

MATTHIEU SOZEAU  
8 rue Jean Poulain  
44300 Nantes, France

Phone: (+33) 6 88 36 74 27

[matthieu.sozeau@inria.fr](mailto:matthieu.sozeau@inria.fr)

<https://sozeau.gitlabpages.inria.fr/www/>



Researcher at Inria Nantes, project-team Gallinette.  
Born February 22nd 1982 in Massy.  
French nationality.

## Projects and Grants

---

- **Coordinator** of the Coq development team since 2016 and major contributor to Coq since 2005.
- Lead developer of the Coq **Equations** plugin and the **MetaCoq** project.
- Member of the **CertiCoq** project, led by Andrew Appel at Princeton University.
- ERC Starting Grant **CoqHoTT** led by Nicolas Tabareau (Inria Rennes, École des Mines de Nantes), 2015-2020. Collaborator.

## Jobs, visits and internships

---

Since December 2019

June-July 2019

September-December 2012

October 2010 - December 2019

March 2009 - September 2010

September to December 2008

2005-2008

2005-2008

March to September 2005

**Researcher (CRCN).** INRIA Nantes, Gallinette team.

**Visit of the NSF DeepSpec project.** University of Pennsylvania, Philadelphia, PA, USA.

**Member of the Univalent Foundations program.** Institute for Advanced Study, Princeton, NJ, USA.

**Junior Researcher (CRCN).** INRIA Paris, pi.r2 team.

**Postdoctoral Fellow.** Harvard University.

**Temporary researcher at CNRS.** Paris XI University.

**PhD Thesis funded by the french government.** Paris XI University.

**Teaching assistant position in Computer Science.** Paris XI University.

**Master internship on the development of an environment for programming with dependent types.** With CHRISTINE PAULIN-MOHRING. Paris XI University.

## Teaching

---

- 2012-2023: **Proof assistants**  
Parisian Master of Research in Computer Science (MPRI), M2 Research lecture
- 2005-2008: **Teaching assistant at Université Paris Sud XI**  
Licence, Monitorat

## Education

---

2009-10	<b>Postdoctoral studies in the Ynot group.</b> <i>Working with Greg Morrisett and his team on Coq and Ynot.</i> Harvard University.
2005-08	<b>PhD in Computer Science.</b> <i>With honors.</i> Paris XI University.
2004-05	<b>Master of research in Computer Science.</b> <i>Grade A.</i> Paris VII University - Denis Diderot.
2003-04	<b>”Maitrise” of Computer Science.</b> <i>Grade B.</i> Paris XI University.
2002-03	<b>Licence in Computer Science.</b> <i>Grade B.</i> Paris XI University.
2000-02	<b>University Diploma of Technology in Computer Science.</b> <i>Grade B.</i> Orsay’s Institute of Technology.

## Drafts

---

- Kenji Maillard, Nicolas Margulies, Matthieu Sozeau, Nicolas Tabareau, and Eric Tanter. [The Multiverse: Logical Modularity for Proof Assistants](#). Submitted, July 2021

## Books

---

- The Univalent Foundations Program. [Homotopy Type Theory: Univalent Foundations for Mathematics](#). Institute for Advanced Study, 2013

## Journals

---

- Nicolas Tabareau, Éric Tanter, and Matthieu Sozeau. [The Marriage of Univalence and Parametricity](#). *J. ACM*, 68(1), January 2021. ISSN 0004-5411
- Matthieu Sozeau, Simon Boulier, Yannick Forster, Nicolas Tabareau, and Théo Winterhalter. [Coq Coq Correct! Verifying Typechecking and Erasure for Coq, in Coq](#). *Proceedings of the ACM on Programming Languages*, 4(POPL), January 2020b
- Matthieu Sozeau, Abhishek Anand, Simon Boulier, Cyril Cohen, Yannick Forster, Fabian Kunze, Gregory Malecha, Nicolas Tabareau, and Théo Winterhalter. [The MetaCoq Project](#). *Journal of Automated Reasoning*, 64(5):947–999, 2020a
- Matthieu Sozeau and Cyprien Mangin. [Equations Reloaded: High-Level Dependently-Typed Programming and Proving in Coq](#). *PACMPL*, 3(ICFP):86–115, August 2019
- Gaëtan Gilbert, Jesper Cockx, Matthieu Sozeau, and Nicolas Tabareau. [Definitional Proof-Irrelevance without K](#). In *46th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2019)*, POPL, Lisbon, Portugal, January 2019
- Nicolas Tabareau, Éric Tanter, and Matthieu Sozeau. [Equivalences for free: univalent parametricity for effective transport](#). *PACMPL*, 2(ICFP):92:1–92:29, 2018
- Beta Ziliani and Matthieu Sozeau. [A Comprehensible Guide to a New Unifier for CIC Including Universe Polymorphism and Overloading](#). *Journal of Functional Programming*, 27:e10, 2017
- Ana Bove, Alexander Krauss, and Matthieu Sozeau. [Partiality and recursion in interactive theorem provers – an overview](#). *Mathematical Structures in Computer Science*, FirstView:1–51, 2 2015. ISSN 1469-8072
- Matthieu Sozeau. [A New Look at Generalized Rewriting in Type Theory](#). *Journal of Formalized Reasoning*, 2(1):41–62, December 2009a

