

Different Notions of Tameness Revisited

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For an étale morphism $f : Y \rightarrow X$ of schemes over a base S there are different approaches to define what it means that f is tame. Behind all of them lies the intuition that the induced morphism of compactifications $\bar{f} : \bar{Y} \rightarrow \bar{X}$ is tamely ramified along the boundary $\bar{Y} \setminus Y$ (in an appropriate sense). Many of the tameness definitions work with valuations without relying on the choice of a compactification. Kerz and Schmidt compare these different notions of tameness in their article “On different notions of tameness” mainly working with compactifications. The disadvantage of this approach is that they need to assume resolution of singularities in order to obtain nice compactifications. In my talk I want to present work in progress with Michael Temkin that approaches the problem purely valuation theoretic by using nonarchimedean geometry. As a consequence we can drop the assumption on resolution of singularities. The heart of the project lies in a careful study of the geometry of adic curves over an arbitrary affinoid field (of higher rank) and of the wild locus of an étale morphism of such curves.

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