

## On parametric extensions over number fields

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**Abstract.** Given a number field  $F$ , a finite group  $G$  and an indeterminate  $T$ , a  $G$ -parametric extension over  $F$  is a finite Galois extension  $E/F(T)$  with Galois group  $G$  and  $E/F$  regular that has all the Galois extensions of  $F$  with Galois group  $G$  among its specializations. We are mainly interested in producing non- $G$ -parametric extensions, which relates to classical questions in inverse Galois theory like the Beckmann-Black problem. Building on a strategy developed in previous papers, we show that there exists at least one non- $G$ -parametric extension over  $F$  for a given non-trivial finite group  $G$  and a given number field  $F$  under the sole necessary condition that  $G$  occurs as the Galois group of a Galois extension  $E/F(T)$  with  $E/F$  regular.

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