Jun Hu*, Department of Mathematics, Brooklyn College of CUNY, Brooklyn, NY 11210, and Oleg Muzician, Ph.D. Program in Mathematics, Graduate Center of CUNY, New York, NY 10036. Cross-ratio distortion and Douady-Earle extension: A new upper bound on quasiconformality.

In this paper, we develop a new method to explore the direct dependence of quasiconformality of the Douady-Earle extension \( \Phi \) of a circle homeomorphism \( f \) on the cross-ratio distortion of \( f \). Two outcomes arise: (1) we provide a new proof of that \( \Phi \) is quasiconformal if \( f \) is quasisymmetric; (2) we provide a new upper bound for the complex dilatation \( K(\Phi) \) in terms of the cross-ratio distortion norm \( ||f||_{cr} \) of \( f \). (Received March 30, 2010)