA, S. L.: *Certain integrals for classes of p -valent meromorphic functions*, Bull. Austral. Math. Soc. **25** (1982), 85–97.
7. LIU, J.-L.— SRIVASTAVA, H. M.: *A linear operator and associated families of meromorphically multivalent functions*, J. Math. Anal. Appl. **259** (2001), 566–581.
8. MILLER, S. S.— MOCANU, P. T.: *Second-order differential inequalities in the complex plane*, J. Math. Anal. Appl. **65** (1978), 289–305.
9. URALEGADDI, B. A.— SOMANATHA, C.: *Certain classes of meromorphic multivalent functions*, Tamkang J. Math. **23** (1992), 223–231.
10. YANG, D.: *On a class of meromorphic starlike multivalent functions*, Bull. Inst. Math. Acad. Sinica **24** (1996), 151–157.
11. YUAN, S.-M.— LIU, Z.-M.— SRIVASTAVA, H. M.: *Some inclusion relationships and integral-preserving properties of certain subclasses of meromorphic functions associated with a family of integral operators*, J. Math. Anal. Appl. **337** (2008), 505–515.

Majorization problem for certain class of p -valently analytic function defined by generalized fractional differintegral operator

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Abstract

In this paper we investigate a majorization problem for a subclass of p -valently analytic function involving a generalized fractional differintegral operator. Some useful consequences of the main result are mentioned and relevance with some of the earlier results are also pointed out. (C) 2011 Elsevier Ltd. All rights reserved.

KeyWords: Analytic function; Differential subordination; Majorization; Fractional differintegral operator.

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References:

- [\[1\]](#)
- G. Schober
- Univalent Functions: Selected Topics
- Springer-Verlag, Berlin, Heidelberg, New York (1975)
- [\[2\]](#)
- H.M. Srivastava, M. Saigo, S. Owa
- A class of distortion theorems involving certain operators of fractional calculus
- J. Math. Anal. Appl., 131 (1988), pp. 412–420
- [\[3\]](#)
- J.K. Prajapat, R.K. Raina, H.M. Srivastava
- Some inclusion properties for certain subclasses of strongly starlike and strongly convex functions involving a family of fractional integral operators
- Integral Transforms Spec. Funct., 18 (9) (2007), pp. 639–651
- [\[4\]](#)
- S. Owa
- On the distortion theorems. I
- Kyungpook Math. J., 18 (1978), pp. 53–59
- [\[5\]](#)
- S.P. Goyal, J.K. Prajapat
- A new class of analytic p -valent functions with negative coefficients and fractional calculus operators
- Tamsui Oxf. J. Math. Sci., 20 (2) (2004), pp. 175–186
- [\[6\]](#)
- J. Patel, A.K. Mishra
- On certain subclasses of multivalent functions associated with an extended fractional differintegral operator
- J. Math. Anal. Appl., 332 (2007), pp. 109–122
- [\[7\]](#)
- J.K. Prajapat, R.K. Raina
- New sufficient conditions for starlikeness of analytic functions involving a fractional differintegral operator
- Demonstratio Math., XLIII (4) (2010), pp. 805–813
- [\[8\]](#)
- I.B. Jung, Y.C. Kim, H.M. Srivastava
- The Hardy space of analytic functions associated with certain one-parameter families of integral operators
- J. Math. Anal. Appl., 176 (1993), pp. 138–147

- [\[9\]](#)
- J.-L. Liu, S. Owa
- Properties of certain integral operator
- Int. J. Math. Math. Sci., 3 (1) (2004), pp. 69–75
- [\[10\]](#)
- S.D. Bernardi
- Convex and starlike univalent functions
- Trans. Amer. Math. Soc., 135 (1969), pp. 429–446
- [\[11\]](#)
- S.P. Goyal, P. Goswami
- Majorization for certain classes of analytic functions defined by fractional derivatives
- Appl. Math. Lett., 22 (2009), pp. 1855–1858
- [\[12\]](#)
- O. Altintas, H.M. Srivastava
- Some majorization problems associated with p -valently starlike and convex functions of complex order
- East Asian Math. J., 17 (2) (2001), pp. 175–183
- [\[13\]](#)
- M.A. Nasr, M.K. Aouf
- Starlike functions of complex order
- J. Natur. Sci. Math., 25 (1985), pp. 1–12
- [\[14\]](#)
- P. Wiatrowski
- On the coefficients of some family of holomorphic functions
- Zeszyty Nauk. Uniw. Lodz Nauk. Mat.-Przyrod, 39 (1970), pp. 75–85
- [\[15\]](#)
- O. Altintas, O. Ozkan, H.M. Srivastava
- Majorization by starlike functions of complex order
- Complex Var. Theory Appl., 46 (2001), pp. 207–218
- [\[16\]](#)
- P. Goswami, Z.-G. Wang
- Majorization for certain classes of analytic functions
- Acta Univ. Apulensis, 21 (2010), pp. 97–104
- [\[17\]](#)
- S.P. Goyal, S.K. Bansal, P. Goswami
- Majorization for the subclass of analytic functions defined by linear operator using differential subordination
- J. Appl. Math. Stat. Inform., 6 (2) (2010), pp. 45–50
- [\[18\]](#)
- T.H. MacGregor
- Majorization by univalent functions
- Duke Math. J., 34 (1967), pp. 95–102
- [\[19\]](#)
- Z. Nihari
- Conformal Mapping
- McGraw-Hill Book Company, New York, Toronto, London (1952)

ARGUMENT ESTIMATES OF CERTAIN MEROMORPHICALLY P-VALENT FUNCTIONS ASSOCIATED WITH A FAMILY OF LINEAR OPERATOR

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Abstract

Making use of linear operator we investigate some inclusion relationships and some argument properties of certain meromorphically p-valent functions. (C) 2011 Mathematical Institute Slovak Academy of Sciences.

