

# *Astérisque*

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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  $\leq 1$  and that these algebras are characterised 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 characterise 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-archimedean 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  $\mathcal{A}$  of subsets of  $K$ , if a function  $f$  is defined on a chained union  $\bigcup_i A_i$  of members of  $\mathcal{A}$  and  $f|_{A_i}$  is an analytic element for each  $i$ , then  $f$  is said to be a  $\mathcal{A}$ -analytic function.

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

But the class of all  $\mathcal{Q}$ -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  $\mathcal{Q}$  (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 outside 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).