

Silvia De Toffoli

Curriculum Vitae

+39 (324) 6688332
✉ silvia.detoffoli@iusspavia.it
🌐 www.silviadetoffoli.net

Areas of Specialization: Philosophy of Mathematics, Epistemology

Areas of Competence: Philosophy of Science, Logic, Nietzsche, Philosophy of Literature

Academic Appointments

- 2022-pres. **Institute of Advanced Studies *Scuola Superiore Universitaria IUSS Pavia***, Humanities and Life Sciences, Assistant Professor of Philosophy
- 2022-pres. **Technical University of Berlin**, *Institute of History and Philosophy of Science, Technology, and Literature*, Department Affiliate
- 2022-pres. **Sphere Research Unit**, *CNRS, Paris*, Associated Researcher
- 2022 **Linköping University**, *Department of Culture and Society*, Assistant Professor and Wallenberg Academy Fellow
- 2019–2022 **Princeton University**, *Philosophy Department*, Postdoctoral Research Associate and Lecturer
- 2013–2014 **Montana State University**, *Department of Mathematical Sciences*, Research Scholar and Lecturer

Education

- 2014–2019 **Ph.D. in Philosophy**, Stanford University
Thesis: *Epistemic Roles of Mathematical Diagrams*, committee: Thomas Ryckman (supervisor), Michael Friedman, Krista Lawlor, Marcus Giaquinto.
Research visits: Columbia University (fall 2016), IHPST – Institute of History and Philosophy of Sciences and Technology, Paris (spring 2017), University of Pennsylvania (fall 2017), Goethe University Frankfurt (spring 2018).
- 2019 **Ph.D. Minor in Philosophy, Literature, and the Arts**, Stanford University
Advisor: R. Lanier Anderson.
- 2016 **M.A. in Philosophy**, Stanford University
- 2009–2013 **Ph.D in Mathematics**, Technical University of Berlin
Thesis: *Degrees of Essentiality for Secants of Knots*, Supervisor: John Sullivan.
- 2006–2009 **M.Sc. in Mathematics**, University of Bologna
As visiting student: University of Paris 7, France (2007-2008).
- 2004–2006 **B.Sc. in Mathematics**, University of Bologna
As visiting student: University of Calgary, Canada (2004-2005).

Publications

Articles and Book Chapters

- forth **Who's Afraid of Mathematical Diagrams?**, *Philosophers' Imprint*
- 2022 **Objectivity and Rigor in Classical Italian Algebraic Geometry**, *Noesis*, No. 38, 195-212 (with Claudio Fontanari)
- 2022 **Intersubjective Propositional Justification**, in: *Propositional and Doxastic Justification: New Essays on Their Nature and Significance*, Eds. Paul Silva Jr. & Luis Oliveira, Routledge, 241-262
- 2022 **What Is Mathematical Rigor?**, *Aphex*, No. 25, 1-17 (with John Burgess)
- 2022 **What Are Mathematical Diagrams?**, *Synthese*, 200:86, 1-29
- 2021 **Groundwork for a Fallibilist Account of Mathematics**, *The Philosophical Quarterly*, Volume 7, Number 4, 823-844
- 2021 **Reconciling Rigor and Intuition**, *Erkenntnis*, Volume 86, 1783-1802
- 2019 **Leopardi: 'Everything is Evil'**, in: *Evil—A History*, Ed. Andrew Chignell, Oxford University Press, 350-357
- 2017 **'Chasing' The Diagram – The Use of Visualizations in Algebraic Reasoning**, *The Review of Symbolic Logic*, Volume 10, Number 1, 158-186
- 2016 **Envisioning Transformations – the Practice of Topology**, in: *Mathematical Cultures*, Ed. Brendan Larvor, Birkhäuser, 25-50, (with Valeria Giardino)
- 2015 **An Inquiry into the Practice of Proving in Low-Dimensional Topology**, in: *From Logic to Practice*, Eds. Gabriele Lolli, Marco Panza, Giorgio Venturi, Boston Studies in the Philosophy and History of Science, Volume 308, 315-336, (with Valeria Giardino)
- 2014 **Forms and Roles of Diagrams in Knot Theory**, *Erkenntnis*, Volume 79, 829-842, (with Valeria Giardino)

