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COMPUTING CLASS FIELDS VIA THE ARTIN MAP

CLAUS FIEKER

ABSTRACT. Based on a explicit representation of the Artin map for Kummer extensions, we present a method to compute arbitrary class fields. As in the proofs of the existence theorem, the problem is first reduced to the case where the field contains sufficiently many roots of unity. Using Kummer theory and an explicit version of the Artin reciprocity law we show how to compute class fields in this case. We conclude with several examples.

CLAUS FIEKER: FACHBEREICH 3, MATHEMATIK MA 8–1, TECHNISCHE UNIVERSITÄT BERLIN, STRASSE DES 17. JUNI 136, D-10623 BERLIN, F.R.G.
E-mail address: fieker@math.tu-berlin.de

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