

Steven G. Krantz,* Department of Mathematics, Washington University in
St. Louis, St. Louis, MO, U.S.A. email: sk@math.wustl.edu

CONVERGENCE OF AUTOMORPHISMS AND SEMICONTINUITY OF AUTOMORPHISM GROUPS

Abstract

We study the compactness of the automorphism group of a domain in \mathbb{C}^n , and in particular the convergence properties of mappings. We supply an application to the semicontinuity of automorphism groups under perturbation of the underlying domain. Relevant examples are provided.

References

- [1] E. Bedford and J. E. Fornæss, A construction of peak functions on weakly pseudoconvex domains, *Ann. Math.* 107(1978), 555–568.
- [2] S. R. Bell, Biholomorphic mappings and the $\bar{\partial}$ problem, *Ann. Math.*, 114(1981), 103–113.
- [3] D. Ebin, The manifold of Riemannian metrics, 1970 Global Analysis (*Proc. Sympos. Pure Math.*, Vol. XV, Berkeley, Calif., 1968), pp. 11–40, Amer. Math. Soc., Providence, R.I.
- [4] C. Fefferman, The Bergman kernel and biholomorphic mappings of pseudoconvex domains, *Invent. Math.* 26(1974), 1–65.

Mathematical Reviews subject classification: Primary: 32H02, 32M05; Secondary: 32H99
Key words: automorphism group, semicontinuity, holomorphic mapping, convergence of mappings

Received by the editors November 10, 2010

Communicated by: Alexander Olevskii

*Author supported in part by the National Science Foundation and by the Dean of the Graduate School at Washington University.

- [5] J. E. Fornæss and J. McNeal, A construction of peak functions on some finite type domains. *Amer. J. Math.* 116(1994), no. 3, 737–755.
- [6] R. E. Greene, K.-T. Kim, and S. G. Krantz, *The Geometry of Complex Domains*, Birkhäuser Publishing, Boston, MA, 2011, to appear.
- [7] R. E. Greene and S. G. Krantz, The automorphism groups of strongly pseudoconvex domains, *Math. Annalen* 261(1982), 425–446.
- [8] R. E. Greene and S. G. Krantz, Biholomorphic self-maps of domains, *Complex Analysis*, II (College Park, Md., 1985–86), 136–207, Lecture Notes in Math., 1276, Springer, Berlin, 1987.
- [9] S. Helgason, *Differential Geometry and Symmetric Spaces*, Academic Press, New York, 1962.
- [10] S. Kobayashi, *Hyperbolic Manifolds and Holomorphic Mappings*, Dekker, New York, 1970.
- [11] S. G. Krantz, *Function Theory of Several Complex Variables*, 2nd ed., American Mathematical Society, Providence, RI, 2001.
- [12] S. G. Krantz, *Partial Differential Equations and Complex Analysis*, CRC Press, Boca Raton, FL, 1992.
- [13] B.-L. Min, Domains with prescribed automorphism group, *J. Geom. Anal.* 19 (2009), 911–928.
- [14] R. Narasimhan, *Several Complex Variables*, University of Chicago Press, Chicago, 1971.
- [15] B. Wong, Characterizations of the ball in \mathbb{C}^n by its automorphism group, *Invent. Math.* 41(1977), 253–257.