## International Conferences

---

- Antoine Allieux, Eric Finster and Matthieu Sozeau. [Types are Internal  \$\infty\$ -groupoids](#). *LICS*, January 2021. Extended version of the LICS 2021 article
- Théo Winterhalter, Matthieu Sozeau, and Nicolas Tabareau. [Eliminating reflection from type theory](#). In Assia Mahboubi and Magnus O. Myreen, editors, *Proceedings of the 8th ACM SIGPLAN International Conference on Certified Programs and Proofs, CPP 2019, Cascais, Portugal, January 14-15, 2019*, pages 91–103. ACM, 2019
- Amin Timany and Matthieu Sozeau. [Cumulative Inductive Types In Coq](#). In H el ene Kirchner, editor, *FSCD*, volume 108 of *LIPICs*, pages 29:1–29:16, July 2018
- Abhishek Anand, Simon Boulier, Cyril Cohen, Matthieu Sozeau, and Nicolas Tabareau. [Towards Certified Meta-Programming with Typed Template-Coq](#). In Jeremy Avigad and Assia Mahboubi, editors, *ITP 2018*, volume 10895 of *LNCS*, pages 20–39. Springer, July 2018
- Andrej Bauer, Jason Gross, Peter LeFanu Lumsdaine, Michael Shulman, Matthieu Sozeau, and Bas Spitters. [The HoTT library: a formalization of homotopy type theory in Coq](#). In Yves Bertot and Viktor Vafeiadis, editors, *Proceedings of the 6th ACM SIGPLAN Conference on Certified Programs and Proofs, CPP 2017, Paris, France, January 16-17, 2017*, pages 164–172. ACM, 2017
- Guilhem Jaber, Gabriel Lewertowski, Pierre-Marie P edrot, Matthieu Sozeau, and Nicolas Tabareau. [The Definitional Side of the Forcing](#). In Martin Grohe, Eric Koskinen, and Natarajan Shankar, editors, *LICS '16*, pages 367–376. ACM, 2016
- Beta Ziliani and Matthieu Sozeau. [A Unification Algorithm for Coq featuring Universe Polymorphism and Overloading](#). In *ACM SIGPLAN International Conference on Functional Programming 2015*, 2015
- Matthieu Sozeau and Nicolas Tabareau. [Universe Polymorphism in Coq](#). In Gerwin Klein and Ruben Gamboa, editors, *ITP 2014*, volume 8558 of *Lecture Notes in Computer Science*, pages 499–514. Springer, 2014
- Guilhem Jaber, Nicolas Tabareau, and Matthieu Sozeau. [Extending Type Theory with Forcing](#). In *Proceedings of LICS'12*, Dubrovnik, Croatia, June 2012
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Compiler](#). In *First International Conference on Interactive Theorem Proving*. Springer, July 2010b
- Matthieu Sozeau and Nicolas Oury. [First-Class Type Classes](#). In C esar Mu noz Otmane Ait Mohamed and Sof ene Tahar, editors, *TPHOLs*, volume 5170 of *LNCS*, pages 278–293. Springer, August 2008 (18/40)
- Matthieu Sozeau. [Program-ing Finger Trees in Coq](#). In *ICFP'07*, pages 13–24, Freiburg, Germany, 2007a. ACM Press (26/103)
- Matthieu Sozeau. [Subset Coercions in Coq](#). In Thorsten Altenkirch and Conor McBride, editors, *TYPES'06*, volume 4502 of *Lecture Notes in Computer Science*, pages 237–252. Springer, 2007c (17/29)

## International Workshops

---

- Matthieu Sozeau. [Touring the MetaCoq Project](#). In *LFMTP 2021*, Online, July 2021b. Invited paper
- Matthieu Sozeau, Simon Boulier, Yannick Forster, Nicolas Tabareau, and Th eo Winterhalter. [Coq Coq Codet! Towards a Verified Toolchain for Coq in MetaCoq](#). Abstract for the Coq Workshop 2019, July 2019

