

Determination of the number of isomorphism classes of extensions of a \mathbb{k}_p -adic field

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We deduce a formula enumerating the isomorphism classes of extensions of a \mathbb{k}_p -adic field K with given ramification e and inertia f . The formula follows from a simple group-theoretic lemma, plus the Krasner formula and an elementary class field theory computation. It shows that the number of classes only depends on the ramification and inertia of the extensions K/\mathbb{Q}_p , and $K(\zeta_{p^m})/K$ obtained adding the p^m -th roots of 1, for all p^m dividing e .

Comments: 5 pages, small corrections

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