

ON STEVIĆ–SHARMA OPERATOR FROM THE MIXED–NORM SPACES TO ZYGMUND–TYPE SPACES

ZHITAO GUO*, LINLIN LIU AND YONGLU SHU

Abstract. Let φ be an analytic self-map of the unit disk \mathbb{D} , $\mathcal{H}(\mathbb{D})$ the space of all analytic functions on \mathbb{D} , and $\psi_1, \psi_2 \in \mathcal{H}(\mathbb{D})$. The boundedness and compactness of Stević–Sharma operator $T_{\psi_1, \psi_2, \varphi} f = \psi_1 \cdot f \circ \varphi + \psi_2 \cdot f' \circ \varphi$ from the mixed-norm space $H(p, q, \phi)$ to Zygmund-type space \mathcal{Z}^μ and little Zygmund-type space \mathcal{Z}_0^μ are investigated in this paper.

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REFERENCES

- [1] M. S. AL GHAFRI AND J. S. MANHAS, *On Stević–Sharma operators from weighted Bergman spaces to weighted-type spaces*, Math. Inequal. Appl. **23**, 3 (2020), 1051–1077.
- [2] C. C. COWEN AND B. D. MACCLUER, *Composition operators on spaces of analytic functions*, Studies in Advanced Mathematics. CRC Press, Boca Raton, 1995.
- [3] J. GUO AND Y. LIU, *Generalized integration operators from mixed-norm to Zygmund-type spaces*, Bull. Malays. Math. Sci. Soc. **39**, 3 (2016), 1043–1057.
- [4] Z. GUO AND Y. SHU, *On Stević–Sharma operators from Hardy spaces to Stević weighted spaces*, Math. Inequal. Appl. **23**, 1 (2020), 217–229.
- [5] Z. JIANG, *On Stević–Sharma operator from the Zygmund space to the Bloch-Orlicz space*, Adv. Differ. Equ. **2015**, 228 (2015), 12pp.
- [6] H. LI AND Z. GUO, *Note on a Li-Stević integral-type operator from mixed-norm spaces to n th weighted spaces*, J. Math. Inequal. **11**, 1 (2017), 77–85.
- [7] S. LI AND S. STEVIĆ, *Volterra-type operators on Zygmund spaces*, J. Inequal. Appl. **2007**, Art. ID 32124 (2007), 10 pp.
- [8] S. LI AND S. STEVIĆ, *Generalized composition operators on Zygmund spaces and Bloch type spaces*, J. Math. Anal. Appl. **338**, 2 (2008), 1282–1295.
- [9] S. LI AND S. STEVIĆ, *Riemann-Stieltjes operators between mixed norm spaces*, Indian J. Math. **50**, 1 (2008), 177–188.
- [10] S. LI AND S. STEVIĆ, *Products of composition and differentiation operators from Zygmund spaces to Bloch spaces and Bers spaces*, Appl. Math. Comput. **217**, 7 (2010), 3144–3154.
- [11] Y. LIU, X. LIU AND Y. YU, *On an extension of Stević–Sharma operator from the mixed-norm space to weighted-type spaces*, Complex Var. Elliptic Equ. **62**, 5 (2017), 670–694.
- [12] Y. LIU AND Y. YU, *Weighted differentiation composition operators from mixed-norm to Zygmund spaces*, Numer. Funct. Anal. Optim. **31**, 7-9 (2010), 936–954.
- [13] Y. LIU AND Y. YU, *The multiplication operator from mixed-norm to n -th weighted-type spaces on the unit disk*, Math. Inequal. Appl. **15**, 2 (2012), 437–448.
- [14] Y. LIU AND Y. YU, *On Stević–Sharma type operator from the Besov spaces into the weighted-type space H_μ^∞* , Math. Inequal. Appl. **22**, 3 (2019), 1037–1053.
- [15] Y. LIU AND J. ZHOU, *On an operator $M_q R$ from mixed norm spaces to Zygmund-type spaces on the unit ball*, Complex Anal. Oper. Theory **7**, 3 (2013), 593–606.

