Meeting: 1002, Pittsburgh, Pennsylvania, SS 10A, Special Session on Trends in Operator Theory and Banach Spaces

1002-30-74 **Paul S. Bourdon*** (pbourdon@wlu.edu), Department of Mathematics, Washington and Lee University, Lexington, VA 24450, and **Valentin Matache** and **Joel H. Shapiro**. *On convergence to the Denjoy-Wolff point.*

For holomorphic selfmaps of the open unit disc $\mathbb{U}$ that are not elliptic automorphisms, the Schwarz Lemma and the Denjoy-Wolff Theorem combine to yield a remarkable result: each such map ϕ has a (necessarily unique) "Denjoy-Wolff point" ω in the closed unit disc that attracts every orbit in the sense that the iterate sequence $(\phi^{[n]})$ converges to ω uniformly on compact subsets of $\mathbb{U}$. We prove that, except for the obvious counterexamples—inner functions having $\omega \in \mathbb{U}$—the iterate sequence exhibits an even stronger affinity for the Denjoy-Wolff point: $\phi^{[n]} \to \omega$ in the Hardy space H^p for $0 < p < \infty$. Hence each such map has some subsequence of iterates convergent to ω a.e. on $\partial\mathbb{U}$, which leads us to the more delicate issue of a.e convergence on $\partial\mathbb{U}$ of the entire iterate sequence. Here our results are framed in terms of certain linear-fractional models for composition operators. For example, we show that in the hyperbolic and parabolic-automorphism cases of the model, the entire iterate sequence does converge a.e. to ω, but that in the parabolic-nonautomorphism case, the situation is more complicated. (Received August 27, 2004)