

Born: March 11 1988  
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## Employment

- 2018– **Researcher**, CNRS, IMJ-PRG, Université Paris Diderot, France.
- 2015–2017 **Postdoctoral position**, Morrey Visiting Assistant Professor, Mathematics department, UC Berkeley, USA.
- 2012–2015 **Teaching Assistant**, DMA , École normale supérieure, Paris, France.

## Education

- 2011–2014 **Ph.D. in Mathematics**, Université Paris-Sud, Orsay, France.  
supervisors: Élisabeth Bouscaren (Université Paris-Sud, Orsay, France),  
Tom Scanlon (UC Berkeley, USA),  
thesis: *Eliminations in valued fields.*
- 2010–2011 **Master 2**, Université Paris Diderot, France.  
Master de Logique Mathématique et Fondements de l'Informatique (LMFI),  
supervisor: Élisabeth Bouscaren,  
thesis: *Imaginaires dans les corps  $p$ -adiques.*
- Spring 2010 **Research internship**, Cambridge University, UK  
encadrant: Glynn Winskel,  
topic: Sémantique des jeux concurrents.
- Summer 2009 **Research internship**, INRIA, Rocquencourt, France.  
supervisor: Xavier Leroy,  
topic: Compilation certifiée.
- 2008–2012 **Student at the École normale supérieure**, Paris, France.  
2009–2010 Master 1 de Mathématiques.  
2008–2009 Licence 3 in Mathématiques.

## Grants and awards

- 2018–2019 PEPS JCJC.
- 2018–2021 Prime d'encadrement doctoral et de recherche (PEDR).
- 2016–2018 AMS-Simons Travel Grant.
- 2015 Thiessé de Rosemont/Demassieux prize from the Chancellerie des universités de Paris.  
Awarded each year to one thesis in mathematics defended in the Paris area.
- 2014 Best talk by a Ph.D. student, BPGMT14.

## Publications and preprints

- submitted
  1. *Hensel minimality*, with Raf Cluckers and Immi Halupczok. arXiv:1909.13792.
  2. *A short note on groups in separably closed valued fields*. arXiv:1612.02165.
- to appear
  3. *Imaginaires in pseudo- $p$ -adically closed fields*, with Samaria Montenegro. To appear in Transactions of the American Mathematical Society. arXiv:1802.00256.
- 2019
  4. *Metastable groups, Valued fields*, with Ehud Hrushovski. Selecta Mathematica (New Series), 25(3), 2019.
  5. *Imaginaires and invariant types in existentially closed valued differential fields*. Journal für die reine und angewandte Mathematik (Crelle's Journal), 750, pp 157–196, 2019.
- 2018
  6. *Definable equivalence relations and zeta functions of groups*, with Ehud Hrushovski and Ben Martin, with an appendix by Raf Cluckers. Journal of the European Mathematical Society (JEMS), 20, pp 2467–2537, 2018.

7. *Imaginaries in separably closed valued fields*, with Martin Hils and Moshe Kamensky. Proceedings of the London Mathematical Society, 116, pp 1457–1488, 2018.
- 2017 8. *Games and Strategies as Event Structures*, with Simon Castellan, Pierre Clairambault and Glynn Winskel. Logical Methods in Computer Science, 13(3), 2017.
9. *Definable and invariant types in enrichments of NIP theories*, joint with Pierre Simon. Journal of Symbolic Logic, 82(1), pp 317–324, 2017.
10. *Some properties of analytic difference valued fields*. Journal of the Institute of Mathematics of Jussieu 16(3), pp 447–499, 2017.
- 2011 11. *Concurrent Strategies*, with Glynn Winskel. In Logic in Computer Science (LICS 2011), pp 409–418, 2011.
- 2010 12. *Validating Register Allocation and Spilling*, with Xavier Leroy. In Compiler Construction (CC 2010), volume 6011 of Lecture Notes in Computer Science, pp 224–243, Springer, 2010.

## Teaching

### Université Paris Diderot, France:

- Winter 2020 Théorie des modèles des corps pseudo-finis (M2 LMFI), enseignant.  
 Winter 2019 Théorie des modèles des corps pseudo-finis (M2 LMFI), enseignant.

### UC Berkeley, USA:

- Fall 2017 Math 113 — Abstract algebra, instructor.  
 Math 225 — Metamathematics (graduate course), instructor.  
 Spring 2017 Math 113 — Abstract algebra, instructor.  
 Fall 2016 Math 113 — Abstract algebra, instructor.  
 Math 225 — Metamathematics (graduate course), instructor.  
 Spring 2016 Math 113 — Abstract algebra, instructor.  
 Fall 2015 Math 125 — Mathematical logic, instructor.

### École normale supérieure, Paris, France:

- Fall 2014 Logic, teaching assistant.  
 Fall 2013 Logic, teaching assistant.  
 Fall 2012 Logic, teaching assistant.  
 Fall 2011 Debating (British Parliamentary style), instructor.  
 2010–2012 Exercice session for first year MPSI “classes préparatoires”, Lycée Chaptal, Paris, France.  
 2008–2011 Mathematics and physics tutoring for high school students, as part of Talens.

