



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Saxonian Geometry Day

08.–09.12.2016, Technische Universität Chemnitz

Central Lecture Hall Building, Rooms 2/N101, 2/NK003, and 2/N001,

Reichenhainer Straße 90, 09126 Chemnitz

Thursday, 08.12.2016

Room 2/N101

- 09:00 – 09:30 Registration of participants
- 09:30 – 10:30 **Bernd Sturmfels (Berkeley):** Convexity in tree spaces
We study the geometry of metrics and convexity structures on the space of phylogenetic trees, here realized as the set of all ultrametrics. The $CAT(0)$ -metric of Billera–Holmes–Vogtman arises from the theory of orthant spaces. While its geodesics can be computed by the Owen–Provan algorithm, geodesic triangles are complicated. We show that the dimension of such a triangle can be arbitrarily high. Tropical convexity and the tropical metric behave better. They exhibit properties that are desirable for geometric statistics, such as geodesics of small depth. This is joint work with Bo Lin, Xiaoxian Tang and Ruriko Yoshida.

☕ COFFEE BREAK ☕

Room 2/N101

- 11:00 – 11:30 **Victoria Hoskins (Berlin):** Algebraic symplectic reduction for the additive group
- 11:30 – 12:00 **Thomas Wannerer (Jena):** Integral geometry of exceptional spheres

—☕ LUNCH BREAK —☕

Room 2/N101

- Jörg M. Wills (Siegen):** 14:00 – 14:30
Three problems in Geometry of Numbers
- Dirk Frettlöh (Bielefeld):** 14:30 – 15:00
Noncongruent equidissections of the plane

Room 2/NK003

- Falko Gauß (Mannheim):**
The moduli space of marked singularities
- Mario Kummer (Leipzig):**
Hyperbolic varieties

☕ COFFEE BREAK ☕

Room 2/N101

- Christian Richter (Jena):** 15:30 – 16:00
Tiling by incongruent equilateral triangles without requiring local finiteness
- Bernardo González Merino (Munich):** 16:00 – 16:30
On the classes of complete and reduced convex sets

Room 2/N001

- Kathlén Kohn (Berlin):**
Chow and Hurwitz complexes and their singular loci
- Mareike Dressler (Frankfurt):**
A Positivstellensatz for sums of nonnegative circuit polynomials

☕ COFFEE BREAK ☕

Room 2/N101
Gabriele Balletti (Magdeburg/Stockholm): 16:45 – 17:15

Volume bounds on lattice polytopes and their duals

Tomáš Bajbar (Frankfurt): 17:20 – 17:50
On Newton polytopes and globally diffeomorphic polynomial maps

Room 2/N001
Hannes Pollehn (Berlin):
Dual curvature measures

☕ DINNER AT TILLMANN'S ☕

Friday, 09.12.2016, Room 2/N101

09:30 – 10:30 **Thomas Reichelt (Heidelberg):** Hypergeometric systems and mirror symmetry

Mirror symmetry predicts a relationship between the enumerative geometry of symplectic manifolds and period computations for mirror families of complex manifolds. In this talk I will discuss the case of toric Fano manifolds whose enumerative geometry is governed by oscillating integrals which come from families of Laurent polynomials. Hypergeometric differential equations will serve as a bridge which connects both worlds.

☕ COFFEE BREAK ☕

11:00 – 11:30 **Thorsten Theobald (Frankfurt):** Mixed Ehrhart polynomials

11:30 – 12:00 **Sören Berg (Berlin):** Tensor-valued Ehrhart Theory

☕ LUNCH BREAK ☕

14:00 – 14:30 **Bo Lin (Berkeley):** Tropical Hodge Bundle

14:30 – 15:00 **Nina Lebedeva (Saint Petersburg):** On the total curvature of minimizing geodesics on convex surfaces

☕ COFFEE BREAK ☕

15:30 – 16:00 **Nina Bartelmeß (Jena):** Generalized Berwald and monochromatic metrics

