

Pierre Simon

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Nationality: French

Education

- 2008–2011 **PhD in Mathematics**, *Université Paris-Sud*, Paris.
advisor: Élisabeth Bouscaren
title: Ordre et stabilité dans les théories NIP
theme: Model theory (a branch of mathematical logic)
- 2007–2008 **Masters in Mathematics**, *Université Paris 7*, Paris.
Specialized in Mathematical logic, model theory
- 2007 **Agrégation de mathématiques**.
(French national mathematics teaching competitive examination; rank: 7)
- 2008 **Diploma of the École Normale Supérieure**.
Specialized in Mathematics
- 2005–2009 **Student at École Normale Supérieure**, Paris.

Employment

- 2019–present **Associate Professor**, *University of California*, Berkeley.
- 2016–2019 **Assistant Professor**, *University of California*, Berkeley.
- 2014–2016 **Chargé de recherche, CNRS**, *Université Claude Bernard*, Lyon.
- Jan-May 2014 **Post-doctoral position**, *MSRI*, Berkeley.
- 2012–2013 **Post-doctoral position**, *Hebrew University*, Jerusalem.
- 2010–2012 **Agrégé-préparateur**, *École Normale Supérieure*, Paris.
(Teaching assistant)

Awards and grants

- 2017 NSF Research grant (DMS 1665491)
- 2017 Sloan fellowship
- 2014 Strauch Postdoctoral Scholar, Spring semester, MSRI, Berkeley
- 2013 Mark Fulk Student Award (with Roi Livni)
(Conference on Learning Theory (COLT), best paper award)
- 2012 Sacks prize
(Awarded each year to one thesis in mathematical logic, worldwide)
- 2012 Perrissin-Pirasset/Schneider prize from the Chancellerie des Universités de Paris
(Awarded each year to one thesis in mathematics defended in the Paris area)

2003 Contestant at the International Mathematical Olympiads: silver medal

Teaching / Students

- Fall 2019 Math 1B: Calculus
- Fall 2019 Math 225A: Metamathematics
- Spring 2019 Math 135: Set theory
- Spring 2019 Math 229: Model theory topics course
- Fall 2017 Math 1A: Calculus
- Spring 2017 Math 225B: Metamathematics
- Fall 2016 Math 113: Abstract Algebra and Math 125A: Introduction to logic
- 2015 Logic course, AIMS, Senegal
- 2010–2012 Teaching assistant: logic course, 3rd year students, ENS, Paris
- 2009–2010 Teaching assistant: calculus, 2nd year students, Université Paris-Sud
Voluntary tutoring of 1st and 2nd year students, Université Paris-Sud
- 2008–2009 Calculus course, CMI, Chennai, India

PhD student

- Clément Guérin (2018 – present)
- Christian d'Elbée (2015 – 2016)

Jury member

- PhD defense of Nadja Hempel, Lyon (June 2016)
- PhD defense of Samaria Montenegro, Paris (June 2015)

Publications

Book

A Guide to NIP theories

Lecture notes in Logic, Cambridge University Press 2015

Published papers

- 1 **On dp-minimal ordered structures**
J. Symbolic Logic, Vol 76, Issue 2 (2011)
- 2 **Generically stable and smooth measures in NIP theories**
with E. Hrushovski and A. Pillay
Trans. of the AMS, 365 (2013), 2341–2366
- 3 **Externally definable sets and dependent pairs**
with A. Chernikov
Israel J. of Math., Volume 194, Issue 1 (2013), 409–425

- 4 **Finding generically stable measures**
J. Symbolic Logic, Vol 77, Issue 1 (2012)
- 5 **Adding linear orders**
with S. Shelah
J. Symbolic Logic, Vol 77 (2012), 717–725
- 6 **A note on generically stable measures and fsg groups**
with E. Hrushovski and A. Pillay
Notre Dame J. of Formal Logic, Volume 53-4
- 7 **Distal and non-distal NIP theories**
Annals of Pure and Applied Logic, Vol 164-3 (2013), 294–318
- 8 **Witnessing dp-rank**
with I. Kaplan
Notre Dame J. of Formal Logic, Volume 55-3 (2014), 419–429
- 9 **Groups and fields with NTP2**
with A. Chernikov and I. Kaplan
Proceedings of the AMS 143 (2015), 395–406
- 10 **Externally definable sets and dependent pairs II**
with A. Chernikov
Trans. of the AMS, Volume 367-7 (2015), 5217–5235
- 11 **The Borel cardinality of Lascar strong types**
with I. Kaplan et B. Miller
J. London Math. Soc. Volume 90-2 (2014), 609–630
- 12 **Honest compressions and their application to compression schemes**
with R. Livni
Proceedings of the 26th Conference on Learning Theory (COLT), 2013
- 13 **Dp-minimality: invariant types and dp-rank**
J. Symbolic Logic, Volume 79-4 (2014), 1025–1045
- 14 **On forking and definability of types in some dp-minimal theories**
with S. Starchenko
J. Symbolic Logic, Volume 79-4 (2014), 1020–1024
- 15 **External definability and groups in NIP theories**
with A. Chernikov and A. Pillay
J. London Math. Soc. Volume 90-1 (2014), 213–240
- 16 **The affine and projective groups are maximal**
with I. Kaplan
Trans of the AMS, 368-7 (2016) 5229–5245
- 17 **Invariant types in NIP theories**
J. Math. Logic, Volume 15-2 (2015)
- 18 **Rosenthal compacta and NIP formulas**
Fundamenta Mathematicae, Volume 231 (2015) 81–92
- 19 **VC-sets and generic compact domination**
Israel J. of Math., Volume 218, Issue 1 (2017) 27–41