Editorial Work

- 2018 **Tools of Reason: The Practice of Scientific Diagramming from Antiquity to the Present**, *Special issue of Endeavour*, with a co-authored introduction, Volume 42 (2-3), 49–59, (with Paula Findlen and Greg Priest)

Work in Progress

How To Do Things with Diagrams – the Case of Mathematics, *book manuscript in preparation*

The Epistemological Subject of Mathematics, in: *The Handbook of the History and Philosophy of Mathematical Practice*, Ed. Bharath Sriraman, Springer, in preparation

Entries: "Diagrams" and "Fallibilism in Mathematics", *The Third Edition of the Blackwell Companion to Epistemology*, Ed. Kurt L. Sylvan, in preparation

Recalcitrant Disagreement in Mathematics: An Endless and Depressing Controversy in the History of Italian Algebraic Geometry, *submitted*, (with Claudio Fontanari)

Successful Transmission of Justification Across Fallacious Arguments, *in preparation*

New Tools for Kant's Incongruent Counterparts, *in preparation*

Nietzsche's Conception of Logic, *in preparation*

Conference Proceedings

2018 **Fruitful Over-Determination in Knot Diagrams**, *Proceeding of Diagrams 2018, Lecture Notes in Computer Science*, 10871 LNAI, 807–809

2012 **Meta-Vermeer: A Topological Reinterpretation of a Masterpiece**, *Proceeding of Bridges 2012: Mathematics, Music, Art, Architecture, Culture*, 499-502, (with Yasuhiro Sakamoto)

Outreach

2022 **Le certezze irraggiungibili della matematica (“The Unreacheable Certainties of Mathematics”)**, *Archimede, La rivista per gli insegnanti e i cultori di matematiche pure e applicate*, No. 2, 60-66

2022 **Conversation with John P. Burgess**, *Aphex*, No. 25

2022 **I nodi dell'intelligenza artificiale (“The Knots of Artificial Intelligence”)**, *Maddmaths! – Matematica Divulgazione Didattica*, 2 gennaio 2022

2017 **Numeri. Divagazioni, calcoli, giochi (“Numbers. Digressions, calculations, games”)**, 2nd Edition, preface by Furio Honsell, (with Dario De Toffoli and Dario Zaccariotto), Edizioni Koala (1st Edition, 2008, Stampa Alternativa, Viterbo, introduction by Stefano Bartezzaghi)

Interviews

2022 **Anche la matematica è un'attività umana – intervista a Silvia De Toffoli**, *Il Tascabile*, intervista di Andrea Zanni, Jan. 3, 2022

2021 **Filosofia pratica della matematica, istruzioni per l'uso – intervista a Silvia De Toffoli**, *Maddmaths! – Matematica Divulgazione Didattica*, di Roberto Natalini, June 6, 2021

Teaching Experience

As Main Instructor

2022-2023 **Visualizzazione, dimostrazioni e rigore: temi di filosofia della pratica matematica**, *IUSS Pavia*, upper division undergraduate class

2021-2022 **Mathematical Rigor Between Theory and Practice**, *Princeton University*, graduate seminar (with John Burgess)

- 2020-2021 **Theory of Knowledge**, *Princeton University*, upper division undergraduate class
- 2019-2020 **Philosophy of Mathematics**, *Princeton University*, upper division undergraduate class (with John Burgess)
- 2017-2018 **Philosophy of Mathematics**, *Stanford University*, upper division undergraduate class
- 2016-2017 **Introduction to Philosophy**, *City College New York*, undergraduate class
- 2013-2014 **Algebraic Topology**, *Montana State University*, graduate seminar

As Teaching Assistant

- 2016-2017 **Philosophy and Literature**, *Stanford University*, undergraduate class (Instructors: R. Lanier Anderson and Josh Landy)
- 2015-2016 **Epistemology**, *Stanford University*, undergraduate class (Instructor: Eli Alshanetsky)
- 2015-2016 **Introduction to Philosophy of Science**, *Stanford University*, undergraduate class (Instructor: Helen Longino)
- 2010-2011 **Topology**, *Technical University of Berlin*, Master class (Instructor: John Sullivan)

