

ON A STEVIĆ–SHARMA TYPE OPERATOR FROM WEIGHTED–TYPE SPACES INTO BLOCH–TYPE SPACES

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Abstract. The boundedness, compactness and essential norm of a Stević-Sharma type operator from weighted-type spaces into Bloch-type spaces are investigated in this paper.

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REFERENCES

- [1] F. COLONNA, *New criteria for boundedness and compactness of weighted composition operators mapping into the Bloch space*, Cent. Eur. J. Math. **11** (2013), 55–73.
- [2] C. COWEN AND B. MACCLUER, *Composition Operators on Spaces of Analytic Functions*, CRC Press, Boca Raton, FL, 1995.
- [3] K. ESMAEILI AND M. LINDSTRÖM, *Weighted composition operators between Zygmund type spaces and their essential norms*, Integral Equations Oper. Theory **75** (2013), 473–490.
- [4] R. A. HIBSCHWEILER AND N. PORTNOY, *Composition followed by differentiation between Bergman and Hardy spaces*, Rocky Mountain J. Math. **35** (3) (2005), 843–855.
- [5] Q. HU, S. LI AND H. WULAN, *New essential norm estimates of weighted composition operators from H^∞ into the Bloch space*, Complex Var. Ellipt. Equ. **62** (2017), 600–615.
- [6] O. HYVÄRINEN, M. KEMPAINEN, M. LINDSTRÖM, A. RAUTIO AND E. SAUKKO, *The essential norm of weighted composition operators on weighted Banach spaces of analytic functions*, Integral Equations Oper. Theory **72** (2012), 151–157.
- [7] O. HYVÄRINEN AND M. LINDSTRÖM, *Estimates of essential norm of weighted composition operators between Bloch-type spaces*, J. Math. Anal. Appl. **393** (2012), 38–44.
- [8] Z. JIANG, *On Stević-Sharma operator from the Zygmund space to the Bloch-Orlicz space*, Adv. Differ. Equ. **2015**, Article no. 228, (2015).
- [9] S. LI, *Differences of generalized composition operators on the Bloch space*, J. Math. Anal. Appl. **394** (2012), 706–711.
- [10] S. LI AND S. STEVIĆ, *Composition followed by differentiation from mixed-norm spaces to α -Bloch spaces*, Sb. Math. **199** (12) (2008), 1847–1857.
- [11] S. LI AND S. STEVIĆ, *Generalized weighted composition operators from α -Bloch spaces into weighted-type spaces*, J. Inequal. Appl. **2015**, Article no. 265, (2015).
- [12] Y. LIU AND Y. YU, *On a Stević-Sharma operator from Hardy spaces to the logarithmic Bloch spaces*, J. Inequal. Appl. **2015**, Article no. 22, (2015).
- [13] K. MADIGAN AND A. MATHESON, *Compact composition operators on the Bloch space*, Trans. Amer. Math. Soc. **347** (1995), 2679–2687.
- [14] A. MONTES-RODRÍGUEZ, *The essential norm of a composition operator on Bloch spaces*, Pacific J. Math. **188** (1999), 339–351.
- [15] A. MONTES-RODRÍGUEZ, *Weighted composition operators on weighted Banach spaces of analytic functions*, J. London Math. Soc. **61** (2000), 872–884.
- [16] P. NIEMINEN, *Compact differences of composition operators on Bloch and Lipschitz spaces*, Comput. Method Funct. Theory **7** (2007), 325–344.

