

# Assia Mahboubi

*Inria tenured  
researcher*

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## Research interests

My research area is the foundations and formalization of mathematics in type theory and the automated verification of mathematical proofs. In particular, I am interested in the new insights that one often gets on familiar mathematical objects when looking for their most adequate formal representation for the purpose of computer-aided proofchecking. I am an intensive user of the Coq proof assistant and lead developer of the Mathematical Components libraries.

## Academic positions

### As Tenured Researcher

- 2018–present **Department of Mathematics, Vrije Universiteit Amsterdam**  
Endowed Professor “Automated Verification of Mathematical Proof”.
- 2017–present **Gallinette Team, Inria - LS2N - Université de Nantes - IMT Atlantique**
- 2013–2017 **Specfun Team, Inria**  
Vice Leader and co-author (with Frédéric Chyzak) of the project proposal  
Website of the team: <http://specfun.inria.fr/>
- 2007–2017 **Mathematical Components Project, Microsoft Research - Inria Joint Centre**
- 2007–2012 **Typical Team, Inria - Cnrs - École polytechnique (LIX)**

### Postdoctoral position

- 2006–2007 **Mathematical Components Project, Microsoft Research - Inria Joint Centre**  
Postdoctoral position supervised by Georges Gonthier.

### Fellowships

- 2012 **Von Neumann Fellowship**  
Awarded by the School of Mathematics of the IAS (Princeton, NJ).
- 2006 **Woody Bledsoe Student Travel Grant**  
Awarded by the CADE/IJCAR board of trustees.

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## Education, degrees

- 2023 **Inaugural lecture**, *Vrije Universiteit Amsterdam*, Netherlands  
Computer assisted mathematics
- 2021 **Habilitation Thesis**, *Nantes Université*, France  
Machine-checked computer-aided mathematics  
Jury: Yves Bertot, Sylvie Boldo (referee), Thierry Coquand (referee), Sébastien Gouëzel, Florent Hivert, Lawrence Paulson (referee), Nicolas Tabareau
- 2003-2006 **PhD in Computer Science**, *Nice-Sophia Antipolis University*, France  
Contributions à la certification des calculs sur  $\mathbb{R}$ : théorie, preuves, programmation.  
Jury: Thierry Coquand (referee), John Harrison (referee), Marie-Francoise Roy (referee), André Hirschowitz (president), Loïc Pottier (supervisor), Benjamin Werner.
- 2002 **Agrégation Externe de Mathématiques**, *speciality in probability theory*  
Civil service selective competitive examination in mathematics
- 1999-2003 **École Normale Supérieure de Lyon**, *Civil servant student*  
Master degree in mathematics

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## Projects Funded by Research Agencies

**I have actively participated to the redaction of the proposals and to the animation of the following research agency funded projects:**

- 2021-2026 **FRESCO**, *ERC Consolidator grant, started in November 2021*  
Principal Investigator
- 2018-2020 **Vercoma**, *Atlantisc 2020 "Recrutement Stratégique"*  
Principal Investigator
- 2014-2018 **FastRelax**, *ANR project*  
Academic project funded by the French National Agency for Research Member. Principal investigator: Bruno Salvy (Inria, ÉNS de Lyon)  
Website: <http://fastrelax.gforge.inria.fr/>

**I have been a member of the following research agency funded projects:**

- 2011-2014 **Coquelicot**, *F. C. S. "Campus Paris-Saclay" and Digiteo*  
Member. Coordinator: Sylvie Boldo (Inria)
- 2010-2013 **Formath**, *EU STREP-FET-open project*  
Leader of the Inria Saclay contribution. Leader of Work Package 1.  
Principal investigator: Thierry Coquand (University of Chalmers, Sweden)
- 2009-2013 **Psi**, *ANR JCJC project*  
Joint project with Stéphane Lengrand (Cnrs, coordinator)

2009-2012 **DeCert**, *ANR project*, Academic+industrial partners project  
Member, Principal investigator: Thomas Jensen (Irisa/Cnrs)

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## Supervision

### Postdocs

- 2021- Matthieu Piquerez, funded by the FRESCO ERC project
- 2018-2020 Marie Kerjean, funded by the Vercoma Atlanstic 2020 project.
- 2013 Revantha Ramanayake, then Research Associate in the Theory and Logic Group, at TU Wien (Austria).