Grants & Awards

- 2021 **Wallenberg Academy Fellowship**, *Linköping University, Swenden*, (> 1 million Euros)
- 2017-2019 **Ric Weiland Graduate Fellow in the Humanities & Sciences**, *Stanford University*
- 2017 **France-Stanford Visiting Student Researcher Fellowship**, *IHPST, Institute of History and Philosophy of Sciences and Technology, Paris*
- 2014-2019 **PhD scholarship**, *Stanford University*
- 2013 **Certificate of Distinction from the Berlin Mathematical School**, *for the Ph.D. thesis Degrees of essentiality for secants of knots*
- 2009-2013 **PhD scholarship**, *Berlin Mathematical School*

Events Organization

Main Organizer

- April 2021 **Society Session of the Philosophy of Mathematics Association: Rigor and Intuition**, *Pacific APA*, Online, Portland
- April 2020 **[CANCELED] Conference: The ‘End’ of Philosophy of Mathematics?**, *Conference at Princeton University*, (with John Burgess)

- Aug. 2019 **Symposium of the Association for the Philosophy of Mathematical Practice**, in: *16th Congress of Logic, Methodology and Philosophy of Science and Technology*, Prague, (with Andrew Arana)
- Aug. 2018 **Symposium of the Association for the Philosophy of Mathematical Practice**, in: *XXIV World Congress of Philosophy*, Beijing
- Feb. 2018 **Workshop: Mathematical Reasoning**, *Stanford University*, (with Rebecca Morris)
- Oct. 2017 **Workshop: Varieties of Visualization in Mathematics**, in: *4th International Meeting of the Association for the Philosophy of Mathematical Practice*, Salvador, Brazil
- Feb. 2017 **Conference: Tools of Reason: The Practice of Scientific Diagramming from Antiquity to the Present**, *Stanford University*, (with Paula Findlen and Greg Priest)

Member of Scientific or Organizing Committee

- Sept. 2022 **13th International Conference on the Theory and Application of Diagrams**, *Rome*, Member of the Scientific Committee of the Philosophy Track
- Sept. 2021 **12th International Conference on the Theory and Application of Diagrams**, *Online*, Member of the Scientific Committee of the Philosophy Track
- July 2021 **6th International Conference of the Association for the Philosophy of Mathematical Practice**, *Online, Chapman University*, Member of the Organizing Committee
- Aug. 2020 **11th International Conference on the Theory and Application of Diagrams**, *Tallinn*, Member of the Scientific Committee of the Philosophy Track
- Jan. 2020 **5th International Conference of the Association for the Philosophy of Mathematical Practice**, *ETH, Zurich*, Member of the Organizing Committee
- June 2018 **10th International Conference on the Theory and Application of Diagrams**, *Edinburgh*, Member of the Scientific Committee of the Philosophy Track

Service to the Discipline

- 2022-pres. **Member of the International Advisory Board of *Phenomenology & Mind***
- 2021-pres. **Assistant Editor of *APhEx***, (*Analytical and Philosophical Explanations*) – *Italian journal for analytic philosophy, Open Problems* section
- 2019-pres. **PhilPapers Editor**, Categories: “*Mathematical Practice*,” “*Visualization in Mathematics*,” “*Philosophy of Literature*,” “*Fiction*,” “*The Basing Relation*,” “*Propositional and Doxastic Justification*,” and “*Epistemic Fallibilism*.”
- 2018-pres. **Member of the Steering Committee**, *Association for the Philosophy of Mathematical Practice (APMP)*

Refereeing (Journals)

Axiomathes, The British Journal for the Philosophy of Science, Episteme, Erkenntnis, Dialectica, Journal for General Philosophy of Science, Journal of Humanistic Mathematics, Kriterion, Manuscripta, Philosophia Mathematica, The Philosophical Quarterly, Philosophical Psychology, Philosophical Review, Philosophy of Science, Spatial Cognition and Computation: An Interdisciplinary Journal, Synthese, The Textile Museum Journal, Theoria, Topoi.

