

## Overview

The summer school is devoted to various aspects of discrete and quantum graphs and their spectral theory. The speakers are

- Gregory Berkolaiko (Nodal domains and critical nodal partitions),
- Pavel Kurasov (Inverse problems for quantum graphs),
- Annemarie Luger (Analytic matrix functions as a tool for quantum graphs),
- Holger Schanz (Semiclassical expansion of correlation functions on quantum graphs: Applications to mesoscopic electron transport),
- Uzy Smilansky (Topics from the spectral theory of the discrete Laplacian on  $d$ -regular graphs),
- Pavel Streda (Anomalous Hall conductivity: local orbitals approach),
- Jürgen Voigt (Differential operators on metric graphs and selfadjointness).

The event is intended for PhD students, advanced Diploma/Master students, recent postdocs, and anyone who is interested in an introduction in the above mentioned field of mathematics.

The summer school features a graduate student symposium at which participating students can present their own research. Advisors and senior scientists are not supposed to attend the graduate student symposium.

With the Summer School 2011 we continue on a tradition of events that took place in Clausthal, Chemnitz, Göttingen and Jena in recent years. The topics typically involve mathematical physics.

## Map



**A Neues Hörsaalgebäude (NHG)**

**B Cafeteria and refectory (open till 15:00)**

**C Bus stop (TU Campus)**

**D Faculty of Mathematics**

**E Bakery**

## International Summer School on „Graphs and Spectra“ and PhD Symposium 2011

July 18-23, 2011



CHEMNITZ UNIVERSITY  
OF TECHNOLOGY

Summer School organized by  
D. Lenz, P. Stollmann and I. Veselić,  
Graduate Student Symposium by  
M. Keller and M. Tautenhahn

# Schedule of International Summer School on „Graphs and Spectra“ and PhD Symposium 2011

---

## Monday

10:15-11:00 J. Voigt I

11:15-12:00 G. Berkolaiko I

13:15-14:00 J. Voigt II

14:15-15:00 G. Berkolaiko II

15:15-16:00 P. Kurasov I

### PhD Symposium

16:15-16:45 *The integrated density of states for amenable graphs* (F. Pogorzelski)

16:45-17:15 *Fractional moments for random multiparticle Schrödinger operators* (M. Fauser)

## Tuesday

09:30-10:15 J. Voigt III

10:30-11:15 G. Berkolaiko III

11:30-12:15 P. Kurasov II

13:30-14:15 A. Luger I

14:30-15:15 G. Berkolaiko IV

15:30-16:15 H. Schanz (Physics Lecture)

### PhD Symposium

16:30-17:00 *Asymptotic behaviour of the heat equation in twisted waveguides* (G. Malenová)

## Wednesday (only PhD Symposium)

09:30-10:00 *Recovering quantum graphs from their Bloch spectrum* (R. Rueckriemen)

10:00-10:30 *The zeta-regularized determinant for quantum graphs* (S. Egger)

10:30-11:00 *AC Spectrum for Random Schrödinger Operators on the Bethe Strip* (C. Sadel)

11:30-12:00 *Ricci curvature and local clustering of graphs* (S. Liu)

12:00-12:30 *Energy spectra of generalized labyrinth tilings* (S. Thiem)

14:00 Excursion

## Thursday

09:30-10:15 J. Voigt IV

10:30-11:15 G. Berkolaiko V

11:30-12:15 P. Kurasov III

13:30-14:15 P. Kurasov IV

14:30-15:15 U. Smilansky I

15:30-16:15 Pavel Streda (Physics Lecture)

### PhD Symposium

16:30-17:00 *The uniqueness class for heat equation on weighted graphs and stochastic completeness* (X. Huang)

## Friday

09:30-10:15 P. Kurasov V

10:30-11:15 U. Smilansky II

11:30-12:15 A. Luger II

13:30-14:15 A. Luger III

14:30-15:15 U. Smilansky III

### PhD Symposium

15:30-16:00 *Uniform Existence of the Integrated Density of States on metric Cayley graphs* (C. Seifert)

## Saturday (only PhD Symposium)

09:30-10:00 *Generalized Solutions and Spectrum for Dirichlet Forms on Graphs* (S. Haeseler)

10:00-10:30 *Localization for metric graphs with random potential* (C. Schubert)

11:00-11:30 *Interacting Many-particle systems on quantum graphs* (J. Kerner)

11:30-12:00 *The Anderson metal-insulator transition for non ergodic random operators* (C. Rojas-Molina)

## Basic information

---

1. The seminars will take place at Neues Hörsaalgebäude (NHG), Reichenhainer Str. 90 in Room 111, see map on the back.
2. You can reach NHG by bus (line 51, Bus stop „TU Campus“).
3. You are welcome to join us for a hike to Oberrabenstein on Wednesday afternoon.
4. Should you be hungry or thirsty please feel free to visit the cafétaria (opening hours: 08:00-15:00) or the bakery, see map.