

Gianluca Paolini - Curriculum Vitae

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Personal information

Born: March 21, 1988—Arquata del Tronto (AP), Italy.
Nationality: Italian.
Marital status: single.

Current position

Sep. 2016- *Post-Doc Research Fellow* at The Hebrew University of Jerusalem.
Supervisor: Saharon Shelah.

Employment history

Sep. 2016- *Post-Doc Research Fellow* at the Hebrew University of Jerusalem.
Supervisor: Saharon Shelah.

Sep. 2013- *PhD Student in Mathematics* at the University of Helsinki.
June. 2016 Supervisors: Tapani Hyttinen and Jouko Väänänen.

Education and qualifications

Sep. 2018 Italian national scientific qualification as associate professor in the sector 01/A2: Algebra (MAT/02); Geometry (MAT/03).
Validity: 18.09.2018-18.09.2024.

Aug. 2018 Italian national scientific qualification as associate professor in the sector 01/A1: Mathematical logic (MAT/01); mathematics education and history of mathematics (MAT/04).
Validity: 01.08.2018-01.08.2024.

Sep. 2013- *PhD in Mathematics*, University of Helsinki.
Jun. 2016 Supervisors: Tapani Hyttinen and Jouko Väänänen.
Thesis opponent: Wilfrid Hodges. Thesis referees: John Baldwin and Heribert Vollmer.

Sep.2011-
Jun.2013 MSc in Logic, ILLC, University of Amsterdam.
Thesis supervisor: Jouko Väänänen.

Sep.2007-
Jun.2011 BA in Philosophy, University of Padova.
Thesis supervisor: Massimiliano Carrara.

Areas of specialization

Model theory/Descriptive set theory: classification theory, stability theory, model theory of groups, model theory of planes, homogeneous model theory, combinatorial model theory, automorphism groups, Polish groups, invariant descriptive set theory.

Algebra/Combinatorics: combinatorial group theory, geometric group theory, algebraic combinatorics, incidence structures, projective planes, matroid theory, graph theory.

Prizes & awards

2018 Winner of the AILA (Associazione Italiana di Logica e sue Applicazioni) Prize in memory of Paolo Gentilini – annual prize for an outstanding young (under 40) researcher in the field of mathematical logic and its applications, €3.000.

2017 Special mention for the AILA-UMI (Associazione Italiana di Logica e sue Applicazioni and Unione Matematica Italiana) Prize in memory of Franco Montagna – biennial prize for an outstanding PhD thesis in the field of mathematical logic and its applications.

Scholarships, fellowships, and research fundings

2016-18 Participant as a Post-Doc Research Fellow to the European Research Council grant 338821 – “Dependent Classes”, principal investigator: Saharon Shelah.

2016 Väisälä Foundation Scholarship, €23.000.

2015 Väisälä Foundation Scholarship, €23.000.

2014 Väisälä Foundation Scholarship, €23.000.

2013 CIMO Fellowship TM-13-8847, €10.800.

Travel Grants

- 2018 Logic Colloquium 2018 travel grant, €400.
- 2014-16 Domast travel grants (5), for a total of €3.717.
- 2014 Chancellor's Travel Grant – University of Helsinki, €1.600.

Organization of international conferences and events

- 2018 Organizer (together with John Baldwin) of the mini-workshop *Incidence Structures and Hrushovski's Constructions* – Jerusalem, Israel, 15-16.4.18
- 2015 Organizing committee of the *Logic Colloquium 2015* – Helsinki, Finland, 3-8.8.15.
- 2015 Organizing committee of the *SLS Summer School 2015* – Helsinki, Finland, 28-31.7.15.

Editorial activities

- 2018- Reviewer for MathSciNet.
- 2018- Reviewer for zbMATH.

Research visits

- 2018 University of Torino, Department of Mathematics, 11.6.18-14.6.18.
Host: Luca Motto Ros.
- 2016 Hebrew University of Jerusalem, Einstein Institute of Mathematics, 14.4.16-28.5.16.
Host: Saharon Shelah.
- 2015 University of Illinois at Chicago, Department of Mathematics, 15.1.15-21.1.15.
Host: John Baldwin.