### PhD students

- 2022- Alain Chavarri Villarelo, promotor. Co-promotor: Sander Dahmen, Vrije Universiteit Amsterdam.
- 2020- Martin Baillon, jointly supervised with Pierre-Marie Pédrot.
- 2020- Enzo Crance, jointly supervised with Denis Cousineau.
- 2014-2017 Thomas Sibut-Pinote. Sole supervisor, then Research Associate at UCL (UK).
- 2013-2014 Augustin Barillec, jointly supervised with Frédéric Chyzak (Inria), now data scientist in a private company.
- 2009-2012 Cyril Cohen. Main supervisor now permanent researcher at Inria.

### Interns

- 2023 Benoît Guillemet, 1st year student at École normale supérieure (France), jointly supervised with Matthieu Piquerez.
- 2022 Iwan Quemerais, 1st year student at École normale supérieure (France), jointly supervised with Chris HUGHes.
- 2020 Théo Vignon, 1st year student at École normale supérieure (France), jointly supervised with Marie Kerjean.
- 2020 Martin Baillon, 5th year student at École polytechnique (France), jointly supervised with Pierre-Marie Pédrot.
- 2019 Enzo Crance, Master+Engineer student Rennes University, INSA (France)
- 2019 Paul Geneau de la Marlière, 1st year student at École Normale de Lyon (France)
- 2017 Meissa Mbaye, 4th year student in mathematics, AIMS Senegal. Then PhD student in applied mathematics, University of Nantes – University of Dakar.
- 2016 Guillaume Boisseau & Théophile Huffschmitt, jointly supervised with Stéphane Lengrand (Cnrs, LIX), 3th year student at École polytechnique (France)

- 2014 Thomas Sibut-Pinote, 4th year student at École Normale de Lyon (France)
- 2013 Damien Rouhling, 1st year student at École Normale de Lyon (France)
- 2012 Thomas Sibut-Pinote, 2nd year student at École Normale de Lyon (France)
- 2011 Alexey Solovyev, PhD candidate, U. of Pittsburgh (USA)
- 2010 Nathaniel Carré, 3rd year student at École polytechnique (France)
- 2009 Cyril Cohen, master student at École Normale Supérieure de Cachan (France)
- 2009 Salil Joshi, 3rd year student at IIT Delhi (India)

#### Participation to PhD juries

- 2023 Rebecca Zucchini, Université Paris Saclay (France), as external member
- 2022 Gabriel Hondet, Université Paris Saclay (France), as external member
- 2022 Louis Noizet, Université de Rennes (France), as external member
- 2022 Meven Lenon Bertrand, Université de Nantes (France), as external member
- 2020 Théo Winterhalter, Université de Nantes (France), as external member
- 2019 Florent Faissole, Université Paris-Saclay (France), as external member
- 2019 Gaëtan Gilbert, Université de Nantes (France), as external member
- 2018 Boris Djalal, Université Côte d'Azur (France), as external member
- 2018 Andrea Gabrielli, Università di Firenze (Italy), as reviewer
- 2018 Simon Boulier, Université de Nantes (France), as external member
- 2018 Pierre Boutry, Université de Strasbourg (France), as external member
- 2017 Thomas Sibut-Pinote, École polytechnique (France), as advisor
- 2017 Étienne Miquey, Université Paris Diderot (France), as external member
- 2017 Evmorfia-Iro Bartzia, École polytechnique (France), as external member
- 2015 Pierre Boutry, halfway defense, Université de Strasbourg (France), as external member
- 2013 Mahfuza Farooque, École polytechnique (France), as external member
- 2012 Cyril Cohen, École polytechnique (France), as advisor

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#### Selected Invited and Keynote Talks

- 2023 *Machine-checked computational mathematics*  
Joint invited talk CALCO/MFPS 2023, Indiana University Bloomington, USA
- 2023 *Verifying computational mathematics*  
Invited talk the IPAM Workshop Machine Assisted Proofs, Los Angeles, USA

