



האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

THE HEBREW UNIVERSITY OF JERUSALEM
ISRAEL INSTITUTE FOR ADVANCED STUDIES

The 20th Midrasha Mathematicae: 60 faces to groups

November 6-11, 2016

Most lectures will take place at the Israel Institute for Advanced Studies, on the Edmond J. Safra, Givat Ram Campus. The lectures on Thursday afternoon will take place at Manchester Building, lecture hall 2, Edmond J. Safra, Givat Ram Campus.

Director:

Peter Sarnak (Institute for Advanced Study, Princeton)

Organizers:

Nir Avni (Northwestern University)

Chen Meiri (Technion, Israel Institute of Technology)

Shahar Mozes (The Hebrew University of Jerusalem)

Ori Parzanchevski (The Hebrew University of Jerusalem)

Yuval Roichman (Bar-Ilan University)

Aner Shalev (The Hebrew University of Jerusalem)

Uzi Vishne (Bar-Ilan University)

Program

Sunday, 6 November

- 08:45 - 09:30 Registration
- 09:30 - 10:20 **Hillel Furstenberg** (The Hebrew University of Jerusalem)
Ramsey Theory for Non-amenable Groups
- 10:20 - 10:40 Break
- 10:40 - 11:30 **Roy Meshulam** (Technion, Israel Institute of Technology)
High Dimensional Expansion
- 11:30 - 12:00 Coffee Break
- 12:00 - 12:50 **Martin Kassabov** (Cornell University)
From character varieties to quantum representation of mapping class groups
- 12:50 - 14:30 Lunch
- 14:30 - 15:20 **Avinoam Mann** (The Hebrew University of Jerusalem)
Positively finitely generated groups and their associated zeta-functions
- 15:20 - 15:40 Coffee Break
- 15:40 - 16:30 **Nir Avni** (Northwestern University)
Survey of representation growth
- 16:30 - 16:45 Coffee Break
- 16:45 - 17:30 A few words on Alex
- 17:30 - 19:00 Reception

Monday, 7 November

- 09:30 - 10:20 **Emmanuel Breuillard** (Université Paris-Sud 11)
Strongly dense free subgroups
- 10:20 - 10:40 Break
- 10:40 - 11:30 **László Babai** (University of Chicago)
Finite permutation groups and the Graph
Isomorphism problem - 1
- 11:30 - 12:00 Coffee Break
- 12:00 - 12:50 **László Babai** (University of Chicago)
Finite permutation groups and the Graph
Isomorphism problem - 2
- 12:50 - 14:30 Lunch
- 14:30 - 15:20 **László Pyber** (Alfréd Rényi Institute of
Mathematics, Budapest)
How to avoid the Classification Theorem of Finite
Simple Groups in Asymptotic Group Theory
- 15:20 - 15:40 Coffee Break
- 15:40 - 16:00 **Oren Becker** (The Hebrew University of
Jerusalem)
Locally testable groups
- 16:00 - 16:20 **David El-Chai Ben-Ezra** (The Hebrew University
of Jerusalem)
The congruence subgroup problem for metabelian
groups
- 16:20 - 16:40 **Shai Evra** (The Hebrew University of Jerusalem)
Topological Expanders

Tuesday, 8 November

- 09:30 - 10:20 **Emmanuel Kowalski** (ETH Zurich)
Recognizing groups in arithmetic problems
- 10:20 - 10:40 Break
- 10:40 - 11:30 **Nikolay Nikolov** (University of Oxford)
On the growth of torsion in homology of finite index subgroups
- 11:30 - 12:00 Coffee Break
- 12:00 - 12:50 **Rostislav Grigorchuk** (Texas A&M University)
Models of random group via the dynamical constructions on the space of groups.
- 12:50 - 14:30 Lunch
- 14:30 - 15:20 **Alan Reid** (University of Texas at Austin)
Profinite rigidity in low dimensions
- 15:20 - 15:40 Coffee Break
- 15:40 - 16:30 **Andrei Rapinchuk** (University of Virginia)
Eigenvalue Rigidity and Hearing the Shape of a Locally Symmetric Space

Wednesday, 9 November

- 09:30 - 10:20 **Aner Shalev** (The Hebrew University of Jerusalem)
Linear groups and simple groups
- 10:20 - 10:40 Break
- 10:40 - 11:30 **Marcus Du Sautoy** (University of Oxford)
Zeta functions of Groups
- 11:30 - 12:00 Coffee Break

- 12:00 - 12:50 **Robert Guralnick** (University of Southern California)
Presentations of finite groups and cohomology
- 12:50 - 13:30 Sandwiches
- 13:30 - 17:00 Tour
- 20:00 - 22:30 Dinner

Thursday, 10 November

- 09:30 - 10:20 **Tsachik Gelander** (Weizmann Institute of Science)
Torsion in Negative Curvature
- 10:20 - 10:40 Break
- 10:40 - 11:30 **Dan Segal** (Oxford University)
Strongly complete profinite groups
- 11:30 - 12:00 Coffee Break
- 12:00 - 12:50 **Inna Capdeboscq** (University of Warwick)
Generation and Presentations: Kac-Moody groups' perspective
- 12:50 - 14:30 Lunch
- 14:30 - 15:30 **Peter Sarnak** (IAS Princeton)
Navigating $PU(2)$, Golden Gates and Strong Approximation (the lecture will take place at the Mathematics Building, Lecture Hall 2).
- 15:30 - 16:00 Coffee Break
- 16:00 - 17:00 **Efim Zelmanov** (University of San Diego)
Infinite infinitesimal groups and their representations (the lecture will take place at the Mathematics Building, Lecture Hall 2).

Friday, 11 November

- 09:30 - 10:20 **Martin Liebeck** (Imperial College London)
Algorithms for finitely presented groups, and
probabilistic group theory
- 10:20 - 10:40 Break
- 10:40 - 11:30 **Ori Parzanchevski** (The Hebrew University of
Jerusalem)
Golden Gates and High Dimensional Expanders
- 11:30 - 12:00 Coffee Break
- 12:00 - 12:50 **Karen Vogtmann** (University of Warwick)
Fnding infinity inside Outer space
- 12:50 - 13:30 Sandwiches