Collaborators

John Baldwin, Riccardo Camerlo, Filippo Calderoni, Jan Hubička, Tapani Hyttinen, Luca Motto Ros, Vadim Kulikov, Sonia L'Innocente, Saharon Shelah, Jouko Väänänen.

Membership of scientific society

- 2015- Scandinavian Logic Society (SLS).
- 2017- Associazione Italiana di Logica e sue Applicazioni (AILA).
- 2018- Unione Matematica Italiana (UMI).
- 2018- Association for Symbolic Logic (ASL).
- 2019- European Mathematical Society (EMS).

Teaching activities

- Spring 2015 *Introduction to Classification Theory*, teaching assistant (lecturer: Tapani Hyttinen).
- Fall 2013 *Model Theory*, teaching assistant (lecturer: Tapani Hyttinen).

Talks

CONFERENCES (INVITED SPEAKER)

- 2018 Joint Meeting of the Italian Mathematical Union, the SIMAI and the Polish Mathematical Society, special session “Set Theory and Topology”.
Wrocław, Poland, 17-20.9.18.
On a Cardinal Invariant Related to the Haar Measure Problem.
- 2018 Joint Meeting of the Italian Mathematical Union, the SIMAI and the Polish Mathematical Society, special session “Model Theory”.
Wrocław, Poland, 17-20.9.18.
First-Order Model Theory of Free Projective Planes.
- 2018 Logic Colloquium 2018, special session “Model Theory”.
Udine, Italy, 23-28.7.18.
On the Admissibility of a Polish Group Topology and some Results in Reconstruction Theory.
- 2018 Young Set Theory Workshop 2018.
Bernoulli Center, Lausanne, Switzerland, 25-29.6.18.
On the Admissibility of a Polish Group Topology and Other Things.
- 2018 Set Theory, Model Theory and Applications (in memory of Mati Rubin).
Eilat, Israel, 22-26.4.18.
Automorphisms Groups and Reconstruction Problems.

- 2018 Incontro Italiano Modelli e Insiemi 2018.
Torino, Italy, 21-23.2.18.
Automorphisms Groups and Reconstruction Problems.
- 2015 Logic Colloquium 2015, special session “Logic and Quantum Foundation”.
Helsinki, Finland, 3-8.8.15.
Quantum Team Logic and Bell’s Inequalities.
- 2015 Dagstuhl Seminar on Dependence Logic.
Wadern, Germany, 21-26.6.15.
A Logic for Arguing About Probabilities in Measure Teams.
- 2015 Joint Meeting of the AMS, the MAA and the ASL, special session “Beyond First-Order Model Theory”.
San Antonio, Texas, USA, 10-13.1.15.
Reduction of Database Independence to Dividing in Atomless Boolean Algebras.
- 2015 Arctic Set Theory II.
Kilpisjarvi Biological Research Station, Finland, 12-17.2.15.
Quantum Team Logic and Bell’s Inequalities.
- 2014 KNAW Colloquium on Dependence Logic.
Amsterdam, The Netherlands, 3-5.3.14.
Independence Logic in Model Theory.
- WORKSHOPS (INVITED SPEAKER)
- 2018 A Descriptive Set Theory Day in Torino.
Torino, Italy, 12.6.18.
On the Admissibility of a Polish Group Topology.
- 2018 Incidence Structures and Hrushovski’s Constructions.
Jerusalem, Israel, 15-16.4.18.
New ω -Stable Planes.
- SEMINARS AND COLLOQUIA (INVITED SPEAKER)
- 2018 +972 Model Theory Seminar (joint Jerusalem, Haifa and Be’er Sheva seminar).
Jerusalem, Israel, ??..11.18.
First-Order Model Theory of Free Projective Planes.

