

**Programme on**  
**“Measured Group Theory”**  
**January 18 - March 18, 2016**  
**organized by**

**Miklos Abért (Hungarian Academy of Sciences, Budapest), Goulmara Arzhantseva (U Vienna),  
Damien Gaboriau (ENS Lyon), Thomas Schick (U Göttingen), Andreas Thom (TU Dresden)**

**Conference**  
**February 15 – 19, 2016**

• **Wednesday, February 17, 2016**

09:30 – 10:30 **Anatoly Vershik**

*Standard filtrations and standard graphs in measure theory and representation theory*

10:30 – 11:00 *coffee / tea break*

11:00 – 11:30 **Aditi Kar**

*Gradients in Group Theory*

This parallel session takes place in the Boltzmann Lecture Hall

11:00 – 11:30 **Martin Finn-Sell**

*C\*-exactness and almost quasi-isometric embeddings into groups*

This parallel session takes place in the Schrödinger Lecture Hall

11:45 – 12:45 **Rufus Willet**

*Dynamic Asymptotic Dimension*

12:45 – 19:30 **free afternoon**

**All talks take place at the ESI, Boltzmann Lecture Hall, except the parallel session, that will take place at the ESI, Schrödinger Lecture Hall!**

**Note: The talks for the following days will be announced each day before on the programme webpage [http://www.uni-math.gwdg.de/schick/ESI16/esi16\\_7.html](http://www.uni-math.gwdg.de/schick/ESI16/esi16_7.html)**

see Page 2 for the abstracts of the talks

## **Abstracts**

### **Anatoly Vershik**

*Standard filtrations and standard graphs in measure theory and representation theory*

The conception of standard filtrations is a fundamental idea in the theory of stochastic processes, dynamical systems, representation theory and Bratteli diagrams. I will give the definition, examples and applications of standard and non standard filtrations and graphs.

### **Aditi Kar**

*Gradients in Group Theory*

In this talk, I will present a survey of my results on the asymptotic behaviour of the following group invariants: rank, deficiency, Betti numbers and the size of torsion subgroups in homology. I will describe what we know about the rank versus  $L_2$ -Betti number conjecture, computing deficiency gradient and Homology torsion. I will focus on open questions in the subject and hopefully leave many of you with some food for thought.

### **Martin Finn-Sell**

*$C^*$ -exactness and almost quasi-isometric embeddings into groups*

In this talk I will discuss families of finite graphs of large girth and the role they play in constructing groups that are not  $C^*$ -exact. In particular, I will describe a permanence result concerning coarse amenability for the types of maps, called almost quasi-isometries, that occur in the probabilistic construction of Gromov. In the remaining time, I will indicate how these ideas interact with the Baum-Connes conjecture for discrete groups.

### **Rufus Willet**

*Dynamic Asymptotic Dimension*

I'll discuss a dimension theory for topological dynamical systems introduced in joint work with Erik Guentner and Guoliang Yu. Roughly, it measures how many 'finite pieces' are needed to 'locally cover' the action. I'll discuss some examples, its relationship with Gromov's asymptotic dimension from metric geometry, and connections to manifold topology, K-theory, and  $C^*$ -algebras.