

International Workshop

In the frame of the grant FR-21.4713 of Shota Rustaveli National Science
Foundation of Georgia

“Algebraic Geometry and Model Theory of Groups and Algebras”

Program

Part 1

Exponential Groups

Dates: 01/09/2023–03/09/2023

Place: Akaki Tsereteli State University, Kutaisi, Georgia

Program:

September 1st

1. *9.00 am–9.55 am* **Alexei Miasnikov** “Open problems and recent tendencies in the theory of exponential groups”
2. *10.00 am–10.50 am* **Tengiz Bokelavadze** “On bi-interpretability of nilpotent k -groups and nilpotent k -algebras Lie”
3. *11.00 am–11.50 am* **Evelina Daniyarova** “Remeslennikov’s approach to universal classes of 2-nilpotent R -groups”
4. *12.00 pm–2.00 pm* Discussion

September 2nd

1. *9.00 am–9.55 am* **Mikheil Amaglobeli** “Tensor completions in varieties of exponential groups”
2. *10.00 am–11.00 am* **Alexander Treyer** “On a maximal rank of a free two step nilpotent group embeddable into $UT_n(\mathbb{Z})$ ”
3. *11.20 am–1.00 pm* Discussion

Excursion to Okatse Canyon Natural Monument

September 3rd

9.00 am–2.00 pm Discussion on perspectives of the theory of exponential groups

Organizing committee:

1. M. Amaglobeli
2. T. Bokelavadze
3. O. Kharlampovich
4. A. Miasnikov

Part 2

Model Theory of Groups and Algebras

Dates: 04/09/2023–08/09/2023

Place: Shota Rustaveli State University, Batumi, Georgia

Program:

September 4th

1. *4.00 pm–4.30 pm* **Ivan Buchinskiy** “Equations over Heisenberg groups”

XIII Annual International Conference of the Georgian Mathematical Union
4.45 pm–5.10 pm **Elena Bunina**, Algebraic and logical properties of Chevalley groups

2. *5.25 pm–6.25 pm* **Anthony Gaglione** and **Dennis Spellman** “Axioms of the universal theory of Heisenberg group”

September 5th

1. *9.00 am–10.00 am* **Alexander Treyer** “One variable equations over free nilpotent groups”
2. *10.15 am–11.15 am* **Alexei Miasnikov** “Coordinate groups of irreducible algebraic sets over free nilpotent groups”
3. *11.20 am–1.00 pm* Discussion

XIII Annual International Conference of the Georgian Mathematical Union
3.25 pm–15.50 **Mikheil Amaglobeli**, **Alexei Miasnikov**, Varieties of exponential R-groups
4.45 pm–5.10 pm **Pavel Gvozdevsky**, On countable isotypic structures
5.10 pm–5.35 pm **Tengiz Bokelavadze**, Lattice isomorphisms of 2-nilpotent W -power Hall groups and Lie algebras

September 6th

10.00 am–2.00 pm Discussion

Excursion to the Batumi Botanical Garden

September 7th

1. *9.00 am–10.25 am* **Evelina Daniyarova** “Interpretations”
2. *10.40 am–11.40 am* **Alexei Miasnikov** “Theory of interpretations I”
3. *11.50 am–12.50 pm* **Alexander Treyer** “Definable subgroups of free nilpotent groups”
4. *1.00 pm–2.00 pm* Discussion

XIII Annual International Conference of the Georgian Mathematical Union
3.50 pm–4.15 pm **Eugene Plotkin**, Elementary equivalence of Kac-Moody and Chevalley groups

September 8th

1. *9.00 am–10.25 am* **Evelina Daniyarova** “Bi-interpretations”
2. *10.40 am–11.40 am* **Alexei Miasnikov** “Theory of interpretations II”
3. *11.50 am–12.50 pm* **Elena Bunina** “Abstract isomorphisms and bi-interpretability of Chevalley groups”
4. *12.50 pm–2.00 pm* Discussion on abstract isomorphisms of classical matrix groups and algebras (Golubchik-Mikhalev-Zelmanov’s theorem)