- 2018 Colloquium of the Department of Mathematics of the University of Camerino.
Camerino, Italy, 23.10.18.
Admissibility of a Polish Group Topology and some Progress on the Haar Measure Problem.
- 2018 Logic Seminar - Hebrew University of Jerusalem.
Jerusalem, Israel, 30.5.18.
On the Admissibility of a Polish Group Topology.
- 2017 Logic Seminar - University of Camerino.
San Benedetto del Tronto, Italy, 21.12.17.
Geometric Lattices, Incidence Structures and Abstract Elementary Classes.
- 2017 Logic Seminar - Hebrew University of Jerusalem.
Jerusalem, Israel, 24.4.17.
On the Strong Small Index Property.
- 2016 Field Arithmetic Seminar - Tel Aviv University.
Tel Aviv, Israel, 7.12.16.
Coxeter Groups and Abstract Elementary Classes.
- 2015 Logic Seminar - University of Illinois at Chicago.
Chicago, USA, 15.1.15.
Database Independence, Boolean Algebras and Independence Logic.
- 2014 Finite Model Theory Seminar - University of Helsinki.
Helsinki, Finland, 28.9.14.
Quantum Team Logic and Bell's Inequalities.
- CONTRIBUTED TALKS
- 2018 Logic Colloquium 2018.
Udine, Italy, 23-28.7.18.
First-Order Model Theory of Free Projective Planes.
- 2017 XXVI Meeting of the Italian Association for Logic and its Applications.
Padova, Italy, 25-28.9.17.
Polish Topologies for Graph Products of Groups.

- 2017 Symmetry in Finite and Infinite Structures (satellite workshop to Peter Cameron's 70th Birthday Conference "All Kinds of Mathematics Remind me of You").
Lisbon, Portugal, 28.7.17.
On the Strong Small Index Property.
- 2014 IX Scandinavian Logic Symposium.
Tampere, Finland, 25-27.8.14.
Independence Logic and Atomless Boolean Algebras.
- 2014 Third East-Asian School on Logic, Language and Computation.
Beijing, China, 1-23.7.14.
Independence Logic and Atomless Boolean Algebras.

Selected Publications

- [A] Tapani Hyttinen, Gianluca Paolini, and Jouko Väänänen.
Quantum Team Logic and Bell's Inequalities.
Rev. Symb. Log. **8** (2015), no. 4, 722-742.
- [B] Gianluca Paolini and Saharon Shelah.
Group Metrics for Graph Products of Cyclic Groups.
Topology Appl. **232** (2017), 281-287.
- [C] Gianluca Paolini.
The Class of Countable non-Desarguesian Projective Planes is Borel Complete.
Proc. Amer. Math. Soc. **146** (2018), 4927-4936.
- [D] Gianluca Paolini and Saharon Shelah.
Polish Topologies for Graph Products of Groups.
Submitted, <https://arxiv.org/abs/1711.06155>.
- [E] Tapani Hyttinen and Gianluca Paolini.
First-Order Model Theory of Free Projective Planes: Part I.
Submitted, <https://arxiv.org/abs/1811.03351>.

Publications

PUBLISHED/ACCEPTED JOURNAL ARTICLES

- [1] Gianluca Paolini and Jouko Väänänen.
Dependence Logic in Pregeometries and ω -Stable Theories.
J. Symb. Log. **81** (2016), no. 1, 32-55.

- [2] Gianluca Paolini.
Independence Logic and Abstract Independence Relations.
Math. Log. Q. **61** (2015), no. 3, 202-216.

- [3] Tapani Hyttinen, Gianluca Paolini, and Jouko Väänänen.
Quantum Team Logic and Bell's Inequalities.
Rev. Symb. Log. **8** (2015), no. 4, 722-742.

- [4] Tapani Hyttinen and Gianluca Paolini.
Reduction of Database Independence to Dividing in Atomless Boolean Algebras.
Arch. Math. Logic **55** (2016), no. 3, 505-518.

- [5] Tapani Hyttinen, Gianluca Paolini, and Jouko Väänänen.
A Logic for Arguing About Probabilities in Measure Teams.
Arch. Math. Logic **56** (2017), no. 5-6, 475-489.

- [6] Gianluca Paolini.
A Finite Axiomatization of G -Dependence.
J. Log. Lang. Inf. **26** (2017), no. 3, 293-302.

