

ALGEBRA
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p-torsion in class groups of number fields of arbitrary degree

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Abstract: Fix a number field K of degree n over the rationals, and a prime p , and consider the p -torsion subgroup of the class group of K . How big is it? It is conjectured that this p -torsion subgroup should be very small (in an appropriate sense), relative to the absolute discriminant of the field. But it has so far proved difficult even to beat the trivial bound, that is, to show that the p -torsion subgroup is noticeably smaller than the full class group. In 2007, Ellenberg and Venkatesh shaved a power off the trivial bound by assuming GRH. This talk will discuss several new methods that recover this bound for certain families of fields, without assuming GRH.

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