16:00 – 16:30 **Walter Wenzel (Dortmund):** Dual pairs of oriented matroids of arbitrary rank and generalizations

☕ COFFEE BREAK ☕

16:45 – 17:15 **Florian Besau (Frankfurt):** The floating area in real space forms

17:15 – 17:45 **Madeline Brandt (Berkeley):** The degree of $SO(n)$

Participants:

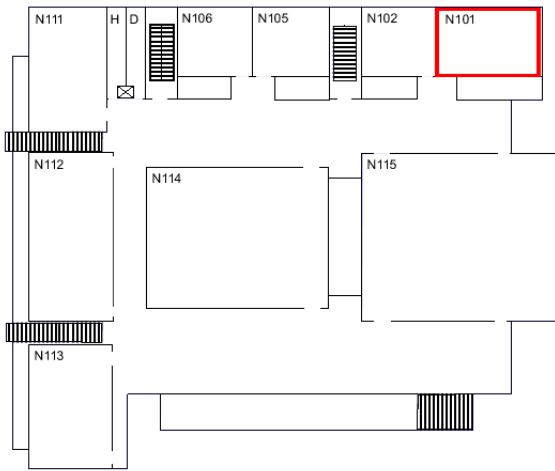
Tomáš Bajbar (Frankfurt)	Victoria Hoskins (Berlin)
Gabriele Balletti (Magdeburg/Stockholm)	Kathlén Kohn (Berlin)
Nina Bartelmeß (Jena)	Mario Kummer (Leipzig)
Christian Barz (Chemnitz)	Nina Lebedeva (Saint Petersburg)
Sören Berg (Berlin)	Bo Lin (Berkeley)
Florian Besau (Frankfurt)	Sebastian Manecke (Dresden)
Johannes Böhm (Jena)	Martin Obst (Chemnitz)
Madeline Brandt (Berkeley)	Hannes Pollehn (Berlin)
Ulrich Brehm (Dresden)	Thomas Reichelt (Heidelberg)
Alberto Castaño Domínguez (Chemnitz)	Christian Richter (Jena)
Ferran Dachs-Cadefau (Halle)	Jan-Christoph Schlage-Puchta (Rostock)
Mareike Dressler (Frankfurt)	Dmytro Shklyarov (Chemnitz)
Dirk Frettlöh (Bielefeld)	Bernd Sturmfels (Berkeley)
Falko Gauß (Mannheim)	Thorsten Theobald (Frankfurt)
Franco Giovenzana (Chemnitz)	Thomas Wannerer (Jena)
Luca Giovenzana (Chemnitz)	Walter Wenzel (Dortmund)
Bernardo González Merino (Munich)	Jörg M. Wills (Siegen)

Organizers:

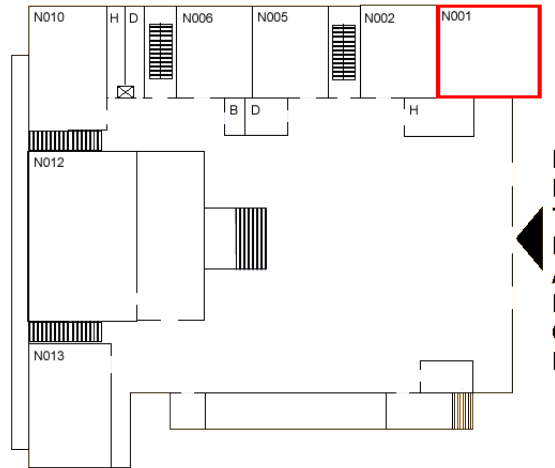
Thomas Jahn (Chemnitz)
Christian Lehn (Chemnitz)
Horst Martini (Chemnitz)
Christian Sevenheck (Chemnitz)

Central Lecture Hall Building

1st floor



ground floor



basement

