

ON A STEVIĆ-SHARMA TYPE OPERATOR FROM DIRICHLET-ZYGMUND-TYPE SPACE TO BLOCH-TYPE SPACE

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

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REFERENCES

- [1] E. ABBASI, *The product-type operators from Hardy spaces into n th weighted-type spaces*, Abstr. Appl. Anal. **2021**, Art. ID 5556275 (2021), 8 pp.
- [2] E. ABBASI, Y. LIU, M. HASSANLOU, *Generalized Stević-Sharma type operators from Hardy spaces into n th weighted type spaces*, Turkish J. Math. **45**, 4 (2021), 1543–1554.
- [3] E. ABBASI, X. ZHU, *Product-Type Operators from the Bloch Space into Zygmund-Type Spaces*, Bull. Iranian Math. Soc. **48**, 2 (2022), 385–400.
- [4] M. S. AL GHAFRI, J. S. MANHAS, *On Stević-Sharma operators from weighted Bergman spaces to weighted-type spaces*, Math. Inequal. Appl. **23**, 3 (2020), 1051–1077.
- [5] J. ARAZY, S. D. FISHER, J. PEETRE, *Möbius invariant function spaces*, J. Reine Angew. Math. **363**, (1985), 110–145.
- [6] D. D. CLAHANE, S. STEVIĆ, *Norm equivalence and composition operators between Bloch/Lipschitz spaces of the ball*, J. Inequal. Appl. **2006**, 61018 (2006), 11 pp.
- [7] F. COLONNA, M. TJANI, *Weighted composition operators from the Besov spaces into the weighted-type space H^∞_μ* , J. Math. Anal. Appl. **402**, 2 (2013), 594–611.
- [8] P. GALINDO, M. LINDSTRÖM, S. STEVIĆ, *Essential norm of operators into weighted-type spaces on the unit ball*, Abstr. Appl. Anal. **2011**, Art. ID 939873 (2011), 13 pp.
- [9] Z. GUO, L. LIU, *Product-Type Operators from Hardy Spaces to Bloch-Type Spaces and Zygmund-Type Spaces*, Numer. Funct. Anal. Optim. **43**, 10 (2022), 1240–1264.
- [10] Z. GUO, J. MU, *Generalized Stević-Sharma type operators from derivative Hardy spaces into Zygmund-type spaces*, AIMS Math. **8**, 2 (2023), 3920–3939.
- [11] Z. GUO, X. ZHAO, *On a Stević-Sharma type operator from $Q_k(p, q)$ spaces to Bloch-type spaces*, Oper. Matrices **16**, 2 (2022), 563–580.
- [12] R. A. HIBSCHWEILER, N. PORTNOY, *Composition followed by differentiation between Bergman and Hardy spaces*, Rocky Mountain J. Math. **35**, 3 (2005), 843–855.
- [13] S. LI, S. STEVIĆ, *Integral type operators from mixed-norm spaces to α -Bloch spaces*, Integral Transforms Spec. Funct. **18**, 7 (2007), 485–493.
- [14] S. LI, S. STEVIĆ, *Some characterizations of the Besov space and the α -Bloch space*, J. Math. Anal. Appl. **346**, 1 (2008), 262–273.
- [15] S. LI, S. STEVIĆ, *Composition followed by differentiation from mixed-norm spaces to α -Bloch spaces*, Sb. Math. **199**, 12 (2008), 1847–1857.
- [16] S. LI, 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.
- [17] S. LI, S. STEVIĆ, *Generalized weighted composition operators from α -Bloch spaces into weighted-type spaces*, J. Inequal. Appl. **2015**, 265 (2015), 12 pp.