- 20 **A Note on “Regularity lemma for distal structures”**
Proceedings of the AMS, Volume 144-8 (2016) 3573–3578
- 21 **Dp-minimal valued fields**
with F. Jahnke and E. Walsberg
J. Symbolic Logic, Volume 82-1 (2017) 151-165
- 22 **Definable and invariant types in enrichments of NIP theories**
with S. Rideau
J. Symbolic Logic, Volume 82-1 (2017) 317-324
- 23 **Tame topology over dp-minimal structures**
with E. Walsberg
Notre Dame J. of Formal Logic, to appear
- 24 **Exact saturation in simple and NIP theories**
with I. Kaplan and S. Shelah
J. Math Logic, Volume 17-1 (2017)
- 25 **Type decomposition in NIP theories**
J. European Math. Soc., to appear
- 26 **Some remarks on dp-minimal groups**
with I. Kaplan and E. Levi
in *Groups, Modules, and Model Theory - Surveys and Recent Developments, Springer (2017)*
- 27 **Definably amenable NIP groups**
with A. Chernikov
J. American Math. Soc., 31 (2018), no. 3, 609–641
- 28 **Groups with f-generics in NTP₂ and PRC fields**
with S. Montenegro and A. Onshuus
J. Instit. Math. Jussieu, to appear
- 29 **NIP Henselian valued fields**
with F. Jahnke
Archive Math. Logic, to appear
- 30 **Boundedness and absoluteness of some dynamical invariants in model theory**
with K. Krupinski and L. Newelski
J. Math. Logic, to appear
- 31 **On amalgamation in NTP₂ theories and generically simple generics**
Notre Dame J. of Formal Logic., to appear
- 32 **Automorphism groups of finite topological rank**
with I. Kaplan
Trans. of the AMS, to appear
- 33 **Henselian valued fields and inp-minimality**
with A. Chernikov
J. Symbolic Logic, to appear
- 34 **The classification of homogeneous finite-dimensional permutation structures**
with S. Baunfeld
Electronic Journal of Combinatorics, to appear

Preprints

- P1 **Some NIP-like phenomena in NTP_2**
with I. Kaplan
- P2 **NIP ω -categorical structures: the rank 1 case**
- P3 **Linear orders in NIP structures**
- P4 **On omega-categorical structures with few finite substructures**
- P5 **Dp and other minimalities**
with E. Walsberg

Invited talks

International conferences

- Nov 2019 MAMLS Meeting, Rutgers University
Classification of NIP structures
- July 2019 Midsummer combinatorial workshop, Prague
A conjecture on linearly ordered structures
- June 2019 Model theory of valued fields and application, Münster, Germany
Towards a classification theory for NIP structures
- Dec 2018 CMS Winter meeting, special session in honor of Robert Woodrow, Vancouver
Geometric homogeneous structures
- Oct 2018 Conference in honor of Dave Marker, Chicago
Omega-categorical linear orders
- Oct 2018 Neostability theory, Oaxaca
Linear orders in NIP structures
- Sept 2018 From permutation groups to model theory, Edinburgh
On geometric homogeneous structures
- July 2018 Midsummer combinatorial workshop, Prague
Classification of homogeneous geometric structures
- Jan 2018 Model theory and combinatorics workshop, Paris
On finite dimensional omega-categorical structures and NIP theories
- Nov 2017 AMS meeting, Riverside CA
Automorphism groups of finite topological rank
- Oct 2017 MAMLS meeting, Wesleyan University
Automorphism groups of finite topological rank
- Aug 2017 Logic Colloquium, Stockholm
Recent advances in model theory
- Jul 2017 Workshop on model theory and dynamics, Villa de Leyva, Colombia
Generic types in definable groups
- Jul 2017 Model theory, Bedlewo
Finitely generated dense subgroups of $\text{Aut}(M)$

