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Ax-Kochen-Ershov principles for finitely ramified henselian fields

Although the class of henselian valued fields of fixed mixed characteristic and fixed finite initial ramification is algebraically well-behaved, it harbours some model-theoretic surprises - for instance, some members of the class fail to be existentially decidable even though their residue field and algebraic part are. I will discuss how to rectify the situation by endowing residue fields with a canonical enrichment of the pure field structure, and how this gives rise to Ax-Kochen-Ershov principles (among other things, describing existential theories and full theories of valued fields in terms of value groups and residue fields). This is joint work with Sylvy Anscombe and Franziska Jahnke.