## Supervision

- Spring 2019 Undergrad internship,  
 topic : Introduction to model theory.
- Fall 2017 Reading course.  
 topic : *Introduction to Stability Theory*, Anand Pilay.  
 Undergrad reading course.  
 topic : *Introduction to Model Theory*, Dave Marker.
- Spring 2017 Graduate reading course.  
 topic : Continuous logic.
- Spring 2013 First year thesis,  
 topic : *Elimination of quantifier in  $p$ -adic fields and  $p$ -adic integration*.
- 2012–2015 Tutoring for students of the École normale supérieure.

## Organization of scientific events

- June 2020 “Model Theory: from geometric stability to tame geometry” conference, in honor of Ehud Hrushovski’s 60th birthday, CIRM, Marseille, France.  
coorganizers: Assaf Hasson and Frank Wagner;  
scientific committee: Elisabeth Bouscaren, Antoine Ducros, Dugald Macpherson and Thomas Scanlon.
- 2018– “Séminaire général de logique”, at the Université Paris Diderot, France.  
coorganizers: O. Finkel, T. Ibarlucia, A. Khelif, C. Suresson, A. Vignati.
- Winter 2018 Biweekly seminar of the “Model Theory, Combinatorics and Valued Fields” trimester, IHP, Paris, France.  
coorganizer: A. Onshuus
- 2015–2017 Model theory seminar at UC Berkeley, USA.  
coorganizer: P. Simon
- 2014–2015 Ph.D student seminar, the “Séminaire de l’Abbé Mole”, École normale supérieure, Paris, France  
coorganizers: J. Bureaux, B. Mallein, V. Pecastaing

## Other activities

- 2018– Member of the scientific committee of the UFR de Mathématiques of the Université Paris Diderot.

## Semesters and scientific stays

- Winter 2018 “Model Theory, Combinatorics and Valued Fields” trimester, IHP, Paris, France.  
Spring 2014 “Model Theory, Arithmetic Geometry and Number Theory” semester, MSRI, Berkeley, USA.

## Invited lectures

- 2019 Jul. **Workshop on Recent Applications of Model Theory**, Fields Institute, Toronto, Canada.  
*Asymptotic imaginaries in  $\mathbb{F}_p((t))^{\text{alg}}$  with the Frobenius.*
- Jun. **Model theory of Valued fields and Applications**, Münster, Germany  
*An Imaginary Ax-Kochen-Ershov principle.*
- 2018 Oct. **Workshop on the model theory of valued fields**, IPM, Tehran, Iran.  
*Model theory of algebraically closed valued fields, mini-cours de 4,5 h.*
- Jun. **Second congrès de la SMF**, “Arithmétique, Logique” session, Lille, France.  
*Imaginaires dans les corps Henséliens de caractéristique zéro.*
- Mar. **Model theory of valued fields workshop**, Institut Henri Poincaré, Paris, France.  
*Toward an imaginary Ax-Kochen-Ershov principle.*
- 2017 Dec. **Seemod Workshop 5**, Imperial College, London, UK:  
*Groups and fields definable in algebraically closed valued fields.*
- Nov. **AMS Western Sectional meeting**, Model theory session, UC Riverside, USA:  
*Groups and fields definable in algebraically closed valued fields.*
- Sep. **DART VIII**, Linz, Austria:  
*Prolongations in valued fields.*
- Jul. **Berkovich spaces, tropical geometry and model theory**, Bogotá, Columbia:  
*Groups with stably dominated generics.*
- Model Theory and dynamics**, Villa de Leyva, Columbia:  
*Eliminating imaginaries: invariant extensions and amalgamation.*
- Model Theory**, Bedlewo, Poland:  
*Imaginaries in pseudo- $p$ -adically closed fields.*
- 2016 Jul. **Interactions between Model Theory and Arithmetic Dynamics**, Fields Institute, Toronto, Canada:  
*Groups with definable generics, group chunks and separably closed valued fields.*
- May **ASL Annual Meeting**, Model theory session, University of Connecticut, Storrs, USA:  
*Imaginaries in valued fields with operators.*
- Antalya Algebra Days XVIII**, Nesin Mathematics Village, Şirince, Turkey:

- 2015 Aug. **LC'15 ASL**, Model theory special session, Helsinki, Finland:  
*The model theory of valued differential fields.*  
 Imaginaries and definable types in valued differential fields.
- May **Arithmetic and algebraic differentiation**, in honor of Alexandru Buium, UC Berkeley, USA:  
*The model theory of analytic difference valued fields.*
- 2014 May **Model Theory in Geometry and Arithmetic**, MSRI, Berkeley, USA:  
*Transferring imaginaries: from ACVF to  $\mathbb{Q}_p$ .*