- [18] M. LINDSTRÖM, D. NORRBO, S. STEVIĆ, *On compactness of operators from Banach spaces of holomorphic functions to Banach spaces*, J. Math. Inequal. **18**, 3 (2024), 1153–1158.
- [19] Y. LIU, Y. YU, *On a Stević-Sharma operator from Hardy spaces to the logarithmic Bloch spaces*, J. Inequal. Appl. **22**, (2015), 19 pp.
- [20] S. OHNO, *Products of composition and differentiation between Hardy spaces*, Bull. Austral. Math. Soc. **73**, 2 (2006), 235–243.
- [21] A. K. SHARMA, *Products of composition multiplication and differentiation between Bergman and Bloch type spaces*, Turk. J. Math. **35**, 2 (2011), 275–291.
- [22] S. STEVIĆ, *Norms of some operators from Bergman spaces to weighted and Bloch-type space*, Util. Math. **76**, (2008), 59–64.
- [23] S. STEVIĆ, *Norm and essential norm of composition followed by differentiation from α -Bloch spaces to H^∞_μ* , Appl. Math. Comput. **207**, 1 (2009), 225–229.
- [24] S. STEVIĆ, *Weighted differentiation composition operators from mixed-norm spaces to weighted-type spaces*, Appl. Math. Comput. **211**, 1 (2009), 222–233.
- [25] 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.
- [26] S. STEVIĆ, *On a product-type operator from Bloch spaces to weighted-type spaces on the unit ball*, Appl. Math. Comput. **217**, 12 (2011), 5930–5935.
- [27] S. STEVIĆ, *On a new product-type operator on the unit ball*, J. Math. Inequal. **16**, 4 (2022), 1675–1692.
- [28] S. STEVIĆ, *Note on a new class of operators between some spaces of holomorphic functions*, AIMS Math. **8**, 2 (2023), 4153–4167.
- [29] S. STEVIĆ, *Polynomial differentiation composition operators from weighted Bergman spaces to weighted-type spaces on the unit ball*, J. Nonlinear Var. Anal. **7**, 3 (2023), 397–407.
- [30] S. STEVIĆ, *Norm of the general polynomial differentiation composition operator from the space of Cauchy transforms to the m th weighted-type space on the unit disk*, Math. Methods Appl. Sci. **47**, 6 (2024), 3893–3902.
- [31] S. STEVIĆ, C. HUANG, Z. JIANG, *Sum of some product-type operators from Hardy spaces to weighted-type spaces on the unit ball*, Math. Methods Appl. Sci. **45**, 17 (2022), 11581–11600.
- [32] S. STEVIĆ, A. K. SHARMA, A. BHAT, *Essential norm of products of multiplication composition and differentiation operators on weighted Bergman spaces*, Appl. Math. Comput. **218**, 6 (2011), 2386–2397.
- [33] S. STEVIĆ, A. K. SHARMA, A. BHAT, *Products of multiplication composition and differentiation operators on weighted Bergman space*, Appl. Math. Comput. **217**, 20 (2011), 8115–8125.
- [34] S. STEVIĆ, A. K. SHARMA, R. KRISHAN, *Boundedness and compactness of a new product-type operator from a general space to Bloch-type spaces*, J. Inequal. Appl. **2016**, 219 (2016), 32 pp.
- [35] S. STEVIĆ, S. UEKI, *Polynomial differentiation composition operators from H^p spaces to weighted-type spaces on the unit ball*, J. Math. Inequal. **17**, 1 (2023), 365–379.
- [36] S. STEVIĆ, S. UEKI, *On a linear operator between weighted-type spaces of analytic functions*, Math. Methods Appl. Sci. **47**, 1 (2024), 15–26.
- [37] S. WANG, M. WANG, X. GUO, *Differences of Stević-Sharma operators*, Banach J. Math. Anal. **14**, 3 (2020), 1019–1054.
- [38] Y. YU, Y. LIU, *On Stević type operator from H^∞ space to the logarithmic Bloch spaces*, Complex Anal. Oper. Theory. **9**, 8 (2015), 1759–1780.
- [39] Q. ZHANG, Z. GUO, *Generalized Stević-Sharma type operators from H^∞ space into Bloch-type spaces*, Math. Inequal. Appl. **26**, 2 (2023), 531–543.
- [40] F. ZHANG, 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.
- [41] K. ZHU, *Bloch type spaces of analytic functions*, Rocky Mountain J. Math. **23**, 3 (1993), 1143–1177.
- [42] X. ZHU, *Weighted composition operators from Dirichlet-Zygmund-type spaces into Stević-type spaces*, Georgian Math. J. **30**, 4 (2023), 629–637.
- [43] X. ZHU, E. ABBASI, A. EBRAHIMI, *A class of operator-related composition operators from the Besov spaces into the Bloch space*, Bull. Iranian Math. Soc. **47**, 1 (2021), 171–184.
- [44] X. ZHU, E. ABBASI, A. EBRAHIMI, *Product-Type Operators on the Zygmund Space*, Iran. J. Sci. Technol. Trans. A Sci. **45**, 5 (2021), 1689–1697.

- [45] X. ZHU, N. HU, *Weighted composition operators from Besov Zygmund-type spaces into Zygmund-type spaces*, J. Funct. Spaces **2020**, Art. ID 2384971 (2020), 7 pp.