- Matthieu Sozeau. [Nested, Well-Founded and Mutual recursion in Equations](#). Talk given at the EUTypes 2018 Working Meeting, January 2018a
- Simon Boulier, Matthieu Sozeau, Nicolas Tabareau, and Abhishek Anand. [Typed Template Coq](#). In *CoqPL'18*, Los Angeles, CA, USA, January 2018
- Abhishek Anand, Andrew Appel, Greg Morrisett, Zoe Paraskevopoulou, Randy Pollack, Olivier Savary Belanger, Matthieu Sozeau, and Matthew Weaver. [CertiCoq: A verified compiler for Coq](#). In *CoqPL*, Paris, France, January 2017
- Cyprien Mangin and Matthieu Sozeau. [Equations for Hereditary Substitution in Leivant's Predicative System F: A Case Study](#). In *Proceedings Tenth International Workshop on Logical Frameworks and Meta Languages: Theory and Practice*, volume 185 of *EPTCS*, May 2015. LFMTTP'15
- Matthieu Sozeau. [A New Look at Generalized Rewriting in Type Theory](#). *1st Coq Workshop proceedings*, August 2009b

## National Conferences

---

- Matthieu Sozeau and Nicolas Oury. [Classes de types de première classe](#). In *Journées Nationales du GDR GPL*, Toulouse, France, January 2009

## Theses

---

- Matthieu Sozeau. [Un environnement pour la programmation avec types dépendants](#). PhD thesis, Université Paris 11, Orsay, France, December 2008e
- Matthieu Sozeau. [Coercion par prédicats en Coq](#). Master's thesis, Université Paris VII, LRI, Orsay, 2005

## Research Reports

---

- Amin Timany and Matthieu Sozeau. [Consistency of the Predicative Calculus of Cumulative Inductive Constructions \(pCuIC\)](#). Research Report RR-9105, KU Leuven, Belgium ; Inria Paris, October 2017

## Software

---

- Matthieu Sozeau, Pierre-Marie Pédrot, Cyprien Mangin, Gaëtan Gilbert, Emilio Jesús Gallego Arias, Hugo Herbelin, Maxime Dénès, Robin Green, Enrico Tassi, Guillaume Claret, Siddharth, Anton Trunov, Jim Fehrle, Joachim Breitner, Karl Palmskog, Kenji Maillard, antonio nikishaev, John Wiegley, SimonBoulier, Søren Nørbæk, Théo Zimmermann, Vincent Laporte, and Yves Bertot. [mattam82/Coq-Equations: Equations 1.3 for Coq 8.17](#), version *v1.3-8.17*. January 2023
- Matthieu Sozeau, Théo Winterhalter, SimonBoulier, Yannick Forster, Abhishek Anand, Meven Lennon-Bertrand, nicolas tabareau, Gregory Malecha, Jakob Botsch Nielsen, Pierre-Marie Pédrot, Kenji Maillard, Danil Annenkov, Gaëtan Gilbert, Hugo Herbelin, Marcel Ullrich, Enrico Tassi, yannl35133, Gabriel Scherer, Maxime Dénès, Fabian Kunze, Jason Gross, Pierre Roux, Emilio Jesús Gallego Arias, Loïc, Jim Fehrle, Julin S, Karl Palmskog, Vincent Laporte, Lucas Escot, and Xia Li-yao. [MetaCoq/metacoq: MetaCoq 1.1.1 for Coq 8.16](#), version *v1.1.1-8.16*. October 2022
- Matthieu Sozeau. [Equations](#), version *1.3*. January 2022
- Matthieu Sozeau and Cyprien Mangin. [Equations](#), version *1.0*. December 2017

- The Coq Development Team. [The Coq Proof Assistant](#), version 8.16. September 2022a
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.15. January 2022b
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.14. October 2021a
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.13. January 2021b
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.12. July 2020a
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.11. January 2020b
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.10. October 2019a
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.9. January 2019b
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.8.0. Apr 2018
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.7.1. December 2017
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.6. December 2016a
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.5. January 2016b
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.4. January 2012
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.3. October 2010
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.2. October 2009
- The Coq Development Team. [The Coq Proof Assistant](#), version 8.1. October 2006

## Manuals and Tutorials

---

- Pierre Castéran and Matthieu Sozeau. [A Gentle Introduction to Type Classes and Rewriting in Coq](#), May 2012
- Matthieu Sozeau. [Coq Reference Manual](#), chapter Type Classes. Inria, 2008–2018a
- Matthieu Sozeau. [Coq Reference Manual](#), chapter User defined equalities and relations. Inria, 2008–2018b
- Matthieu Sozeau. [Coq Reference Manual](#), chapter Program. Inria, 2008–2018c

