

DEFECT EXTENSIONS OF PRIME DEGREE

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The investigation of valued fields and related areas has shown the importance of a better understanding of the structure of defect extensions of valued fields. Another important task is to give necessary and sufficient conditions for a valued field to admit no defect extensions.

Ramification theoretical methods show that a central role in the issue of defect extensions is played by towers of Galois defect extensions of prime degree. We classify separable defect extensions of prime degree into dependent and independent ones. We relate the classification with higher ramification groups, trace maps and modules of Kähler differentials.

We also study the distinct behavior of defects in each class of the extensions and use the classification of defect extensions to give conditions for valued fields to admit no defect extensions. In particular, we give conditions for generalized deeply ramified fields to admit no defect extensions.

This is joint work with Franz-Viktor Kuhlmann