- [17] S. OHNO, *Weighted composition operators between H^∞ and the Bloch space*, Taiwanese J. Math. **5** (2001), 555–563.
- [18] S. OHNO, *Products of differentiation and composition on Bloch spaces*, Bull. Korean Math. Soc. **46** (2009), 1135–1140.
- [19] B. SEHBA AND S. STEVIĆ, *On some product-type operators from Hardy-Orlicz and Bergman-Orlicz spaces to weighted-type spaces*, Appl. Math. Comput. **233** (2014), 565–581.
- [20] J. SHAPIRO AND C. SUNDBERG, *Isolation amongst the composition operators*, Pacific J. Math. **145** (1990), 117–152.
- [21] S. STEVIĆ, *Weighted composition operators from weighted Bergman spaces to weighted-type spaces on the unit ball*, Appl. Math. Comput. **212** (2009), 499–504.
- [22] S. STEVIĆ, *Weighted differentiation composition operators from mixed-norm spaces to weighted-type spaces*, Appl. Math. Comput. **211** (2009), 222–233.
- [23] S. STEVIĆ, *Composition followed by differentiation from H^∞ and the Bloch space to n th weighted-type spaces on the unit disk*, Appl. Math. Comput. **216** (2010), 3450–3458.
- [24] S. STEVIĆ, *Weighted differentiation composition operators from the mixed-norm space to the n th weighted-type space on the unit disk*, Abstr. Appl. Anal. **2010**, Article ID 246287, (2010).
- [25] S. STEVIĆ, *Weighted differentiation composition operators from H^∞ and Bloch spaces to n th weighted-type spaces on the unit disk*, Appl. Math. Comput. **216** (2010), 3634–3641.
- [26] S. STEVIĆ, *Weighted iterated radial composition operators between some spaces of holomorphic functions on the unit ball*, Abstr. Appl. Anal. **2010**, Article ID 801264, (2010).
- [27] S. STEVIĆ, *Weighted iterated radial operators between different weighted Bergman spaces on the unit ball*, Appl. Math. Comput. **218** (2012), 8288–8294.
- [28] S. STEVIĆ, C. HUANG AND Z. JIANG, *Sum of some product-type operators from Hardy spaces to weighted-type spaces on the unit ball*, Math. Methods Appl. Sci. **45** (2022), 11581–11600.
- [29] S. STEVIĆ AND Z. JIANG, *Weighted iterated radial composition operators from weighted Bergman-Orlicz spaces to weighted-type spaces on the unit ball*, Math. Methods Appl. Sci. **44** (2021), 8684–8696.
- [30] S. STEVIĆ AND Z. JIANG, *Weighted iterated radial composition operators from logarithmic Bloch spaces to weighted-type spaces on the unit ball*, Math. Methods Appl. Sci. **45** (2022), 3083–3097.
- [31] S. STEVIĆ AND A. SHARMA, *On a product-type operator between Hardy and α -Bloch spaces of the upper half-plane*, J. Inequal. Appl. **2018**, Article no. 273, (2018).
- [32] S. STEVIĆ, A. SHARMA AND A. BHAT, *Products of multiplication, composition and differentiation operators on weighted Bergman space*, Appl. Math. Comput. **217** (2011), 8115–8125.
- [33] S. STEVIĆ, A. SHARMA AND A. BHAT, *Essential norm of products of multiplication composition and differentiation operators on weighted Bergman spaces*, Appl. Math. Comput. **218** (2011), 2386–2397.
- [34] S. STEVIĆ, A. SHARMA AND R. KRISHAN, *Boundedness and compactness of a new product-type operator from a general space to Bloch-type spaces*, J. Inequal. Appl. **2016**, Article no. 219, (2016).
- [35] S. STEVIĆ AND S. UEKI, *Integral-type operators acting between weighted-type spaces on the unit ball*, Appl. Math. Comput. **215** (2009), 2464–2471.
- [36] M. TJANI, *Compact composition operators on some Möbius invariant Banach space*, PhD dissertation, Michigan State University, 1996.
- [37] S. WANG, M. WANG AND X. GUO, *Products of composition, multiplication and iterated differentiation operators between Banach spaces of holomorphic functions*, Taiwanese J. Math. **24** (2020), 355–376.
- [38] H. WULAN, D. ZHENG AND K. ZHU, *Compact composition operators on BMOA and the Bloch space*, Proc. Amer. Math. Soc. **137** (2009), 3861–3868.
- [39] W. YANG, *Weighted composition operators from Bloch-type spaces to weighted-type spaces*, Ars Combin. **92** (2009), 415–423.
- [40] F. ZHANG AND Y. LIU, *On the compactness of the Stević-Sharma operator on the logarithmic Bloch spaces*, Math. Inequal. Appl. **19** (2) (2016), 625–642.
- [41] R. ZHAO, *Essential norms of composition operators between Bloch type spaces*, Proc. Amer. Math. Soc. **138** (2010), 2537–2546.
- [42] K. ZHU, *Operator Theory in Function Spaces*, American Mathematical Society, Providence, RI, 2007.
- [43] X. ZHU, *Products of differentiation, composition and multiplication from Bergman type spaces to Bers type space*, Integ. Tran. Spec. Funct. **18** (2007), 223–231.

- [44] X. ZHU, *Generalized weighted composition operators on weighted Bergman spaces*, Numer. Funct. Anal. Opt. **30** (2009), 881–893.
- [45] X. ZHU, *Generalized weighted composition operators from Bers-type spaces to Bloch-type spaces*, Math. Ineq. Appl. **17** (2014), 187–195.
- [46] X. ZHU, *Essential norm of generalized weighted composition operators on Bloch-type spaces*, Appl. Math. Comput. **274** (2016), 133–142.
- [47] X. ZHU, *Generalized weighted composition operators on weighted Bergman spaces, II*, Math. Ineq. Appl. **22** (2019), 1055–1066.