- 2022 *Mathématiques et preuves formelles*  
Invited talk the 150th birthday of the Société Mathématique de France
- 2021 *Mathematical Structures in Type Theory*  
Invited talk CSL 2021, Ljubljana, Slovenia
- 2020 *Machine Checked Mathematics*  
Mathematics Colloquium, University of Ljubljana, Slovenia
- 2019 *Verified Computations in Mathematical Proofs*  
Invited talk MPC 2019, Porto, Portugal
- 2019 *Machine Checked Mathematics*  
Invited tutorial CiE 2019, Durham, UK
- 2019 *Computer Deduction and (Formal) Proofs in Mathematics*  
Invited talk Cade 2019, Natal, Brazil
- 2019 *Classical Analysis in Dependent Type Theory*  
Invited talk Types 2019, Oslo, Norway
- 2019 *Démonstrations assistées par ordinateur*  
Séminaire Codes sources, La pensée informatique à travers les codes sources
- 2018 *Mathématiques assistées par ordinateur*  
Collège de France, cours de Xavier Leroy
- 2017 *Machine-checked proofs*  
General Mathematics Colloquium of the VU Amsterdam, Netherlands
- 2017 *Formally Verified Approximations of Definite Integrals*  
Invitation at the Workshop *Computer-aided Mathematical Proof*, Big Proof Program, Isaac Newton Institute, Cambridge, U.K.
- 2016 *Vérification mécanisée de théorèmes*  
Invited talk at the special trimester *Current Issues in the philosophy of practice of Mathematics & Informatics*, Toulouse, France
- 2015 *Coq Libraries for HoTT*  
Invited talk at the workshop on HoTT/Univalent Foundations, Warsaw, Poland
- 2015 *Formalised and machine-checked mathematics*  
joint invited talk of the ALC'15 and ICLA'15 international conferences, Mumbai, India
- 2015 *Une preuve formelle du théorème de l'Ordre Impair*  
Séminaire Chevalley, Paris
- 2014 *Mathématiques formelles assistées par ordinateur*  
Leçons de Mathématiques d'aujourd'hui, Bordeaux
- 2014 *Computer-checked mathematics: a formal proof of the Odd Order theorem*  
Invited tutorial at the CSL-LICS 2014 international conference

- 2013 *The Mathematical Components Library: principles and design choices*  
Invited talk at the ITP 2013 international conference (joint talk with E. Tassi)
- 2013 *A Machine-checked Proof of the Odd Order Theorem*  
Invited talk at the CICM 2013 international conference
- 2013 *Vérifier des preuves mathématiques avec un ordinateur*  
Colloquium of the Mathematics Laboratory of University of Nantes (France)
- 2013 *A Computer-Checked Proof of the Odd Order Theorem*  
Invited talk at the Dutch Mathematical Congress 2013 (joint talk with G. Gonthier)
- 2013 *Computer-Checked Mathematics*  
Invited talk at the British Colloquium for Theoretical Computer Science (BCTCS) 2013
- 2010 *Tutorial on Cylindrical Algebraic Decomposition in Coq*  
Invited lecture at the Mathematics Algorithms and Proofs (MAP) 2010 conference
- 2010 *Organizing and using algebraic structures in large developments of formalized mathematics*  
Invited lecture at the International Workshop on Strategies in Rewriting, Proving, and Programming (IWS) 2010 international workshop, at FLOC 2010
- 2009 *Introduction to the Ssreflect extension to the Coq system*  
Invited lecture at the JFLA 2009 national conference

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## Editorial Activities

I am a member of the editorial board of the Journal of Automated Reasoning (Springer). I have been co-editing, with Marc Bezem, the proceedings of the TYPES 2019 international conference (LIPICS).

I have been a guest co-editor of the Journal of Automated Reasoning (Springer) for a special issue *Selected Extended Papers from Interactive Theorem Proving 2018*.

I have been co-editing the proceedings of the CPP 2019 international conference (ACM), and of the ITP 2019 international conference (Lecture Notes in Computer Science, Springer).

I have been co-editing the report of the Dagstuhl Seminar 18341 *Formalization of Mathematics in Type Theory*.

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## Program committees, reviewing

I served as co-chair, with Amin Timany (Aarhus University, Denmark), of the program committee of the Coq Programming Language workshop, satellite of POPL 2021.

I served as co-chair, with Robbert Krebbers (University of Delft, Netherlands), of the

program committee of the Coq Programming Language workshop, satellite of POPL 2020.

I served as co-chair, with Magnus Myreen (Chalmers, Sweden), of the program committee for the CPP 2019 conference, satellite of POPL19.

