



THE HEBREW UNIVERSITY OF JERUSALEM  
ISRAEL INSTITUTE FOR ADVANCED STUDIES

# Geometric and Combinatorial Group Theory

In honor of Eliyahu Rips

December 14-19, 2014

All lectures will take place at the Israel Institute for Advanced Studies,  
on the Edmond J. Safra, Givat Ram Campus

## Organizers:

**Michah Sageev** (Technion, Israel Institute of Technology)

**Zlil Sela** (The Hebrew University of Jerusalem)

# Program

## Sunday, 14 December

- 09:00 - 09:30    Registration
- 09:30 - 10:30    **Mark Sapir** (Vanderbilt University)  
Tarski numbers of groups
- 10:30 - 11:00    Coffee Break
- 11:00 - 12:00    **Mark Feighn** (Rutgers University - Campus at Newark)  
The Rips machine and definable subsets of free groups
- 12:00 - 14:00    Lunch
- 14:00 - 15:00    **Ilya Kapovich** (University of Illinois, Urbana-Champaign)  
Dynamics and polynomial invariants of free-by-cyclic groups
- 15:00 - 15:15    Coffee Break
- 15:15 - 16:15    **Yael Algom-Kfir** (University of Haifa)  
A dense geodesic in Moduli space of graphs
- 16:15 - 16:45    Coffee Break
- 16:45 - 17:45    **Vincent Guirardel** (University of Rennes 1)  
Embeddings of hyperbolic groups and extensions of automorphisms
- 18:00 - 20:00    Reception

## Monday, 15 December

- 09:30 - 10:30    **Peter B. Shalen** (University of Illinois, Chicago)  
Homology and volume of hyperbolic 3-orbifolds,  
and enumeration of arithmetic groups
- 10:30 - 11:00    Coffee Break
- 11:00 - 12:00    **Daniel T. Wise** (McGill University)  
Counting cycles in graphs: A rank-1 version of the  
Hanna Neumann Conjecture
- 12:00 - 14:00    Lunch
- 14:00 - 15:00    **Gilbert Levitt** (Université de Caen)  
Stabilizers on the boundary of outer space (joint  
work with Vincent Guirardel)
- 15:00 - 15:15    Coffee Break
- 15:15 - 16:15    **Arye Juhasz** (Technion, Israel Institute of  
Technology)  
A small cancellation resolution of a single  
defining relator
- 16:15 - 16:45    Coffee Break
- 16:45 - 17:45    **Koji Fujiwara** (Kyoto University)  
Stable commutator length on mapping class groups

## Tuesday, 16 December

- 09:30 - 10:30    **Eliyahu Rips** (The Hebrew University of  
Jerusalem)  
TBA
- 10:30 - 11:00    Coffee Break

- 11:00 - 12:00    **Roman Mikhailov** (Steklov Mathematical Institute, Moscow)  
Combinatorial group theory and homotopy
- 12:00 - 14:00    Lunch
- 14:00 - 15:00    **Thomas Delzant**  
Trees and Kähler groups
- 15:00 - 15:15    Coffee Break
- 15:15 - 16:15    **Avinoam Mann** (The Hebrew University of Jerusalem)  
Curiouser and Curiouser, said Alice
- 16:15 - 16:45    Coffee Break
- 16:45 - 17:45    **Yoav Segev** (Ben-Gurion University of the Negev)  
A non-split sharply 2-transitive group

### Wednesday, 17 December

- 09:30 - 10:30    **Alexander Ol'shanskii** (Vanderbilt University)  
On highly transitive actions of infinite groups
- 10:30 - 11:00    Coffee Break
- 11:00 - 12:00    **Alexei Kanel-Belov** (Bar-Ilan University)  
Construction of finitely presented infinite nil-semigroup (joint work with Ilya Ivanov-Pogodaev)
- 12:00 - 13:30    Lunch
- 13:30 - 17:30    Tour

### Thursday, 18 December

- 09:30 - 10:30    **Aner Shalev** (The Hebrew University of Jerusalem)  
Invariable generation of groups

- 10:30 - 10:45 Coffee Break
- 10:45 - 11:45 **Boris Plotkin** (The Hebrew University of Jerusalem)  
Some group-theoretic problems from the fifties and the sixties through our current prism
- 11:45 - 12:00 Coffee Break
- 12:00 - 13:00 **Chloe Perin** (The Hebrew University of Jerusalem)  
On the superstable part of the free group
- 13:00 - 14:30 Lunch
- 14:30 - 15:30 **Mladen Bestvina** (University of Utah)  
Math Colloquium, at Math Hall 2 Asymptotic dimension of a curve complex
- 15:30 - 16:00 Coffee Break
- 16:00 - 17:00 **Eliyahu Rips** (The Hebrew University of Jerusalem)  
TBA
- 19:15 - 21:30 Dinner at Terasa restaurant

### Friday, 19 December

- 09:30 - 10:30 **Itay Benjamini** (Weizmann Institute of Science)  
Harmonic functions on graphs
- 10:30 - 10:45 Coffee Break
- 10:45 - 11:45 **Lev Birbrair** (Universidade Federal do Ceará)  
Lipshitz geometry of singularities
- 11:45 - 12:00 Coffee Break

12:00 - 13:00    **Alexander Lubotzky** (The Hebrew University of  
Jerusalem)  
Combinatorial group theory for profinite and  
residually finite groups