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**Brent M. Werness\*** ([bwerness@math.washington.edu](mailto:bwerness@math.washington.edu)). *Discrete holomorphic functions on non-uniform lattices.*

The study of discrete analogues of holomorphic and harmonic functions has a long history which traces back most directly to work of Ferrand in the 1940's, Duffin in the 1950's. In recent years, the use of discrete analytic functions in the study of conformally invariant models from statistical physics by Smirnov and others has spread interest in these ideas. One of the central questions in the theory of discrete holomorphicity is: under what conditions do the discrete holomorphic functions converge to continuous holomorphic functions in the limit as the lattice shrinks to zero?

In this talk, I will present a generalization of the existing convergence results to lattices where there is only local control on the lattice, without any global restrictions on geometry. I will provide a brief discussion of the probabilistic questions, related to the geometry of random quadrangulations, which motivated the development of this result. (Received January 28, 2014)