I have served as co-chair, with Jeremy Avigad (Carnegie Mellon), of the program committee for the ITP 2018 conference, part of FLOC 2018.

I have served in the program committee of the following international conferences: POPL 2023, ITP 2023, ICFP 2022, FOSSACS 2022, LICS 2022, ITP 2021, IJCAR 2020, CPP 2020, TFP 2019, ITP 2019, FRODOS 2019, CICM 2018, CADE 2017, ITP 2017, CPP 2017, ITP 2016, CSL 2016, CICM 2016, SCSS 2016, TYPES 2015, CADE 2015, ITP from 2010 to 2014, Calculemus/CICM 2011 and 2014. I have served in the program committee of Types 2023, LFMTP 2023, HoTT/UF'18, Types 2018, Types 2017, TyDe'17, HoTT/UF'17, LFMTP'15, PSATT'11 and the 4th Coq international workshops and of the Jfla national conference from 2010 to 2012.

I have served as reviewer at least once for the following journals: Journal of Automated Reasoning, Annals of Mathematics and Artificial Intelligence, Journal of Formalized Mathematics, Computational geometry: Theory and Applications, Applicable Algebra (AAECC).

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## Organization of Scientific Events

I have (co)organized a special session on Machine-checked mathematics at the MFPS XXXIX conference in 2023. I have (co)organized a workshop at the Lorentz Center in 2023, in Leiden (Netherlands). I have (co)organized a workshop on Certified and Symbolic Numeric Computation in 2023 in Lyon (France). I have (co)organized a virtual conference at the Lorentz Center in 2022. I have (co)organized the Mathematical Components workshop in 2022 in Sophia Antipolis (France). I have (co)organized the Types international workshop in 2022, in Nantes (France). I have (co)organized the Dagstuhl meeting “Formalization of Mathematics in Type Theory” in August 2018. I have (co)organized the TTT'17 workshop, the Map 2016 conference (CIRM, Marseilles, France), the Lix Colloquium 2013, the MAP Spring School 2012, the 5th Coq international workshop, the PSATT'13 and PSATT'13 workshops.

I have been in charge of the Typical team seminar for 5 years.

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## Research Level Lecturing

- 2020 Master class. Vrije Universiteit Amsterdam (The Netherlands)  
<http://people.rennes.inria.fr/Assia.Mahboubi/vu.html>
- 2020 Lecturer at the *Coq Andes Summer School*, San José del Maipo (Chile)  
<https://cass.pleiad.cl/>
- 2018 Invited Lecture at the *XIX Journées Louis Antoine*, Rennes (France)  
<http://journées-louis-antoine.univ-rennes1.fr/>

- 2018 Invited Lecture at the *Computer Algebra National Days 2018*, CIRM (Marseilles, France)  
<https://jnconf2018.lip6.fr/cours.html>
- 2015 Lecturer at the *EPIT Coq Summer School*, Fréjus (France)  
<http://www.epit2015.website/>
- 2014 Lecturer at the Summer School *NII Shonan School on Coq*, at Shonan (Japan)  
<http://shonan.nii.ac.jp/seminar/041/>
- 2014 Lecturer at the Summer School *Méthodes Algorithmiques et Applications en Géométrie Algébrique Réelle et Théorie des Nombres*, a CIMPA School at AIMS, M'Bour (Senegal)  
<http://www.cimpa-icpam.org/spip.php?article567>
- 2014 Lecturer at the *Introductory school to the IHP special semester on semantics of formal proofs and certified mathematics*, CIRM (Marseille, France)  
<https://ihp2014.pps.univ-paris-diderot.fr/doku.php?id=cirm>
- 2009-2016 Master level course *Proof Assistants*  
 Master of Research Computer Science Paris, France
- 2012 Lecturer at the *International MAP Spring School on Formalization of Mathematics*, Inria Sophia-Antipolis.  
<http://www-sop.inria.fr/manifestations/MapSpringSchool/>
- 2010 and 2011 Lecturer at the *Modeling and Verifying Algorithms in Coq: an introduction*  
 CEA-EDF-INRIA Summer School  
<http://moscova.inria.fr/~zappa/teaching/coq/ecole11/>
- 2010 Lecturer at the Summer School *Méthodes effectives et logiciels de la logique et de l'algèbre pour la géométrie algébrique et la cryptographie*, a CIMPA-ICTP-UNESCO event in Yaoundé (Cameroon)

