

Dynamics of rational maps over non-Archimedean fields and bad reduction

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ABSTRACT

In this talk I will present a brief introduction to the Fatou-Julia theory of iteration of rational functions with coefficients over a non-Archimedean field. Then, I will explain two instances when a rational map with bad reduction is in fact good news in terms of its dynamics. First, we will see that bad reduction can be used to construct certain types of Fatou components (joint work with Víctor Nopal-Coello). Secondly, I will present a result by J. Kiwi, which states how bad reduction explains what happens to the dynamics of a rational map $R \in \mathbb{C}(z)$ of degree $d \geq 2$, as R approaches the boundary of the space $\text{Rat}_{\mathbb{C}}^d$.