Topics in Field Theory and Galois Theory

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Topics

1. Ordered fields: Hilbert’s 17th problem, orderings and preorderings, sums of squares, real closed fields, the Artin-Schreier theory

2. \( p \)-adic fields: Hensel’s lemma, the structure of the multiplicative group

3. Infinite Galois theory: profinite groups, the Galois correspondence in the infinite case

4. Introduction to Galois cohomology