## Collective responsibilities

- I am serving in the jury of the Gilles Kahn PhD prize (national prize for the best PhD in computer science) since 2020.
- I am a member of the steering committee of the conferences Interactive Theorem Proving (ITP) and Certified Programs and Proofs (CPP).
- Starting January 2018, I am a member of the Scientific Committee of the Cnrs GdR *Informatique et Mathématiques*.
- I have been serving in the selection committee for several tenured academic positions, including the Inria CR competitions.
- I am a member of the management committee of the COST Action CA15123 (EU's H2020 framework program), coordinated by Herman Geuvers (Radboud University Nijmegen, The Netherlands). I am also leading the working group "Type-Theoretic Tools" of this project.



- I have been vice-leader of the SpecFun Inria team at the Inria Saclay–Île-de-France research center.
- I have been serving in the “Commission scientifique” of the Inria Saclay–Île-de-France research center since 2012.
- I have been serving in the “Comité de suivi doctoral” of the Inria Saclay–Île-de-France research center for 4 years.
- I have been serving in the “Conseil scientifique” of the Computer Sciences Laboratory of École polytechnique (LIX) for 4 years.
- I have been serving in the “Comité de centre” of the Inria Saclay–Île-de-France research center for 4 years.

## Long term research stays abroad

- 2017 **Isaac Newton Institute for Mathematics (INI), Cambridge, UK**, 5 weeks  
Participant to the Big Proof programme
- 2012 **Institute for Advanced Study (IAS), Princeton (NJ, USA)**, 3 months  
Participant to the Univalent Foundation special year organized by S. Awodey, T. Coquand and V. Voevodsky
- 2009 **Stanford Research Institute (SRI), Stanford (CA, USA)**, 2 months  
Invited by Natarajan Shankar
- 2005 **Radboud Universit at, Nijmegen (Netherlands)**, 1 month  
Invited by Herman Geuvers and Bas Spitters

## Publications

### International Journals with Reviewing Committee

- [1] Assia Mahboubi and Thomas Sibut-Pinote. A formal proof of the irrationality of  $\zeta(3)$ . *Log. Methods Comput. Sci.*, 17(1), 2021.
- [2] Assia Mahboubi, Guillaume Melquiond, and Thomas Sibut-Pinote. Formally verified approximations of definite integrals. *Journal of Automated Reasoning*, Mar 2018.
- [3] Assia Mahboubi. An induction principle over real numbers. *Archive for Mathematical Logic*, pages 1–7, 2016.
- [4] Cyril Cohen and Assia Mahboubi. Formal proof in real algebraic geometry: from ordered fields to quantifier elimination. *Logical Methods in Computer Sciences*, 8(1:2):1–40, 2012.
- [5] Yves Bertot, Fr ed erique Guilhot, and Assia Mahboubi. A formal study of Bernstein coefficients and polynomials. *Mathematical Structures in Computer Sciences*, 21(4):731–761, 2011.

- [6] Georges Gonthier and Assia Mahboubi. An introduction to small scale reflection in Coq. *Journal of Formalized Reasoning*, 3(2):95–152, 2010.
- [7] Assia Mahboubi. Implementing the Cylindrical Algebraic Decomposition within the Coq system. *Mathematical Structure in Computer Sciences*, 17(1), 2007.

#### Invited Papers

- [1] Assia Mahboubi and Enrico Tassi. Canonical structures for the working coq user. In Sandrine Blazy, Christine Paulin-Mohring, and David Pichardie, editors, *Interactive Theorem Proving*, volume 7998 of *Lecture Notes in Computer Science*, pages 19–34. Springer Berlin Heidelberg, 2013.
- [2] Assia Mahboubi. The rooster and the butterflies. In Jacques Carette, David Aspinall, Christoph Lange, Petr Sojka, and Wolfgang Windsteiger, editors, *Intelligent Computer Mathematics*, volume 7961 of *Lecture Notes in Computer Science*, pages 1–18. Springer Berlin Heidelberg, 2013.

