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Summary

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SUMMARY

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In particular, we shall show that the integral algebras of Krasner-Tate are Tate algebras of the form $\frac{K\{T,X\}}{P(x) - T\,Q(x)}$ where P and Q are 2 unitary and relatively prime polynoms with coefficients of absolute value $\leqslant 1$ and that these algebras are caracterised among ultrametric Banach algebras by five algebraic and topologic properties. We shall prove that if D is the spectrum of an element of an ultrametric Banach algebra and if the set of the infraconnected components is finite, then every infraconnected component has an associated idempotent in A . At last, we shall caracterise the reduced Tate algebras of degree 1 among the ultrametric Banach algebras with the help of their algebraic and topologic properties.

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The uniform limit of rational functions on a subset A of a non-archimedian field K is called an analytic element on A if the functions have no poles inside A (the idea is due to Krasner). Given a family $\mathfrak{B}$ of subsets of K , if a function f is defined on a chained union $\bigcup_i A_i$ of members of $\mathfrak{B}$ and $f_{|A_i}$ is an analytic element for each i , then f is said to be a $\mathfrak{B}$-analytic function.

Let $\mathcal{A}$ be the most general class of subsets of K for which $\mathcal{A}$-analytic functions verify the principle of analytic continuation. Then $\mathcal{A}$ has been completely determined by Escassut, Motzkin and the author [6].

But the class of all $\mathcal{A}$-analytic functions is not stable under the elementary operations of algebra and analysis. We show that such a stability can be obtained either by restricting the class $\mathcal{A}$ (in various ways : see §§ 8, II) or by imposing stronger conditions on K (e.g., K must be maximally complete if we want an analytic function to be representable by Laurent series in an annulus (§ 10) , or if we want a uniform limit of analytic functions to be analytic (§ II)).

An essential tool in this discussion will be the Theorem of representation of an analytic element as a sum of its singular parts (§ 4).

We obtain necessary conditions for the analytic continuation of a Taylor series ouside its disk of convergence, and we give a general, if not very practical, constructive procedure for obtaining the continuation (§ 15).

We also obtain a factorization of meromorphic functions according to their zeros and poles analogous to Hensel's Theorem for analytic elements (§ 13).