September 9th

1. *9.00 am–9.50 am* **Andrey Nikolaev** “Non-standard polynomials”
2. *10.00 am–11.00 am* **Alexander Treyer** “Bi-interpretability of $ZwrZ$ with Z ”
3. *11.15 am–12.00 pm* **Evelina Daniyarova** “Elimination of imaginaries and bi-interpretations”
4. *12.10 pm–2.00 pm* Discussion
5. *3.00 pm–4.00 pm* **Olga Kharlampovich** “Non-standard free metabelian groups”

Organizing committee:

1. M. Amaglobeli
2. T. Bokelavadze
3. O. Kharlampovich
4. A. Miasnikov
5. E. Plotkin

Part 3

Algebraic and Logical Geometries over Groups and Algebras

Dates: 10/09/2023–14/09/2023

Place: Batumi, Georgia

Program:

September 10th

♥ Dedicated to Boris Plotkin

1. *9.00 am–10.00 am* **Alexei Miasnikov** “Boris Plotkin and universal algebraic geometry”
2. *10.10 am–11.10 am* **Eugene Plotkin** “Logical geometries by Boris Plotkin”
3. *11.20 am–12.20 pm* **Evelina Daniyarova** “Logical geometries and interpretations”
4. *12.30 pm–1.00 pm* **Elena Bunina** ”Isotypic abelian p-groups”
5. *1.10 pm–2.00 pm* **Pavel Gvozdevsky** “On countable isotypic structures”
6. *4.00 pm–6.00 pm* **Eugene Plotkin** “Father Boris Plotkin”

September 11th

1. *10.10 am–11.00 am* Open problems
2. *11.10 am–2.00 pm* Discussion

Excursion to Sarpi

September 12th

1. *9.00 am–10.00 am* **Andrey Nikolaev** “Non-standard free groups”
2. *10.15 am–11.30 am* **Mikheil Amaglobeli** “Exponential nilpotent groups”
3. *11.40 am–12.40 pm* **Alexei Mishchenko** “Equations in partially commutative 2-nilpotent groups”
4. *12.50 am–2.00 pm* Discussion

September 13th

1. *9.00 am–10.00 am* **Eugene Plotkin** “Bounded generation for Chevalley and Steinberg groups”
2. *10.15 am–11.15 am* **Alexei Miasnikov** “K-theory for completions of nilpotent groups”
3. *11.20 am–1.00 pm* Discussion

September 14th

9.00 am–2.00 pm General discussion

Organizing committee:

1. M. Amaglobeli
2. T. Bokelavadze
3. O. Kharlampovich
4. A. Miasnikov
5. E. Plotkin

Participants

Alexei Miasnikov, Stevens Institute of Technology, Hoboken, USA
Tengiz Bokelavadze, Akaki Tsereteli State University, Kutaisi, Georgia
Evelina Daniyarova, Sobolev Institute of Mathematics, Omsk, Russia
Mikheil Amaglobeli, Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
Alexander Treyer, Sobolev Institute of Mathematics, Omsk, Russia
Eugene Plotkin, Bar Ilan University, Tel Aviv, Israel
Elena Bunina, Bar Ilan University, Tel Aviv, Israel
Andrey Nikolaev, Stevens Institute of Technology, Hoboken, USA
Olga Kharlampovich, City University of New York, New York, USA
Pavel Gvozdevsky, Bar Ilan University, Tel Aviv, Israel
Alexei Mishchenko, Independent scientist, Batumi, Georgia
Ivan Buchinskiy, Sobolev Institute of Mathematics, Omsk, Russia
Anthony Gaglione, United States Naval Academy, Annapolis, USA
Dennis Spellman, Temple University, Philadelphia, USA