Refereeing (Books)

Cambridge University Press, Éditions de la Sorbonne.

Refereeing (Grants)

FWF-Austrian Science Fund, Graduate Women in Science (GWIS) National Fellowship Program, Fondecyt Program National Research and Development Agency (Chile).

Presentations

(* = invited at international conference or workshop)

- Oct. 2022 **Uppsala University**, *Philosophy Department Talk*, “Mathematical Justification: Motivations for a Fallibilist Account”
- Sept. 2022 ***Logic and Philosophy of Mathematics Conference**, *Scuola Normale Superiore (SNS), Pisa*, “Defending Moderate Derivationism”
- Sept. 2022 **European Summer School on the Philosophy of Mathematics**, *University of Konstanz*, 5-days tutorial on “Mathematical Knowledge”
- June 2022 **EEN (European Epistemology Network) Conference**, *University of Glasgow*, “Successful Transmission of Justification Across Fallacious Arguments”
- June 2022 **University of St Andrews**, *Arché’s research stream “Epistemology: Current Themes”*, “Mathematical Justification”
- May 2022 **University of Trento**, *Maths Bites Trento, Department of Mathematics*, “Rigore e Intuizione in Matematica”
- March 2022 **CUNY (City University of New York), Graduate Center**, *Philosophy Colloquium*, “Successful Transmission of Justification Across Fallacious Arguments”
- March 2022 **Université Paris Cité**, *SPHERE, History and Philosophy Seminar, Mathematics 19th-21st*, “Recalcitrant Disagreement in Mathematics”
- March 2022 **Université Côte d’Azur, Nice**, *Centre de Recherches en Histoire des Idées, Séminaire d’histoire et de philosophie des sciences*, “Fallibilisme en mathématiques”
- Jan. 2022 **Eastern APA**, *Session of the Philosophy of Mathematics Association, Baltimore, Online*, “Beliefs, Degrees of Beliefs, and ‘Probabilistic Proofs’”
- Dec. 2021 ***Mathematical Collaborations 4**, *Vrije Universiteit Brussel and University of Leeds*, “Higher-Order Evidence in Mathematics”

- Oct. 2021 **FPMW13-13th French PhilMath Workshop**, *Nice*, “Diagrams and the Apriority of Mathematics”
- Sept. 2021 **SIFA 2021-14th Conference of the Italian Society for Analytic Philosophy**, *Noto, Sicily*, “Diagrams and the Apriority of Mathematics”
- Sept. 2021 ***Workshop: Text-Driven Approaches to the Philosophy of Mathematics**, *Duisburg-Essen University, online*, “Algebraic and Graphical Languages: the Case of Monoidal Categories”
- Aug. 2021 ***Workshop: Topic in Philosophy of Mathematical Practice**, *University of Copenhagen, online*, “Reconciling Rigor and Intuition”
- July 2021 **University of Bologna**, *Seminar in the mathematics department*, “Rigore e Intuizione in Matematica”
- July 2021 **6th International Conference of the Association for the Philosophy of Mathematical Practice**, *Chapman University, Online*, “Mathematical Practice and Analytic Epistemology”
- June 2021 **University of Trento**, *Seminar for the PopMat Laboratory*, “Cosa sono i diagrammi matematici?”
- June 2021 **Science & More Talks**, *Center for Logic, Language and Cognition (LLC), University of Turin*, “Can we form a justified belief in mathematics based on an incorrect argument?”
- June 2021 **Carl Friedrich von Weizsäcker-Colloquium**, *University of Tübingen, Online*, “What are Mathematical Diagrams?”
- Feb. 2021 **Stirling University**, *Visiting Speaker Seminar*, “A Case for the Fundamentality of Doxastic Justification”
- Jan. 2021 ***Workshop: Logic & Philosophy of Mathematics in the Evening**, *organized by D. Kant and D. Sarikaya, online*, “Mathematical Justification”
- Jan. 2021 **Eastern APA**, *online*, Comments on “Nietzsche... and Possibility of Metaphysics”
- Dec. 2020 **University of Trento**, *Online seminar for the PopMat Laboratory*, “Philosophy of Mathematical Practice”
- Nov. 2020 **Canadian Society for the History and Philosophy of Mathematics**, *online seminar series*, “The Epistemological Subject of Mathematics”
- May 2020 **Texas A&M University**, *online talk for a research group on mathematical reasoning*, “Who’s Afraid of Mathematical Diagrams?”
- April 2020 **[Postponed] *Conference: Understanding Mathematical Explanation**, *Rutgers University*, “Mathematical Explanations in Practice”
- April 2020 **[Canceled] Conference: The ‘End’ of Philosophy of Mathematics?.**, *Princeton University*, “Mathematical Justification Ain’t What it Seems”
- March 2020 **[Canceled] Conference: Dimensions of Epistemic Justification**, *University of Cologne*, commentator at large
- Jan. 2020 **5th International Conference of the Association for the Philosophy of Mathematical Practice**, *ETH, Zurich*, “A Fallibilist Account of Mathematical Justification”

