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Unramified pro- p extensions of number fields

In this talk, I will focus on the structure of the Galois groups of unramified pro- p extensions of number fields: cohomological dimension, relations, etc. As application, I will give new records on \liminf of root discriminants of number fields (Martinet's constant), and produce infinite unramified extensions where the set of splitting is infinite (Ihara's question). We will also show how such extensions appear naturally in the context of p -rational fields. Joint work with F. Hajir (UMass) and R. Ramakrishna (Cornell U.)