Franz-Viktor Kuhlmann
University of Saskatchewan

Positive characteristic problems

This talk will present a survey on open problems in valuation theory that are specific for valued fields with residue fields of positive characteristic (equal and mixed characteristic case). Among these are: local uniformization, model theory of Laurent series fields over finite fields, quantifier elimination for tame fields, elimination of ramification in valued function fields, structure of purely wild extensions of henselian fields, the role of dependent and independent Artin-Schreier defect extensions in algebraic geometry.

Specific problems in mixed characteristic include: characterization of extremal fields (solved for equal characteristic), characterization of henselian defectless fields (in a way that facilitates their construction; solved for equal characteristic), possible analogues of of dependent and independent Artin-Schreier defect extensions, analogue of Pop's description of minimal purely wild extensions.