- Nov. 2019 **Carnegie Mellon University**, *Philosophy Colloquium*, “Diagrammatic Notations in Mathematical Proofs”
- Nov. 2019 **Rutgers University**, *Talk at the Proof Comprehension Research Group*, “Mathematical Diagrams”
- Aug. 2019 **16th Congress of Logic, Methodology and Philosophy of Science and Technology**, *Prague*, “The Epistemic Basing Relation in Mathematics”
- June 2019 **Masterclass in the Philosophy of Mathematical Practice**, *Vrije Universiteit Brussel*, “Mathematical Justification in Practice”
- June 2019 ***Conference: Explanatory and Heuristic Power of Mathematics**, *University of Roma La Sapienza*, “Grasping How a Proof Supports its Conclusion”
- June 2019 **Intersem Seminar Series**, *Paris 7*, organized by Mic Detlefsen, “Rigorous Diagrammatic Proofs”
- May 2019 ***Conference: Big Proofs**, *International Center for Mathematical Sciences, Edinburgh*, “Diagrammatic Notations in Mathematical Proofs”
- April 2019 **Macalester College**, *Philosophy Colloquium*, “Mathematical Justification in Practice”
- April 2019 **Pacific APA**, *Society for Realist-Antirealist Discussion*, *Vancouver*, “Proof, Simil-Proofs, and Mathematical Justification”
- Dec 2018 **Mathematics in Action**, *Henri Poincaré Archives*, *Nancy*, “Mathematical Justification in Practice”
- Aug. 2018 **XXIV World Congress of Philosophy**, *Beijing*, “Fruitful Over-determination for Mathematical Notations”
- Aug. 2018 **XXIV World Congress of Philosophy, Association for Mathematical Practice Session**, *Beijing*, “What is a Mathematical Diagram”
- July 2018 ***Proofs and Representations Workshop**, *Munich Center for Mathematical Philosophy*, “Heterogenous Notations for Mathematical Proofs”
- June 2018 **10th International Conference on the Theory and Application of Diagrams**, *Edinburgh*, “Fruitful Over-Determination in Knot Diagrams”
- March 2018 **Stanford University**, *Psychology Department*, *Jay McClelland Laboratory*, diagrams in Mathematics
- Feb. 2018 **University of British Columbia, Okanagan campus**, *Philosophy Colloquium*, “Diagrams in Mathematical Practice”
- Jan. 2018 **Eastern APA**, *Society for Realist-Antirealist Discussion*, *Savannah*, “Proofs and Diagrams in Mathematics”
- Oct. 2017 **4th International Conference of the Association for the Philosophy of Mathematical Practice**, *Salvador, Brazil*, “Varieties of Mathematical Diagrams”
- July 2017 ***Conference: Visual Reasoning and Intuition in Mathematics**, *Free University of Berlin*, “Knots and Embeddings: New Tools for Incongruent Counterparts”

