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Robert L Benedetto* (rlbenedetto@amherst.edu). *Non-archimedean connected Julia sets with branching.*

Let K be a complete and algebraically closed non-archimedean field, such as the p -adic field \mathbf{C}_p . A rational function $f(z) \in K(z)$ acts on the Berkovich projective line \mathbf{P}_{Ber}^1 over K . The *Julia set* of f is a certain closed subset of \mathbf{P}_{Ber}^1 that is invariant under application of f . Until recently, the only known examples of non-archimedean Julia sets were either disconnected, homeomorphic to an interval, or just a single point. In this talk, we describe some recent constructions of functions f with non-archimedean connected Julia sets that are connected but much more complicated. As a result, these functions exhibit properties not previously seen both as regards their associated local canonical heights and their entropy.

No prior knowledge of Berkovich spaces or entropy will be assumed for this talk. (Received September 15, 2015)