

Seminar Galois cohomology

Galois cohomology can be used to understand ‘twisted forms’ of standard objects over fields. We will be mostly interested in twisted forms of objects in linear algebra (like vector spaces with a bilinear or a hermitian form), and of linear algebraic groups, over local fields and over global fields. The seminar will start by giving the basic definitions of Galois cohomology (abelian and non-abelian). Next we will study the cohomology of algebraic tori over local and global fields (Tate-Nakayama theory). After these preliminaries, we will study the case of semi-simple and reductive groups. Highlights will be the Kneser vanishing theorem for semi-simple groups over p -adic fields, with its application to the classification of reductive groups over local fields; the corresponding classification over \mathbb{R} ; the Hasse principle of Harder-Kneser over global fields with its application to the classification of reductive groups over global fields, and the strong approximation theorem.

Time and location

Tuesdays, 14 ct., MATH 006

An organizational meeting will take place on **Thursday, 23 July, 14 ct. in Hausdorffraum**. Please send an e-mail to rapoport@math.uni-bonn.de if you cannot come to this organizational meeting, but want to participate (preferably before the meeting!).

Literatur

G. Harder, Bericht über neuere Resultate der Galoiskohomologie halbeinfacher Gruppen, Jber DMV 70(1968), 182–216

M. Kneser, Lectures on Galois cohomology of classical groups, Tata Inst., Bombay, 1969.

V. Platonov, A. Rapinchuk, Algebraic groups and Number theory, Academic Press, 1994

J.-P. Serre, Galois cohomology, Springer Verlag, 2002

Prerequisites

Linear algebraic groups, class field theory.