universität wien

Fakultät für Mathematik

EINLADUNG
Mathematisches Kolloquium
und
Junior Kolloquium

Arjeh Cohen *(TU Eindhoven)*
Mittwoch, 9. November 2016

15.00 Uhr – Junior Kolloquium:
"Riemann surfaces, algebraic curves, and regular maps"

15.45 Uhr – Kaffeepause

16.15 – Vortrag:
"Extremal elements in Lie algebras and related buildings"

Anschließend vinum cum pane

Ort: Fakultät für Mathematik, Oskar Morgenstern-Platz 1, Sky Lounge

Herwig Hauser, Christian Krattenthaler

Junior Kolloquium: "Riemann surfaces, algebraic curves, and regular maps"

Abstract: Riemann surfaces with large automorphism groups are controlled by regular maps, that is, graphs embedded on a closed surface with a large automorphism group. I will explain how this works. The emphasis is on the construction of an explicit model for a Riemann surface when given a regular map. By way of example, I will deal with a result left open by Kay Magaard and Helmut Völklein regarding a Riemann surface of genus 14. This result appears in Maxim Hendriks' PhD thesis.

Vortrag: "Extremal elements in Lie algebras and related buildings"

Abstract: An element of a Lie algebra is called extremal if the image of the square of multiplication by it is contained in the set of scalar multiples of it. In this talk, I will define a combinatorial geometry of points and lines from Lie algebras spanned by extremal elements. This geometry will be closely related to the so-called Moufang buildings, whose theory has been developed by Jacques Tits. Finite groups of Lie type have long profited from the connection with Moufang buildings of finite diameter. Thanks to our geometric study of extremal elements, also finite-dimensional Lie algebras benefit from Tits' theory. A particular example is a new proof of the classification of classical Lie algebras over an arbitrary field.