

## Conference Banquet

The Banquet will be held 6:00 pm – 7:30 pm in Calhoun Corners Restaurant located only 1/2 mile from the conference venues at 103 Clemson Street Clemson, SC 29631 (Phone: (864) 654-7490).

The price, not covered by organizers, is \$23 and should be paid in cash upon arrival. The price does not include drinks.

## Registration and Financial support

The conference is partially funded through NSF grant DMS-1201546. Limited travel and lodging financial support will be available to the most attendees. However priority will be given to graduate students, post-docs and new Ph.D.s. Due to NSF regulations, we kindly ask all participants to register. If you have not already register please do so by visiting us at our web site:

<http://www.devio.us/~ppunosevac/cdynsys/>

Participants who are requesting financial support will also have to do vendor registration required by Clemson university as well as to submit expense report form with receipts.

## Organizers

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# MMB & DFT 2014

## University of Bamberg

March 17 – 19, 2014

## Overview

In behalf of organization committee, I would like to welcome you to the 10<sup>th</sup> annual Carolina Dynamics Symposium held at Clemson University. The theme of the meeting is the new developments in Dynamical Systems, relations to other branches of mathematics and applications. The 10<sup>th</sup> annual meeting of the Carolina Dynamical Systems group is an opportunity to reflect on humbled origins of the group and the history of dynamical systems in the Southeast. Unlike previous years, we have grown some and that shows in the format of the conference. For the first time we have invited speakers:

- Yuliy Baryshnikov, Urbana;
- Robert Connelly, Cornell;
- Sheldon Newhouse, Michigan State;
- Sergei Tabachnikov, Penn State.

We also have a special Sunday session on Control and Robotics. During the conference, we will pay a tribute to the life and work of recently deceased Russian mathematician Leonid Pavlovich Shilnikov whose scientific work in the field of Dynamical Systems has found fertile ground among the local mathematical community.

We kick off on Friday, April 13 at 4:30 pm with a single invited lecture by Sheldon Newhouse which will be also departmental colloquium lecture for that week at the Department of Mathematical Sciences at Clemson University.

We gather back Saturday April 14 at 9:00 am. There would be three 60 minutes morning lectures. After the break for

the lunch we will get back to work at 2:30 pm. At this time we will split into the several sections. Sectional talks will be 35 minutes long with the 5 extra minutes reserved for questions. They are an ideal opportunity for graduate students, post-docs and recent Ph.D.s to talk about their research. We finish Saturday with conference banquet.

A special session on Control and Robotics is planned for Sunday, April 15 consisting of three 60 minutes invited lecture. We finish early 12:30 pm so that people can get back home and get ready for Monday teaching duties.

## Schedule

### Friday, April 13

#### Vickery Hall

4:30 pm - 5:30 pm **Sheldon Newhouse**, Michigan State  
*A trip into the world of computer assisted proofs in Dynamical Systems*

### Saturday, April 14

9:00 am - 9:30 am Refreshment in Martin Hall M-105

#### Martin Hall M-101

9:30 am - 10:30 am **Sergei Tabachnikov**, Penn State  
*Pentagram Map, twenty years after*

10:45 am - 11:45 am **Douglas Shafer**, *Stability and Centers in the Moon-Rand Systems*

12:00 pm - 1:00 pm **Sheldon Newhouse**, Michigan State  
*Homoclinic Points, Hausdorff Dimension, and a theorem of Gonchenko, Silnikov, and Turvae*

#### Lunch Break

#### Afternoon Sections Talks

**Martin Hall M-101**  
**Differential Equations and Applications**, in memoriam of Leonid Shilnikov, Douglas Shafer chair  
2:30 pm - 3:20 pm **Igor Belykh**, Georgia State  
*Stochastically switched dynamical systems: odds of meeting a ghost*

3:30 pm - 4:15 pm **Isaac Garcia**, University of Lleida  
*Centers on center manifolds in  $\mathbf{R}^3$  and the vanishing set of inverse Jacobi multipliers*

4:30 pm - 5:15 pm **Tingli Xing**, Georgia State  
*Kneading in Lorenz and Shimizu-Morioka model*

**Martin Hall M-102**  
**Ergodic Theory**, Karl Peterson chair  
3:20 pm - 3:30 pm **Sarah Frick**, Furman University  
*Complexity of Isotropic Adic Systems*

3:30 pm - 4:15 pm **Kevin McGoff**, Duke University  
*Which dynamics are possible for  $Z^d$  SFTs*

4:30 pm - 5:15 pm **Joanna Furno**, UNC Chapel Hill  
*Measures of p-adic Julia Sets*

**Martin Hall M-201**  
**Mathematical Biology and Neuroscience**, Igor Belykh chair  
3:30 pm - 4:15 pm **Sajiya Jallil**, Georgia State University  
*Phase description of stochastic oscillations*

2:30 pm - 3:20 pm **Justus Schwabedal**, Potsdam University  
*Experimental phase relation captured by model central pattern generator*

4:30 pm - 5:15 pm **Jeremy Wojcik**, Georgia State University  
*Phase-lag return mappings for control of polyrhythms in bursting 3-cell networks*

#### Martin Hall M-202

**Billiard Dynamical Systems**, Sam Kaplan chair  
2:30 pm - 3:20 pm **Timothy Chumley**, Washington University in St. Louis  
*A Central Limit Theorem and Weak Invariance Principle for a Billiard-Markov Model*

3:30 pm - 4:15 pm **Jasmine Ng**, Washington University in St. Louis  
*Billiard Markov Operators and Second-Order Differential Operators*

4:30 pm - 5:15 pm **Martin Schmolli**, Clemson University  
*Dynamics on lattice Ranov planes and applications*

### Sunday, April 15

8:30 am - 9:00 am Refreshment in Martin Hall M-105

#### Martin Hall M-101

9:00 am - 10:00 am **Robert Connolly**, Cornell  
*Unfolding a Carpenter's Rule and some consequences*

10:15 am - 11:15 am **Yuliy Baryshnikov**, Urbana  
*Topological Obstacles in Control*

30 am - 12:30 pm **Sergei Tabachnikov**, Penn State  
*Five tracks geometry, hatchet planimeter, Menzin's conjecture, and complete integrability*

#### Hotel Info

The Hotel for the conference is the Comfort Inn located at: 1305 Tiger Blvd. US 123 & 76 Clemson, SC 29631 (Phone: (864) 653-3600).

#### Parking

Visitors must display a valid guest parking permit to park on campus except when in areas designated as public parking for a special event.

We have parking permits that allow you to park in green and orange marked parking. There is such parking between Sikes (the building on Calhoun with columns) and Martin Hall, enter along Calhoun Drive and turn right after Sikes (NOT Cherry Road). You may get permits on Friday from Martin Schmolli personally (office number Martin O-17), or pick it up at the conference from room Martin M-105 (Saturday & Sunday).

Parking permits for visitors can also be obtained from three locations:

1. The Visitors Center, 109 Daniel Drive
2. Parking Services, G01 Edgar Brown Union
3. Clemson University Police, Memorial Stadium