## Invited Talks and Seminars

---

- Matthieu Sozeau. [Touring the MetaCoq Project](#). Invited talk at LFMTTP'21, July 2021c
- Matthieu Sozeau. [Coq Development](#). Talk given at the 2021 Coq Workshop, July 2021a
- Matthieu Sozeau and Théo Winterhalter. [Coq Coq Correct!](#) Talk given at the Cambium Seminar, February 2021
- Matthieu Sozeau and Enrico Tassi. [Coq Development](#). In *CoqPL'21*, Online, January 2021
- Maxime Dénès and Matthieu Sozeau. [Coq Development](#). In *CoqPL'20*, New Orleans, LA, USA, January 2020
- Maxime Dénès and Matthieu Sozeau. [Coq Development](#). In *CoqPL'19*, Cascais, Portugal, January 2019

- Matthieu Sozeau. [The Predicative, Polymorphic, Cumulative Calculus of Inductive Constructions and its implementation](#). Invited talk at the TYPES 2018 conference, Braga, Portugal, June 20th 2018b
- Matthieu Sozeau, Maxime Dénès, and Yves Bertot. [Coq dev talk](#). In *CoqPL'18*, Los Angeles, CA, USA, January 2018
- Matthieu Sozeau. [Coq Development](#). In *CoqPL'17*, Paris, France, January 2017
- Matthieu Sozeau. [Coq 8.6](#). Talk at the Coq Workshop in Nancy, France, August 26th 2016
- Matthieu Sozeau. [Forcing Translations in Type Theory](#). Invited talk at the Categorical Logic and Univalent Foundations workshop, Leeds, UK, July 28th 2016c
- Matthieu Sozeau. [Coq for HoTT](#). Invited talk at the International Conference on Mathematical Software in Berlin, Germany, July 14th 2016a
- Maxime Dénès, Matthieu Sozeau. [Coq 8.6](#). Talk at the DeepSpec Kickoff Workshop in Princeton, NJ, USA, June 8th 2016
- Matthieu Sozeau Maxime Dénès. [Coq 8.5 at work](#). Talk given at the second CoqPL Workshop, January 2016
- Matthieu Sozeau. [Equations: a function definition toolbox for Coq](#). Talk at Dagstuhl, March 2016b
- Matthieu Sozeau. [Coq – Recent History](#). SIGPLAN Programming Language Software Award 2013 talk, at POPL'14, San Diego, January 23rd 2014
- Matthieu Sozeau. [Coq with Classes](#). Lecture at the "Advanced Martial Arts in Coq" course at University of Pennsylvania, October 2012a
- Matthieu Sozeau. [Coq with Classes](#). Talk given at the IAS seminar in Princeton, NJ, October 2012b
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Suite](#). Talk given at the Institute of Cybernetics, Tallinn, Estonia, May 2012d
- Matthieu Sozeau. [Coq with Classes](#). Lecture notes for a course given at JFLA'12 in Carnac, France, February 2012c
- Matthieu Sozeau. [Coq with Classes](#). Talk given at the PLAS seminar in Canterbury - UK, November 2011a
- Matthieu Sozeau. [Coq with Classes](#). Talk given at the IMDEA seminar in Madrid - Spain, October 2011b
- Matthieu Sozeau. [Coq with Classes](#). Talk given at the PPS days in Trouville - France, September 2011c
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Suite](#). Talk given at the DTP meeting in Shonan - Japan, September 2011e
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Compiler](#). Talk given at University of Chalmers - Gothenburg, January 2011d
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Compiler](#). Talk given at the University of Pennsylvania PLClub, September 2010c
- Matthieu Sozeau. [Elaborations in Type Theory](#). Invited Talk at DTP'10 - Edinburgh, UK, July 2010a
- Matthieu Sozeau. [Equations: A Dependent Pattern-Matching Compiler](#). Talk given at PPS - Université Paris 7, January 2010d

- Matthieu Sozeau. [Programming with Dependent Types in Coq](#). PPS Seminar, 26th February 2009e
- Matthieu Sozeau. [An Environment for Proving and Programming](#). LIFO Seminar, 26th January 2009d
- Matthieu Sozeau. [An Environment for Programming with Dependent Types](#). ICIS Seminar, 20th January 2009c
- Matthieu Sozeau. [First-Class Type Classes](#). Talk given at the Gallium seminar, 3rd November 2008a
- Matthieu Sozeau. [Program-ing in Coq](#). Talk given at the Foundations of Programming seminar, 15th February 2008b
- Matthieu Sozeau. [Program-ing in Coq](#). Talk given at Harvard, 23th january 2008c
- Matthieu Sozeau. [Program-ing in Coq](#). Talk given at Portland State University, 16th january 2008d
- Matthieu Sozeau. [Program-ing in Coq](#). Talk given at the Gallium seminar, 16th march 2007b

## Hobbies

---

- Music: Guitar, Bass and Drums.
- Dance: Forró and Lindy-Hop