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Annalisa Crannell* (annalisa.crannell@fandm.edu), Department of Mathematics, Box 3003, Franklin & Marshall College, Lancaster, 17604-3003, and Sohaib Alam (malam@physics.utexas.edu). Iterates of Quasicontinuous Functions.

Many theorems of topological dynamics apply beyond continuous functions to quasicontinuous functions, functions for which inverse images of open sets are semi-open. It is well known that every quasicontinuous function has a dense indeed, residual—set of points of continuity. If we require of our quasicontinuous function f a mild extra condition (that the forward images of non-empty open sets contain non-empty open sets), then the same is true of f^k for all k > 0. Indeed, we show that the set of points for which f is continuous at every point along the orbit of x is likewise residual. On the other hand, we show that iterates of general quasicontinuous functions are less well-behaved: in particular, we give examples of two quasicontinuous functions whose second iterates are discontinuous everywhere. (Received March 16, 2010)