

**Meeting:** 1003, Atlanta, Georgia, SS 26A, AMS-SIAM Special Session on Dynamic Equations on Time Scales; Integer Sequences and Rational Maps, I

1003-11-972      **Robert L Benedetto\*** ([rlb@cs.amherst.edu](mailto:rlb@cs.amherst.edu)), Department of Math and CS, Amherst College, Amherst, MA 01002. *An Introduction to  $p$ -adic Dynamics.*

Let  $\mathbf{C}_p$  denote the completion of an algebraic closure of  $\mathbf{Q}_p$ , the field of  $p$ -adic rationals. The field  $\mathbf{C}_p$  is usually considered to be analogous to the complex plane  $\mathbf{C}$ . We will consider the dynamics of a  $p$ -adic rational function  $f(z) \in \mathbf{C}_p(z)$ . Because there is a natural metric on  $\mathbf{C}_p$ , much of the theory of complex dynamics (multipliers of fixed points, Fatou and Julia sets, etc.) can be paralleled over the  $p$ -adics.

After a brief review of the properties of  $\mathbf{C}_p$ , we will investigate the properties of such  $p$ -adic dynamical systems, both comparing and contrasting with the complex theory. In particular, we will present theorems, counterexamples to expected theorems, and some open questions.

No prior knowledge of  $\mathbf{Q}_p$ ,  $\mathbf{C}_p$ , or  $p$ -adic dynamics will be assumed for this talk. (Received October 01, 2004)