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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

1991 MS Classification: 11R37, 11Y99
Fieker, Claus, Technical University Berlin, Germany

On Constructive Class Field Theory

Based on the classical notion of ray class groups as well as on Kummer theory, we present an algorithm to compute arbitrary Class fields of an algebraic number field k. First, we construct a suitable (large) Kummer extension over k, then we compute the class field as a subfield utilizing elementary Galois theory and an explicit version of the Artin reciprocity law.

As an application, we show how to use this technique to get a constructive version of the Weil-Shafarevich theorem on the Galois group of these fields.

Reference: Claus Fieker, Computing Class Fields via the Artin Map. Preprint 1998