- [16] K. MADIGAN AND A. MATHESON, *Compact composition operators on the Bloch space*, Trans. Amer. Math. Soc. **347**, 7 (1995), 2679–2687.
- [17] A. K. SHARMA, *Products of composition multiplication and differentiation between Bergman and Bloch type spaces*, Turk. J. Math. **35**, 2 (2011), 275–291.
- [18] A. SHIELDS AND D. WILLIAMS, *Bounded projections, duality, and multipliers in spaces of analytic functions*, Trans. Amer. Math. Soc. **162**, (1971), 287–302.
- [19] S. STEVIĆ, *Boundedness and compactness of an integral operator in a mixed norm space on the polydisk*, Siberian Math. J. **48**, 3 (2007), 559–569.
- [20] S. STEVIĆ, *Generalized composition operators between mixed-norm and some weighted spaces*, Numer. Funct. Anal. Optim. **29**, 7-8 (2008), 959–978.
- [21] S. STEVIĆ, *Generalized composition operators from logarithmic Bloch spaces to mixed-norm spaces*, Util. Math. **77**, (2008), 167–172.
- [22] S. STEVIĆ, *Boundedness and compactness of an integral operator between H^∞ and a mixed norm space on the polydisk*, Siberian Math. J. **50**, 3 (2009), 495–497.
- [23] S. STEVIĆ, *Composition operators from the weighted Bergman space to the n th weighted spaces on the unit disc*, Discrete Dyn. Nat. Soc. Art. **2009**, Art. ID 742019, (2009), 11 pp.
- [24] S. STEVIĆ, *On an integral-type operator from logarithmic Bloch-type and mixed-norm spaces to Bloch-type spaces*, Nonlinear Anal. **71**, 12 (2009), 6323–6342.
- [25] S. STEVIĆ, *Weighted differentiation composition operators from mixed-norm spaces to weighted-type spaces*, Appl. Math. Comput. **211**, 1 (2009), 222–233.
- [26] S. STEVIĆ, *Composition operators from the Hardy space to the n th weighted-type space on the unit disk and the half-plane*, Appl. Math. Comput **215**, 11 (2010), 3950–3955.
- [27] 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**, 12 (2010), 3450–3458.
- [28] S. STEVIĆ, *Extended Cesàro operators between mixed-norm spaces and Bloch-type spaces in the unit ball*, Houston J. Math. **36**, 3 (2010), 843–858.
- [29] S. STEVIĆ, *On an integral-type operator from Zygmund-type spaces to mixed-norm spaces on the unit ball*, Abstr. Appl. Anal. **2010**, Art. ID 198608 (2010), 7 pp.
- [30] 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**, Art. ID 246287, (2010), 15 pp.
- [31] S. STEVIĆ, *Weighted radial operator from the mixed-norm space to the n th weighted-type space on the unit ball*, Appl. Math. Comput. **218**, 18 (2012), 9241–9247.
- [32] S. STEVIĆ AND A. K. SHARMA, *Composition operators from weighted Bergman-Privalov spaces to Zygmund type spaces on the unit disk*, Ann. Polon. Math. **105**, 1 (2012), 77–86.
- [33] S. STEVIĆ, A. K. SHARMA AND A. BHAT, *Essential norm of products of multiplication composition and differentiation operators on weighted Bergman spaces*, Appl. Math. Comput. **218**, 6 (2011), 2386–2397.
- [34] S. STEVIĆ, A. K. SHARMA AND A. BHAT, *Products of multiplication composition and differentiation operators on weighted Bergman space*, Appl. Math. Comput. **217**, 20 (2011), 8115–8125.
- [35] S. YE AND Q. HU, *Weighted composition operators on the Zygmund Spaces*, Abstr. Appl. Anal. **2012**, Art. ID 462482, (2012), 18 pp.
- [36] Y. YU AND Y. LIU, *On Stević type operator from H^∞ space to the logarithmic Bloch spaces*, Complex Anal. Oper. Theory **9**, 8 (2015), 1759–1780.
- [37] F. ZHANG AND Y. LIU, *On a Stević-Sharma operator from Hardy spaces to Zygmund-type spaces on the unit disk*, Complex Anal. Oper. Theory **12**, 1 (2018), 81–100.