KeyWords: meromorphically multivalent functions; Hadamard product; linear operator; argument estimates

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References:

1. AGHALARY, R.: *Some properties of a certain family of meromorphically univalent functions defined by integral operator*, Kyungpook Math. J. **48** (2008), 379–385.
2. AOUF, M. K.: *New criteria for multivalent meromorphic starlike function of order alpha*, Proc. Japan Acad. Ser. A Math. Sci. **69** (1993), 66–70.
3. BULBOACA, T.: *Differential Subordinations and Superordinations, Recent Results*, House of Scientific Book Publ., Cluj-Napoca, 2005.
4. CHO, N. E. NOOR, K. I.: *Inclusion properties for certain classes of meromorphic functions associated with the Choi-Saigo-Srivastava operator*, J. Math. Anal. Appl. **320** (2006), 779–786.
5. EENIGENBERG, P. MILLER, S. S. MOCANU, P. T. READE, M. O.: *On a Briot-Bouquet differential subordination*, Gen. Inequal. **3** (1983), 339–348.
6. KUMAR, V. SHUKLA, S. L.: *Certain integrals for classes of p-valent meromorphic functions*, Bull. Austral. Math. Soc. **25** (1982), 85–97.
7. LASHIN, A. Y.: *Argument estimates of certain meromorphically p-valent functions*, Soochow J. Math. **33** (2007), 803–812.
8. LIU, J. -L. SRIVASTAVA, H. M.: *A linear operator and associated families of meromorphically multivalent functions*, J. Math. Anal. Appl. **259** (2001), 566–581.
9. MILLER, S. S. MOCANU, P. T.: *Differential subordinations and univalent functions*, Michigan Math. J. **28** (1981), 157–171.
10. NUNOKAWA, M.: *On the order of strongly starlikeness of strongly convex functions*, Proc. Japan Acad. Ser. A Math. Sci. **69** (1993), 234–237.
11. SILVERMAN, H. SILVIA, E. M.: *Subclasses of starlike functions subordinate to convex functions*, Canad. J. Math. **37** (1985), 48–61.
12. URALEGADDI, B. A. SOMANATHA, C.: *Certain classes of meromorphic multivalent functions*, Tamkang J. Math. **23** (1992), 223–231.
13. YANG, D.: *On a class of meromorphic starlike multivalent functions*, Bull. Inst. Math. Acad. Sinica **24** (1996), 151–157.

14. YUAN, S. -M. LIU, Z. -M. SRIVASTAVA, H. M.: *Some inclusion relationships and integral-preserving properties of certain subclasses of meromorphic functions associated with a family of integral operators*, J. Math. Anal. Appl. **337** (2008), 505–515.

The Hadamard product of meromorphic univalent functions defined by using convolution

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Abstract

In this work the authors extend certain results concerning the Hadamard product for two classes related to starlike and convex univalent meromorphic functions with positive coefficients by using convolution. (C) 2011 Elsevier Ltd. All rights reserved.

KeyWords: Analytic; Meromorphic; Positive coefficients; Hadamard product

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References:

- [\[1\]](#)
- S. Owa
- On the Hadamard product of univalent functions
- Tamkang J. Math., 14 (1983), pp. 15–21
- [\[2\]](#)
- V. Kumar
- Hadamard product of certain starlike functions
- J. Math. Anal. Appl., 110 (1985), pp. 425–428
- [\[3\]](#)
- V. Kumar
- Hadamard product of certain starlike functions II
- J. Math. Anal. Appl., 113 (1986), pp. 230–234
- [\[4\]](#)
- V. Kumar
- Quasi-Hadamard product of certain univalent function
- J. Math. Anal. Appl., 126 (1987), pp. 70–77
- [\[5\]](#)
- M.K. Aouf, H.E. Darwish
- Hadamard product of certain meromorphic univalent functions with positive coefficients
- Southeast Asian Bull. Math., 30 (2006), pp. 23–28
- [\[6\]](#)
- H.E. Darwish
- The quasi-Hadamard product of certain starlike and convex functions
- Appl. Math. Lett., 20 (2007), pp. 692–695
- [\[7\]](#)
- H.M. Hossen

- Quasi-Hadamard product of certain p -valent functions
- Demonstratio Math., 33 (2) (2000), pp. 277–281
- [\[8\]](#)
- T. Sekine
- On quasi-Hadamard products of p -valent functions with negative coefficients
- H.M. Srivastava, S. Owa (Eds.), Univalent Functions, Fractional Calculus, and Their Applications, Halsted Press (Ellis Horwood Limited, Chichester), Brisbane and Toronto (1989), pp. 317–328
- [\[9\]](#)
- M.L. Mogra
- Hadamard product of certain meromorphic univalent functions
- J. Math. Anal. Appl., 157 (1991), pp. 10–16
- [\[10\]](#)
- M.L. Mogra
- Hadamard product of certain meromorphic starlike and convex functions
- Tamkang J. Math., 25 (2) (1994), pp. 157–162
- [\[11\]](#)
- B.A. Frasin, M. Darus
- On certain meromorphic functions with positive coefficients
- Southeast Asian Bull. Math., 28 (2004), pp. 615–623
- [\[12\]](#)
- R.M. El-Ashwah, M.K. Aouf
- Hadamard product of certain meromorphic starlike and convex functions
- Comput. Math. Appl., 57 (7) (2009), pp. 1102–1106