#### Proceedings of International Conferences with Reviewing Committee

- [1] Valentin Blot, Denis Cousineau, Enzo Crance, Louise Dubois de Prisque, Chantal Keller, Assia Mahboubi, and Pierre Vial. Compositional pre-processing for automated reasoning in dependent type theory. In Robbert Krebbers, Dmitriy Traytel, Brigitte Pientka, and Steve Zdancewic, editors, *Proceedings of the 12th ACM SIGPLAN International Conference on Certified Programs and Proofs, CPP 2023, Boston, MA, USA, January 16-17, 2023*, pages 63–77. ACM, 2023.
- [2] Martin Baillon, Assia Mahboubi, and Pierre-Marie Pédrot. Gardening with the pythia A model of continuity in a dependent setting. In Florin Manea and Alex Simpson, editors, *30th EACSL Annual Conference on Computer Science Logic, CSL 2022, February 14-19, 2022, Göttingen, Germany (Virtual Conference)*, volume 216 of *LIPICs*, pages 5:1–5:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.
- [3] Sophie Bernard, Cyril Cohen, Assia Mahboubi, and Pierre-Yves Strub. Unsolvability of the quintic formalized in dependent type theory. In Liron Cohen and Cezary Kaliszyk, editors, *12th International Conference on Interactive Theorem Proving, ITP 2021, June 29 to July 1, 2021, Rome, Italy (Virtual Conference)*, volume 193 of *LIPICs*, pages 8:1–8:18. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021.
- [4] Reynald Affeldt, Cyril Cohen, Marie Kerjean, Assia Mahboubi, Damien Rouhling, and Kazuhiko Sakaguchi. Competing inheritance paths in dependent type theory: a case study in functional analysis. In *IJCAR 2020 - International Joint Conference on Automated Reasoning*, pages 1–19, Paris, France, June 2020.

- [5] Florent Bréhard, Assia Mahboubi, and Damien Pous. A certificate-based approach to formally verified approximations. In John Harrison, John O’Leary, and Andrew Tolmach, editors, *10th International Conference on Interactive Theorem Proving, ITP 2019, September 9-12, 2019, Portland, OR, USA*, volume 141 of *LIPICs*, pages 8:1–8:19. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019.
- [6] Henri Lombardi and Assia Mahboubi. Théories géométriques pour l’algèbre des nombres réels. *Contemporary Mathematics*, 2017.
- [7] Assia Mahboubi, Guillaume Melquiond, and Thomas Sibut-Pinote. Formally verified approximations of definite integrals. In Jasmin Christian Blanchette and Stephan Merz, editors, *Interactive Theorem Proving*, volume 9807 of *Lecture Notes in Computer Science*. Springer, 2016.
- [8] Damien Rouhling, Mahfuza Farooque, Stéphane Graham-Lengrand, Assia Mahboubi, and Jean-Marc Notin. Axiomatic constraint systems for proof search modulo theories. In *10th International Symposium on Frontiers of Combining Systems (FroCos’15)*. Springer, 2015.
- [9] Frédéric Chyzak, Assia Mahboubi, Thomas Sibut-Pinote, and Enrico Tassi. A computer-algebra-based formal proof of the irrationality of  $\zeta(3)$ . In Ruben Gamboa Gerwin Klein, editor, *Interactive Theorem Proving*, volume 8558 of *Lecture Notes in Computer Science*. Springer, 2014.
- [10] Georges Gonthier, Andrea Asperti, Jeremy Avigad, Yves Bertot, Cyril Cohen, François Garillot, Stéphane Roux, Assia Mahboubi, Russell O’Connor, Sidi Ould Biha, Ioana Pasca, Laurence Rideau, Alexey Solovyev, Enrico Tassi, and Laurent Théry. A machine-checked proof of the odd order theorem. In Sandrine Blazy, Christine Paulin-Mohring, and David Pichardie, editors, *Interactive Theorem Proving*, volume 7998 of *Lecture Notes in Computer Science*, pages 163–179. Springer Berlin Heidelberg, 2013.
- [11] François Bobot, Sylvain Conchon, Évelyne Contejean, Mohamed Iguernelala, Assia Mahboubi, Alain Mebsout, and Guillaume Melquiond. A simplex-based extension of Fourier–Motzkin for solving linear integer arithmetic. In *IJCAR 2012: The 6th International Joint Conference on Automated Reasoning*, volume 7364 of *Lecture Notes in Computer Sciences*, pages 67–81. Springer, 2012.
- [12] Cyril Cohen and Assia Mahboubi. A formal quantifier elimination algorithm for algebraically closed fields. In *Symposium on the Integration of Symbolic Computation and Mechanised Reasoning (Calculemus 2010)*, volume 6167 of *Lecture Notes in Artificial Intelligence*, pages 189–203. Springer, 2010.

