1115-12-202 **Franz-Viktor Kuhlmann*** (fvk@math.usask.ca), Institute of Mathematics, University of Silesia, Bankova 14, 40-007 Katowice, Poland. *Extremal fields and tame fields.*

We call a valued field (K, v) extremal if for all natural numbers n and all polynomials f in $K[X_1, ..., X_n]$, the set of values $\{v(f(a_1, ..., a_n)) \mid a_1, ..., a_n$ in the valuation ring$\}$ has a maximum (allowed to be infinity, which is the case if f has a zero in the valuation ring). This is an important property since all Laurent Series Fields over finite fields are extremal. As it is a deep open problem whether they have a decidable elementary theory and as we are therefore looking for complete recursive axiomatizations, it is important to know the elementary properties of them well. That these fields are extremal could be an important ingredient in the determination of their structure theory, which in turn is an essential tool in the proof of model theoretic properties.

The notion of "tame valued field" and their model theoretic properties play a crucial role in the characterization of extremal fields. A valued field K with algebraic closure K^{ac} is tame if it is henselian and the ramification field of the extension K^{ac}/K coincides with the algebraic closure. Open problems in the classification of extremal fields have recently led to new insights about elementary equivalence of tame fields in the unequal characteristic case. (Received September 18, 2015)