## Seminars and conferences

- 2019 Nov. **Model Theory Seminar**, WWU Münster, Germany.  
*A model theoretic account of the tilting equivalence.*  
**Model Theory Seminar**, UC Berkeley, USA:  
*Imaginaries in valued fields.*
- Oct. **Number Theory Seminar**, ETH, Zurich, Switzerland:  
*Interpretable groups in algebraically closed valued fields.*  
**Géométrie et Théorie des modèles**, École normale supérieure, Paris, France:  
*Hensel minimalité.*
- Mai **Logic Seminar**, University of Oxford, UK  
*An Imaginary Ax-Kochen-Ershov principle.*
- 2018 Nov. **Structures algébriques ordonnées**, Université Paris Diderot, France:  
*Imaginaires dans les corps Henséliens II: Invariance des types au dessus de RV.*  
**Séminaire de logique**, Université Lyon I, France:  
*Imaginaires dans les corps Henséliens.*  
**Structures algébriques ordonnées**, Université Paris Diderot, France:  
*Imaginaires dans les corps Henséliens I : densité des types sans quantificateurs définissables.*
- Oct. **Neostability Theory**, CMO, Oaxaca, Mexico:  
*Metastability.*
- Juin **Théorie des modèles et groupes**, Université Paris Diderot, France:  
*Corps interprétables dans ACVF.*  
**Model Theory Seminar**, WWU Münster, Germany.  
*Corps interprétables dans ACVF.*
- 2017 Dec. **Logic Seminar**, University of Chicago, USA:  
*Imaginaries in pseudo- $p$ -adically closed fields.*
- Nov. **Math Monday**, Undergrad lecture, UC Berkeley, USA:  
*Between characteristics.*
- Sep. **Colloquium**, University of Indiana at Bloomington, USA:  
*Counting subgroups and representations: a model theoretic approach.*
- Jan. **Séminaire général de logique**, Université Paris Diderot, France:  
*Groupes définissables dans des corps enrichis.*  
**Géométrie et théorie des modèles**, École Normale Supérieure, Paris, France:  
*Imaginaires dans les corps valués avec opérateurs.*  
**Model Theory Seminar**, WWU Münster, Germany.  
*Imaginaries in pseudo- $p$ -adically closed fields.*
- 2016 Oct. **Model Theory Seminar**, CUNY, New-York, USA:  
*Imaginaries in Valued Differential Fields II: Computing Canonical Bases.*  
**Kolchin Seminar**, CUNY, New-York, USA:  
*Imaginaries in Valued Differential Fields I: Finding Prolongations.*
- Jun. **Théorie des Modèles et Groupes**, Université Paris Diderot, France:  
*Imaginaires dans les pseudo- $p$ -adiquement clos.*
- Apr. **Logic Colloquium**, UCLA, USA:  
*Imaginaries in valued fields with operators.*  
**Model Theory Seminar**, McMaster University, Hamilton, Canada:  
*Imaginaries in separably closed valued fields.*

- 2015 Nov. **Logic Colloquium**, UC Berkeley, USA:  
*Transferring imaginaries.*
- Jul. **“Neostability theory”**, CMO, Oaxaca, Mexico:  
*Definable and invariant types in enrichments of NIP theories.*
- Jun. **Géométrie et théorie des modèles**, Université Paris Diderot, France:  
*Problèmes de comptage en théorie des groupes et imaginaires  $p$ -adiques.*
- Mar. **Model theory seminar**, UC Berkeley, USA:  
*Valued differential fields, Imaginaries and the independence property.*
- Feb. **Séminaire de Logique Mathématique**, Université Lyon I, France:  
*Imaginaires dans les corps valués différentiels et propriété d’indépendance.*
- Jan. **British Postgraduate Model Theory Conference**, Oxford University, UK:  
*Imaginaries in valued differential fields and the independence property.*
- 2014 Nov. **Séminaire général de logique**, Université Paris Diderot, France:  
*Problèmes de comptage en théorie des groupes et imaginaires  $p$ -adiques.*
- Sep. **Théorie des modèles et groupes**, Université Paris Diderot, France:  
*Imaginaires dans les corps valués différentiels.*
- Jun. **Séminaire d’arithmétique** Université Lille I, France:  
*Corps analytiques de différence.*
- Mar. **Model theory seminar**, UC Berkeley, USA:  
*Analytic difference fields.*
- Jan. **British Postgraduate Model Theory Conference**, University of Leeds, UK:  
*Analytic difference fields.*
- 2013 Dec. **Théorie des modèles et groupes**, Université Paris Diderot, France:  
*Corps analytiques de différence.*
- Sep. **Séminaire de Logique Mathématique**, Université Lyon I, France:  
*Transferts d’imaginaires: Comment éliminer les imaginaires dans les corps  $p$ -adiques.*
- Apr. **Model theory seminar**, UC Berkeley, USA:  
*Transferring imaginaries: how to eliminate imaginaries in  $p$ -adic fields.*
- Jan. **British Postgraduate Model Theory Conference**, University of Manchester, UK:  
*Transferring imaginaries: how to eliminate imaginaries in  $p$ -adic fields.*
- 2012 Dec. **Théorie des modèles et groupes**, Université Paris Diderot, France:  
*Nombres  $p$ -adiques et imaginaires II.*
- Nov. **Structures algébriques ordonnées**, Université Paris Diderot, France:  
*Nombres  $p$ -adiques et imaginaires I.*