

## BERUFUNGSVORTRÄGE „Algebra und Zahlentheorie“

Die Berufungsvorträge schließen folgende Punkte mit ein:

Didaktischer Vortrag (20 Minuten)  
Fragen/Pause (10 Minuten)  
Wissenschaftlicher Vortrag (45 Minuten)  
Fragen/Pause (15 Minuten)  
Kommissionelles Hearing -  
(Dekanatsbesprechungszimmer, 11. Stock)

Die Vorträge finden in der Skylounge, 12. Stock, statt.

**Donnerstag, 01. Juni 2017**

**Prof. David Loeffler**  
(University of Warwick)

### 16:00 Uhr: Didaktischer Vortrag

#### “Eigenvalues of symmetric matrices”

I will explain the theorem that a symmetric  $n \times n$  matrix over the real numbers is diagonalisable (assuming familiarity with the basic definitions of linear operators, eigenvalues, and determinants).

### 16:30 Uhr: Wissenschaftlicher Vortrag

#### “Elliptic curves and the Birch-Swinnerton-Dyer conjecture”

An important problem in number theory is to understand the rational solutions to algebraic equations. One of the first non-trivial examples, cubics in two variables, leads to the theory of so-called elliptic curves. The famous Birch–Swinnerton-Dyer conjecture, one of the Clay Millennium Problems, predicts a relation between the rational points on an elliptic curve and a certain complex-analytic function, the L-function on an elliptic curve. In my talk, I will give an overview of the conjecture and of some new results establishing the conjecture in certain cases.

**Freitag, 02. Juni 2017**

**Prof. Gavril Farkas**  
(Humboldt Universität zu Berlin)

### 10:00 Uhr: Didaktischer Vortrag (Sky Lounge)

#### “Die 27 Geraden auf einer kubischen Fläche”

In einem Briefwechsel zwischen Cayley, Salmon und Sylvester wurde es 1850 entdeckt, dass jede glatte komplexe kubische Fläche immer genau 27 verschiedene Geraden enthält. Ich werde diese überraschende Tatsache sowie die Inzidenzkonfiguration der 27 Geraden erklären.

### 10:30 Uhr: Wissenschaftlicher Vortrag (Sky Lounge)

#### ” Uniformization of moduli“

The term moduli, introduced by Riemann, refers to the essential parameters of geometric objects with fixed invariants. The study of the parametrized objects is then tautologically reflected in the geometry of the corresponding moduli space. The study of moduli is a central theme in mathematics, with profound ideas coming from various fields, including algebraic, arithmetic or symplectic geometry, number theory, as well as theoretical physics. I will discuss recent uniformization results on the structure of two prominent moduli spaces: The moduli space of spin curves of genus  $g$  and the moduli space of principally polarized abelian varieties (focusing on the case of dimension 6, where the incidence of the 27 lines on a cubic surface turns out to play a decisive role).

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