- Nov 2016 Permutation groups, Banff
The affine and projective groups are maximal closed
- Jul 2015 Neostability theory, Oaxaca
Decomposition of types in NIP theories
- Jun 2015 When topological dynamics meets model theory, Marseille
Compact domination for NIP groups
- Jan 2015 VIG meeting, UCLA
Rosenthal compacta and NIP formulas
- Jun 2014 LYMOTS seminar, Manchester
Topological properties of the space of types in NIP theories
- Feb 2014 Model theory, arithmetic geometry and number theory, Final workshop, MSRI
Definably amenable NIP groups
- Jul 2012 Logic Colloquium, Manchester, UK. Special session
Type decompositions in NIP theories
- Jan 2012 Neostability theory, Banff, Canada
Externally definable sets in NIP theories
- Jun 2011 Recent developments in model theory, Oléron
Distal NIP Theories
- Mar 2011 ASL North American Annual Meeting, Berkeley
Distal NIP Theories
- Jan 2010 Model Theory: Around Valued Fields and Dependent Theories, Oberwolfach
Generically stable measures
- Feb 2009 Stable methods in unstable theories, Banff, Canada
Measures in NIP theories

Tutorials and lecture series

- July 2019 Graphs and networks in context, Prague
First order logic and 0/1 laws for random graphs (4 hours)
- Nov 2018 Sparsity Doccourse, Prague
Introduction to stability theory (7 hours)
- Jan 2018 Théorie des modèles, combinatoire et corps valués, Paris
NIP theories (9 hours)
- Jul 2017 SLALM 2017, Puebla, Mexico
Groups, measures and the NIP condition (3 hours)
- Jun 2016 Thematic program on model theory, University of Notre Dame, IN
NIP, measures and combinatorics (4 hours)
- Jan 2016 Model Theory: Groups, Geometry, and Combinatorics, Oberwolfach
The strong Erdős-Hajnal property for distal theories
- Apr 2016 Spring school in model theory, Münster, Germany
NIP and definably amenable groups (8 hours)

- Feb 2014 Model theory, arithmetic geometry and number theory, Introductory workshop, MSRI
Introduction to model-theoretic techniques
- Jan 2013 Model Theory: Groups, Geometry, and Combinatorics, Oberwolfach
Pseudofinite structures

Seminar talks

- Sept 2018 Logic Colloquium, Berkeley
On geometric homogeneous structures
- Feb 2018 Model theory seminar, Oxford
Linear orders in NIP structures
- Apr 2017 Model theory seminar, Berkeley
On the topological rank of $\text{Aut}(M)$
- Aug 2016 Model theory seminar, Berkeley
Groups definable in PRC fields
- May 2016 Séminaire de logique, Lyon
Groupes définissables dans les corps PRC
- May 2016 Logic seminar, Pise
Distal theories and combinatorics & Definably amenable groups
- Mar 2016 Logic seminar, Worclaw
Around NTP_2 and stabilizers
- Feb 2016 Logic seminar, Bogotá
Decomposing NIP theories
- Nov 2015 Logic seminar, Münster
Type decomposition in NIP theories
- Jun 2015 GTM, Paris
Décompositions de types dans les théories NIP
- May 2015 Logic seminar, Turin
Order and stability in NIP theories
- Mar 2015 Logic seminar, Oxford
Invariant types in NIP theories
- Jan 2015 Model theory seminar, Jerusalem
Rosenthal compacta and NIP formulas
- Jul 2014 Logic seminar, Freiburg
Definably amenable NIP groups
- Nov 2013 Model theory seminar, Jerusalem
Model-theoretic tame dynamics
- Nov 2012 Departmental Colloquium, Haifa
VC-dimension: a point of contact between combinatorics and model theory
- May 2012 Model theory seminar, Oxford
Invariant types in NIP theories

- Mar 2012 Séminaire de logique mathématique, Institut Camille Jourdan, Lyon
S-indépendance dans les théories NIP
- Nov 2011 Géométrie et théorie des modèles, ENS Paris
Théorème de Szemerédi et structures pseudofinies
- Sep 2010 Séminaire général de logique, Université Paris 7
Théories NIP et principe de réflexion de Shelah
- May 2010 Géométrie et théorie des modèles, ENS Paris
Stabilité dans les théories NIP (à l'aide de mesures)
- Jun 2009 Séminaire de logique mathématique, Institut Camille Jourdan, Lyon
Mesures génériquement stables
- Jun 2009 Structures algébriques ordonnées, Université Paris 7
Structures dp-minimales et arbres