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*Measure-preserving locally scaling transformations of compact-open subsets of non-archimedean local fields*

We introduce the notion of a locally scaling transformation defined on a compact-open subset of a non-archimedean local field. We show that this class encompasses the Haar measure-preserving transformations defined by  $C^1$  (in particular, polynomial) maps, and prove a structure theorem for locally scaling transformations. We use the theory of polynomial approximation on compact-open subsets of non-archimedean local fields to demonstrate the existence of ergodic Markov, and mixing Markov transformations defined by such polynomial maps. We also give simple sufficient conditions on the Mahler expansion of a continuous map on the ring of  $p$ -adic integers  $Z_p$  to  $Z_p$  for it to define a Bernoulli transformation.

This is joint work with J. Kingsbery, A. Levin, and A. Preygel.