

WEIGHTED COMPOSITION OPERATORS FROM DIRICHLET TYPE SPACES TO WEIGHTED TYPE SPACES

XIAOHONG FU AND HAO LI

Abstract. The boundedness and compactness of weighted composition operators from Dirichlet type spaces to weighted type spaces on the unit ball of \mathbb{C}^n are characterized in this paper.

Mathematics subject classification (2010): Primary 47B38; Secondary 46E15.

Keywords and phrases: Weighted composition operator, weighted type space, Dirichlet type space.

REFERENCES

- [1] C. C. COWEN AND B. D. MACCLUER, *Composition Operators on Spaces of Analytic Functions*, Studies in Advanced Math., CRC Press, Boca Raton, 1995.
- [2] X. FU AND X. ZHU, *Weighted composition operators on some weighted spaces in the unit ball*, Abstr. Appl. Anal. Vol. 2008, Article ID 605807, (2008), 8 pages.
- [3] D. GU, *Weighted composition operators from generalized weighted Bergman spaces to weighted-type space*, J. Inequal. Appl. Vol. **2008**, Article ID 619525, (2008), 14 pages.
- [4] P. HU, W. XU AND W. ZHANG, *Boundedness of composition operators on D_τ spaces for $\tau > 1$* , Acta Math. Scientia, **20B** (2000), 409–416.
- [5] P. HU AND J. SHI, *Multipliers on Dirichlet-type spaces*, Acta Math. Sinica (English series), **17** (2001), 263–272.
- [6] P. HU AND W. ZHANG, *A new characterization of Dirichlet type spaces on the unit ball of \mathbb{C}^n* , J. Math. Anal. Appl. **259** (2001), 453–461.
- [7] S. LI, *Some new characterizations of Dirichlet type spaces on the unit ball of \mathbb{C}^n* , J. Math. Anal. Appl. **324** (2006), 1073–1083.
- [8] S. LI AND S. STEVIĆ, *Weighted composition operators from α -Bloch space to H^∞ on the polydisk*, Numer. Funct. Anal. Optim. **28** (7) (2007), 911–925.
- [9] S. LI AND S. STEVIĆ, *Weighted composition operators from H^∞ to the Bloch space on the polydisc*, Abstr. Appl. Anal. Vol. 2007, Article ID 48478, (2007), 12 pages.
- [10] S. LI AND S. STEVIĆ, *Weighted composition operators between H^∞ and α -Bloch spaces in the unit ball*, Taiwanese J. Math. **12** (2008), 1625–1639.
- [11] A. MONTES-RODRÍGUEZ, *Weighted composition operators on weighted Banach spaces of analytic functions*, J. London Math. Soc. **61** (2000), 872–884.
- [12] S. OHNO, K. STROETHOFF AND R. ZHAO, *Weithted composition operators between Bloch type spaces*, Rocky Mountain J. Math. **33** (2003), 191–215.
- [13] H. J. SCHWARTZ, *Composition operators on H^p* , Thesis, University of Toledo 1969.
- [14] A. SHIELDS AND D. WILLIAMS, *Bounded projections, duality, and multipliers in spaces of analytic functions*, Trans. Amer. Math. Soc. **162** (1971), 287–302.
- [15] S. STEVIĆ, *Composition operators between H^∞ and the α -Bloch spaces on the polydisc*, Z. Anal. Anwend. **25** (4) (2006), 457–466.
- [16] S. STEVIĆ, *Weighted composition operators between mixed norm spaces and H_α^∞ spaces in the unit ball*, J. Inequal. Appl. Vol 2007, Article ID 28629, (2007), 9 pages.
- [17] S. STEVIĆ, *Essential norms of weighted composition operators from the α -Bloch space to a weighted-type space on the unit ball*, Abstr. Appl. Anal. Vol. 2008, Article ID 279691, (2008), 10 pages.
- [18] S. STEVIĆ, *Norm of weighted composition operators from Bloch space to H_μ^∞ on the unit ball*, Ars. Combin. **88** (2008), 125–127.

- [19] S. STEVIĆ, *On a new integral-type operator from the weighted Bergman space to the Bloch-type space on the unit ball*, Discrete Dyn. Nat. Soc. Vol. 2008, Article ID 154263, (2008), 14 pages.
- [20] S. STEVIĆ, *On a new operator from H^∞ to the Bloch-type space on the unit ball*, Util. Math. **77** (2008), 257–263.
- [21] S. STEVIĆ, *Essential norms of weighted composition operators from the Bergman space to weighted-type spaces on the unit ball*, Ars. Combin. **91** (2009), 391–400.
- [22] S. STEVIĆ, *Norm and essential norm of composition followed by differentiation from α -Bloch spaces to H_μ^∞* , Appl. Math. Comput. **207** (2009), 225–229.
- [23] S. STEVIĆ, *Norm of weighted composition operators from α -Bloch spaces to weighted-type spaces*, Appl. Math. Comput. **215** (2009), 818–820.
- [24] S. STEVIĆ, *On an integral-type operator from logarithmic Bloch-type and mixed-norm spaces to Bloch-type spaces*, Nonlinear Anal. TMA **71** (2009), 6323–6342.
- [25] S. STEVIĆ, *On a new integral-type operator from the Bloch space to Bloch-type spaces on the unit ball*, J. Math. Anal. Appl. **354** (2009), 426–434.
- [26] S. STEVIĆ, *Weighted composition operators from weighted Bergman spaces to weighted-type spaces on the unit ball*, Appl. Math. Comput. **212** (2009), 499–504.
- [27] S. STEVIĆ, *Weighted differentiation composition operators from mixed-norm spaces to weighted-type spaces*, Appl. Math. Comput. **211** (2009), 222–233.
- [28] S. STEVIĆ, *Norm of an integral-type operator from Dirichlet to Bloch space on the unit disk*, Util. Math. **83** (2010), 301–303.
- [29] S. STEVIĆ, *Norm and essential norm of an integral-type operator from the Dirichlet space to the Bloch-type space on the unit ball*, Abstr. Appl. Anal. Vol. **2010**, Article ID 134969, (2010), 9 pages.
- [30] 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.
- [31] 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), 14 pages.
- [32] S. STEVIĆ AND S. I. UEKI, *Integral-type operators acting between weighted-type spaces on the unit ball*, Appl. Math. Comput. **215** (2009), 2464–2471.
- [33] M. WANG AND Y. LIU, *Weighted composition operator between Bers-type spaces*, Acta Math. Sci., **27A** (2007), 665–671.
- [34] X. ZHANG, *Extended Cesaro operator on Dirichlet type spaces and Bloch type spaces on \mathbb{C}^n* , Chin. Ann. Math. **26A** (2005), 139–150.
- [35] X. ZHU, *Weighted composition operators from $F(p,q,s)$ spaces to H_μ^∞ spaces*, Abstr. Appl. Anal. Vol. 2009, Article ID 290978, (2009), 12 pages.