Universität Hamburg
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Fakultät für
Mathematik, Informatik
und Naturwissenschaften

Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 2. Juni 2015

17 Uhr s.t., Geom H4

Prof. Dr. Ralf Köhl
(Justus-Liebig-Universität Gießen)

Finiteness properties of arithmetic groups

Abstract:

A group is of type F_n if it admits a classifying space with a finite n-skeleton. F_1 is equivalent to being finitely generated, F_2 to being finitely presented.

In 1976 Borel and Serre proved that an arithmetic subgroup of a semisimple algebraic group over a global field of characterstic 0 (such as SL(n,Z)) is of type F_n for all natural numbers n. This is different in positive characteristic: Nagao observed in 1959 that the group SL(2,F_q[t]) is not even finitely generated.

In joint work with Bux and Witzel, based on significant partial results by other colleagues, we in 2013 determined the finiteness properties of arithmetic subgroups of a semisimple algebraic group over a global field of positive characterstic.

In my talk I will discuss how one can prove and disprove finiteness properties via actions on suitable topological spaces, using the action of SL(2,Z) on the hyperbolic plane and the action of SL(F_q[t]) on a Bruhat-Tits tree.

The general situation, which I will touch upon at the end of my talk, can be resolved by studying the action on an appropriate product of symmetric spaces and Bruhat-Tits buildings.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.