- [7] Tapani Hyttinen and Gianluca Paolini.
Beyond Abstract Elementary Classes: On The Model Theory of Geometric Lattices.
Ann. Pure Appl. Logic **169** (2018), no. 2, 117-145.

- [8] Gianluca Paolini and Saharon Shelah.
The Automorphism Group of Hall's Universal Group.
Proc. Amer. Math. Soc. **146** (2018), 1439-1445.

- [9] Gianluca Paolini and Saharon Shelah.
No Uncountable Polish Group Can be a Right-Angled Artin Group.
Axioms **6** (2017), no. 2:13.
- [10] Gianluca Paolini and Saharon Shelah.
Polish Topologies for Graph Products of Cyclic Groups.
Israel J. Math. **228** (2018), 305–319.
- [11] Gianluca Paolini and Saharon Shelah.
Group Metrics for Graph Products of Cyclic Groups.
Topology Appl. **232** (2017), 281–287.
- [12] Gianluca Paolini.
The Class of Countable non-Desarguesian Projective Planes is Borel Complete.
Proc. Amer. Math. Soc. **146** (2018), 4927–4936.
- [13] Tapani Hyttinen and Gianluca Paolini.
Coxeter Groups and Abstract Elementary Classes: The Right-Angled Case.
Notre Dame J. Form. Log., to appear, <https://arxiv.org/abs/1605.06003>.
- [14] Gianluca Paolini and Saharon Shelah.
Reconstructing Structures with the Strong Small Index Property up to Bi-Definability.
Fund. Math., to appear, <https://arxiv.org/abs/1703.10498>.
- [15] Gianluca Paolini.
A Universal Homogeneous Simple Matroid of Rank 3.
Bol. Mat. (UNAL, Colombia), to appear, <https://arxiv.org/abs/1707.05069>.
- ARTICLES/CHAPTERS IN BOOKS
- [16] Gianluca Paolini and Saharon Shelah.
The Strong Small Index Property for Free Homogeneous Structures.
Submitted, <https://arxiv.org/abs/1703.10517>.
- [17] Filippo Calderoni and Gianluca Paolini.
Invariant Universality for Projective Planes.
Submitted, <https://arxiv.org/abs/1801.10107>.

SUBMITTED ARTICLES

- [18] Gianluca Paolini and Saharon Shelah.
Polish Topologies for Graph Products of Groups.
Submitted, <https://arxiv.org/abs/1711.06155>.
- [19] Gianluca Paolini and Saharon Shelah.
On a Cardinal Invariant Related to the Haar Measure Problem.
Submitted, <https://arxiv.org/abs/1809.10442>.
- [20] Gianluca Paolini and Saharon Shelah.
Some Results on Polish Groups.
Submitted, <https://arxiv.org/abs/1810.12855>.
- [21] Tapani Hyttinen and Gianluca Paolini.
First-Order Model Theory of Free Projective Planes: Part I.
Submitted, <https://arxiv.org/abs/1811.03351>.
- [22] Gianluca Paolini.
New ω -Stable Planes.
Submitted, <https://arxiv.org/abs/1709.06789>.
- [23] Gianluca Paolini and Saharon Shelah.
Automorphism Groups of Countable Stable Structures.
Submitted, <https://arxiv.org/abs/1712.02568>.

ARTICLES IN PREPARATION

- [24] John Baldwin and Gianluca Paolini.
Strongly Minimal Steiner Systems I: Existence.
In preparation.
- [25] Gianluca Paolini and Saharon Shelah.
First-Order Properties of Right-Angled Coxeter Groups.
In preparation.

ABSTRACTS

2018 Gianluca Paolini.
Independence in Model Theory and Team Semantics.
Bull. Symbolic Logic, to appear.

2018 Tapani Hyttinen and Gianluca Paolini.
First-Order Model Theory of Free Projective Planes.
Bull. Symbolic Logic, to appear.

THESES

2016 *Independence in Model Theory and Team Semantics.* PhD thesis, Helsingin Yliopisto.

2013 *Dependence Logic in Algebra and Model Theory.* Master thesis, Universiteit van Amsterdam.