

## Continuity of the Norm of Composition Operators

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*Abstract:* Let  $\phi$  be an analytic self-map of the open unit disk  $\mathbb{D}$  in the complex plane. Such a map induces a composition operator  $C_\phi$  on weighted Banach spaces of holomorphic functions. We study when the norm of composition operators acting on weighted Banach spaces of analytic functions is continuous at a symbol.

*Key words:* norm of a composition operator, continuity, weighted Banach spaces of holomorphic functions.

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### REFERENCES

- [1] J.M. ANDERSON, J. DUNCAN, Duals of Banach spaces of entire functions, *Glasgow Math. J.* **32** (2) (1990), 215–220.
- [2] K.D. BIERSTEDT, W.H. SUMMERS, Biduals of weighted Banach spaces of analytic functions, *J. Austral. Math. Soc. (Series A)* **54** (1) (1993), 70–79.
- [3] K.D. BIERSTEDT, J. BONET, A. GALBIS, Weighted spaces of holomorphic functions on balanced domains, *Michigan Math. J.* **40** (1993), 271–297.
- [4] K.D. BIERSTEDT, J. BONET, J. TASKINEN, Associated weights and spaces of holomorphic functions, *Studia Math.* **127** (2) (1998), 137–168.
- [5] J. BONET, P. DOMANSKI, M. LINDSTRÖM, Essential norm and weak compactness of composition operators on weighted Banach spaces of analytic functions, *Canad. Math. Bull.* **42** (2) (1999), 139–148.
- [6] J. BONET, P. DOMAŃSKI, M. LINDSTRÖM, J. TASKINEN, Composition operators between weighted Banach spaces of analytic functions, *J. Austral. Math. Soc. (Series A)* **64** (1) (1998), 101–118.
- [7] J. BONET, M. LINDSTRÖM, E. WOLF, Differences of composition operators between weighted Banach spaces of holomorphic functions, *J. Austral. Math. Soc.* **84** (1) (2008), 9–20.
- [8] M.D. CONTRERAS, A.G. HERNÁNDEZ-DÍAZ, Weighted composition operators in weighted Banach spaces of analytic functions, *J. Austral. Math. Soc. (Series A)* **69** (1) (2000), 41–60.
- [9] C. COWEN, B. MACCLUER, “Composition Operators on Spaces of Analytic Functions”, CRC Press, Boca Raton, 1995.

- [10] P. DOMANSKI, M. LINDSTRÖM, Sets of interpolation and sampling for weighted Banach spaces of holomorphic functions, *Ann. Pol. Math.* **79** (3) (2002), 233–264.
- [11] M. LINDSTRÖM, E. WOLF, Essential norm of the difference of weighted composition operators, *Monatsh. Math.* **153** (2) (2008), 133–143.
- [12] W. LUSKY, On the structure of  $Hv_0(D)$  and  $hv_0(D)$ , *Math. Nachr.* **159** (1) (1992), 279–289.
- [13] M. MADIGAN, 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** (2) (1999), 339–351.
- [15] A. MONTES-RODRÍGUEZ, Weighted composition operators on weighted Banach spaces of analytic functions, *J. London Math. Soc. (2)* **61** (3) (2000), 872–884.
- [16] D. POKORNY, J. SHAPIRO, Continuity of the norm of a composition operator, *Integral Equations and Operator Theory* **45** (3) (2003), 351–358.
- [17] J.H. SHAPIRO, “Composition Operators and Classical Function Theory”, Springer Verlag, New York, 1993.
- [18] E. WOLF, Continuity of the norm of a composition operator between weighted Banach spaces of holomorphic functions, *Bul. Acad. Stiinte Repub. Mold. Mat.* **2008** (3), 99–107.