- [13] François Garillot, Georges Gonthier, Assia Mahboubi, and Laurence Rideau. Packaging mathematical structures. In Stefan Berghofer, Tobias Nipkow, Christian Urban, and Makarius Wenzel, editors, *Theorem Proving in Higher-Order Logics (TPHOL2009)*, volume 5674 of *Lecture Notes in Computer Science*, pages 327–342. Springer, 2009.
- [14] Georges Gonthier, Assia Mahboubi, Laurence Rideau, Enrico Tassi, and Laurent Théry. A modular formalisation of finite group theory. In *Theorem Proving in Higher Order Logics (TPHOL2007)*, volume 4732 of *Lecture Notes in Computer Science*. Springer, 2007.
- [15] Assia Mahboubi. Proving formally the implementation of an efficient gcd algorithm for polynomials. In Ulrich Furbach and Natarajan Shankar, editors, *3rd International Joint Conference on Automated Reasoning (IJCAR'06)*, volume 4130 of *Lecture Notes in Artificial Intelligence*, pages 438–452. Springer, 2006.
- [16] Assia Mahboubi. Programming and Certifying a CAD Algorithm in the Coq System. In Thierry Coquand, Henri Lombardi, and Marie-Françoise Roy, editors, *Mathematics, Algorithms, Proofs*, volume 05021 of *Dagstuhl Seminar Proceedings*, 2006.
- [17] Benjamin Grégoire and Assia Mahboubi. Proving Ring Equalities Done Right in Coq. In Joe Hurd and Tom Melham, editors, *Theorem Proving in Higher Order Logics, 18th International Conference (TPHOLs 2005)*, volume 3603 of *Lecture Notes in Computer Science*, pages 98–113. Springer, 2005.

#### Documentation and Reference Manuals (2)

- [1] Georges Gonthier, Assia Mahboubi, and Enrico Tassi. A Small Scale Reflection Extension for the Coq system. Research Report RR-6455, INRIA, 2008. *The Reference Manual of the Ssreflect extension to the Coq tactic language*, available at <http://hal.inria.fr/inria-00258384>.
- [2] The Coq Development team. The Coq Proof Assistant Reference Manual. Technical report, Inria. *Co-author of the ring and field tactics (Ch. 24)*, available at <http://coq.inria.fr>.

#### Proceedings of Workshops with Reviewing Committee

- [1] Mahfuza Farooque, Stéphane Graham-Lengrand, and Assia Mahboubi. A bisimulation between DPLL(T) and a proof-search strategy for the focused sequent calculus. In Alberto Momigliano, Brigitte Pientka, and Randy Pollack, editors, *Proceedings of the 2013 International Workshop on Logical Frameworks and Meta-Languages: Theory and Practice (LFMTP 2013)*. ACM Press, September 2013. available at <http://dx.doi.org/10.1145/2503887.2503892>.

- [2] Assia Mahboubi and Loïc Pottier. Élimination des quantificateurs sur les réels pour Coq. In *Journées Francophones des Langages Applicatifs*, Anglet, France, January 2002. <http://hal.inria.fr/hal-00819482>.
- [3] Henri Lombardi and Assia Mahboubi. Théories géométriques pour l'algèbre des nombres réels. In Fabrizio Brogna, Françoise Delon, Max Dickmann, Danielle Gondard-Cozette, and Victoria Ann Powers, editors, *Ordered Algebraic Structures and Related Topics*, volume 697 of *Contemporary Mathematics*. AMS, 2017.

### Others

- [1] Marc Bezem and Assia Mahboubi, editors. *25th International Conference on Types for Proofs and Programs, TYPES 2019, June 11-14, 2019, Oslo, Norway*, volume 175 of *LIPICs*. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020.
- [2] 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*. ACM, 2019.
- [3] Jeremy Avigad and Assia Mahboubi, editors. *Interactive Theorem Proving - 9th International Conference, ITP 2018, Held as Part of the Federated Logic Conference, FloC 2018, Oxford, UK, July 9-12, 2018, Proceedings*, volume 10895 of *Lecture Notes in Computer Science*. Springer, 2018.
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