

The structure of fundamental groups of number fields

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Abstract. Given a number field K , a set S of places of K , and a prime number p , we consider the Galois group of the maximal pro- p -extension of K unramified outside S (this is the fundamental group referred to in the title). It is finitely generated as a pro- p -group, with a finite number of relations, and the number of generators and relations can be calculated in terms of the Galois cohomology of K . Beyond these basic facts, the structure of the fundamental group is quite mysterious. We survey recent developments, including work on Greenberg's conjecture (McCallum, Marshall, Nguyen-Quang-Do, and Lannuzel) and some calculations with Romyar Sharifi on the structure of the relations.

