

1014-11-590

Abdelbaki Boutabaa* (abdelbaki.boutabaa@math.univ-bpclermont.fr), Mathématiques, Université Blaise pascal, Les Cézeaux, 63177 Aubiere, France, **Kamal Boussaf** (kamal.boussaf@math.univ-bpclermont.fr), Mathématiques, Université Blaise Pascal, Les Cézeaux, Aubiere, France, and **Alain Paul Escassut** (alain.escassut@math.univ-bpclermont.fr), Mathématiques, Université Blaise Pascal, Les Cézeaux, Aubiere, France. *Converging Sets of Range Uniqueness for p -adic Analytic Functions.*

We study sets of range uniqueness (SRU's) for analytic functions inside a disk of an algebraically closed field K complete for an ultrametric absolute value. The SRU's we obtain are converging sequences. We first obtain results which look like those known in the complex field but involve weaker hypothesis than in the complex field: let (a_n) be a sequence of limit a in a disk $d(a, r^-)$ such that $|a_n - a|$ is a strictly decreasing sequence. If the sequence (a_n) does not make a SRU for the set $\mathcal{A}(d(a, r^-))$ of analytic functions inside $d(a, r^-)$, then for a certain relative integer k the sequence $(\frac{a_{n+k} - a}{a_n - a})$ has a finite limit in K and the sequence $(\frac{\log |a_{n+k} - a|}{\log |a_n - a|})$ has a finite rational limit. For every $\gamma \in]0, 1[\cup]1, +\infty[$ and for every positive rational L , there exist SRU's for $\mathcal{A}(d(a, r^-))$ of the form $\{a_n\}$ such that $\lim \frac{-\log |a_n - a|}{n^\gamma} = L$. Particularly, if γ is an integer > 1 , then there exist SRU's of the form $\{a_n\}$ such that $-\log |a_n - a| = Ln^\gamma \forall n$. This last result no longer holds when $\gamma = 1$. Many examples and counterexamples are provided. (Received September 21, 2005)