- June 2017 ***Conference: Logic in Question 7**, *Sorbonne University, Paris*, “Thinking with Diagrams: The Case of Mathematics”
- June 2017 **PhilMath seminar series**, *IHPST, Paris*, “Varieties of Mathematical Diagrams”
- June 2017 ***PROOFS workshop**, *IHPST, Paris*, “The Notion of Proof in the Practice of Mathematics”
- April 2017 ***Workshop: Mathématiques en action**, *Archives Henri Poincaré, Nancy*, “What is a Mathematical Diagram?”
- Feb. 2017 **Conference: Tools of Reason**, *Stanford University*, “Thinking with Diagrams: The Case of Mathematics”
- Nov. 2016 **Midwest PhilMath Workshop 17**, *Notre Dame University*, “Thinking with Diagrams: The Case of Mathematics”
- Sept. 2016 **City College New York**, *Philosophy Colloquium*, “Aspects of Diagrammatic Reasoning in Mathematics”
- July 2016 **Vrije Universiteit Brussel**, *Philosophy Colloquium*, (with Isar Goyvaerts) “Aspects of Diagrammatic Reasoning in Category Theory”
- June 2016 **University of Udine**, *Mathematics and computer science colloquium*, “Pensare con i Diagrammi: il caso dei Nodi”
- June 2016 ***Five Years MCMP: Quo Vadis, Mathematical Philosophy?**, *Munich Center for Mathematical Philosophy*, “Varieties of Visualizations in Mathematics”
- April 2016 ***43rd philosophy of science conference in Dubrovnik**, *Dubrovnik, Croatia*, “Diagrams in Algebra”
- Nov. 2015 ***3rd International Conference of the Association for the Philosophy of Mathematical Practice**, (*keynote*) *Sorbonne University, Paris*, “‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning”
- March 2015 **Proofs and Pictures Conference**, *University of South Carolina, Columbia*, “‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning”
- Feb. 2013 **What is? Seminar**, *Berlin Mathematical School*, “What is a Rational Tangle?”
- Sept. 2012 **FilMat Conference**, *Scuola Normale Superiore, Pisa*, (with Valeria Giardino) “La dinamica dei diagrammi in teoria dei nodi”
- Sept. 2012 **SIFA 2012-Conference of the Italian Society for Analytic Philosophy**, *Alghero, Italy*, (with Valeria Giardino) “Roles and Forms of Diagrams in Knot Theory”
- Sept. 2012 **Mathematical Cultures Conference**, *London*, (with Valeria Giardino) “Low-dimensional topology as visual mathematics”
- June 2012 **Free University of Berlin**, *Sybille Krämer’s colloquium*, “Die epistemische Rollen von Diagrammen in der Topologie”
- May 2012 **Conference of the French Society for Analytic Philosophy (SOPHA)**, *École Normale Supérieure, Paris*, (with Valeria Giardino) “Diagrammes et Illustrations en Topologie: Le Cas des Nœuds”

- Jan. 2012 **Work in Progress Seminar**, *Munich Center of Mathematical Philosophy*, “The Knot Moves: A Case Study on Diagram Dynamics”
- Jan. 2012 **University of Sevilla**, *Philosophy Colloquium*, (with Valeria Giardino) “Use and Epistemic Roles of Diagrams in Knot Theory”
- Jan. 2012 **Work in Progress Seminar**, *Munich Center of Mathematical Philosophy*, (with Valeria Giardino) “The Knot Moves: A Case Study on Diagram Dynamics”
- Dec. 2009 **What is? Seminar**, *Berlin Mathematical School*, “What is a Seifert Surface?”

Languages

Italian: native.

English: excellent (reading, writing, and speaking).

German and French: fluent (reading, writing, and speaking).

References

John P. Burgess (research and teaching)

John N. Woodhull Professor of Philosophy, Princeton University
jburgess@princeton.edu

Thomas Kelly

Professor of Philosophy, Princeton University
tkelly@princeton.edu

Thomas Ryckman

Professor of Philosophy, Stanford University
tryckman@stanford.edu

Marcus Giaquinto

Emeritus Professor of Philosophy, University College London
m.giaquinto@ucl.ac.uk

Jeremy Avigad

Professor of Philosophy, Carnegie Mellon University
avigad@cmu.edu

Paolo Mancosu

Willis S. and Marion Slusser Professor of Philosophy, University of California, Berkeley
mancosu@socrates.berkeley.edu

Last updated: November 21, 2022.