

Silvia De Toffoli

Curriculum Vitae

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Philosophy Department,
Princeton University
Marx Hall, Room 208
Princeton, NY 085

Specialization: Epistemology, Philosophy of Science, Philosophy of Mathematics

Competence: Logic, Nietzsche, Philosophy and Literature

employment

PRINCETON UNIVERSITY

2019 – Postdoctoral Research Associate and Lecturer, Philosophy

education

STANFORD UNIVERSITY

2019 **PhD, Philosophy**

Dissertation: *Epistemic Roles of Mathematical Diagrams*

Committee: Thomas Ryckman (advisor), Marcus Giaquinto, Michael Friedman, Krista Lawlor

As visiting student: Columbia University (fall 2016), University of Pennsylvania (fall 2017)

Goethe University Frankfurt (spring 2018)

2019 **PhD Minor, Philosophy, Literature, and the Arts** (2019)

Advisor: R. Lanier Anderson

2016 MA, philosophy

TECHNICAL UNIVERSITY OF BERLIN

2013 **PhD, Mathematics**

Dissertation: *Degrees of Essentiality for Secants of Knots*

Advisor: John M. Sullivan

UNIVERSITY OF BOLOGNA

2009 MS, Mathematics (110/110 *summa cum laude*)

Dissertation: *Different Flavors of the Poincaré Homology Sphere*

Advisors: Luca Migliorini (Bologna) and Patrick Popescu-Pampu (Paris 7)

As visiting student: University of Paris7 (2007-2008)

2006 BS, Mathematics (110/110 *summa cum laude*)

As visiting student: University of Calgary (2004-2005)

publications

JOURNAL ARTICLES

- 2020 “Reconciling Rigor and Intuition,” *Erkenntnis*, forthcoming.
- 2017 “‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning,” *The Review of Symbolic Logic*, Volume 10, Number 1, 158-186.
 *Nominated for inclusion in the *Philosopher’s Annual*, as one of the ten best philosophy papers published in 2017.
- 2014 “Forms and Roles of Diagrams in Knot Theory” (with V. Giardino), *Erkenntnis*, Volume 79, 829-842.

ARTICLES IN BOOKS

- 2019 “Leopardi: ‘Everything is Evil,’” in: *Evil—A History*, Ed: A. P. Chignell. Oxford University Press, 350-357.
- 2016 “Envisioning Transformations – The Practice of Topology” (with V. Giardino), in: *Mathematical Cultures*, Ed: B. Larvor. Birkhäuser, 25-50.
- 2015 “An Inquiry into the Practice of Proving in Low-Dimensional Topology” (with V. Giardino) In: *From Logic to Practice*, Eds: G. Lolli, M. Panza, G. Venturi. *Boston Studies in the Philosophy and History of Science*, Volume 308, 315-336.

EDITORIAL WORK

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

OTHERS

- 2012 “Einführung in Meta-Vermeer: Experimentelle Studien über originale und manipulierte Bilder” (with Y. Sakamoto), in: *Das Licht im Zeitalter von Rembrandt und Vermeer*, Ein Handbuch der Forschungsgruppe Historische Lichtgefüge, Jovis, 50-53.
- 2012 “Meta-Vermeer: A Topological Reinterpretation of a Masterpiece” (with Y. Sakamoto), *Proceedings of Bridges 2012: Mathematics, Music, Art, Architecture, Culture*, 499-502, 2012.
- 2008 “Numeri. Divagazioni, calcoli, giochi” (with D. De Toffoli, D. Zaccariotto) (introduction by Stefano Bartezzaghi), Stampa Alternativa, Viterbo. 2017: 2nd Edition (preface by Furio Honsell), Kangourou editions.

grants and awards

- 2017-19 Ric Weiland Graduate Fellow in the Humanities & Sciences, Stanford University
- 2017 France-Stanford Visiting Student Researcher Fellowship (IHPST, Institute for History and Philosophy of Sciences and Technology), spring 2017, sponsor: Marco Panza, CNRS, Paris

- 2013 Certificate of Distinction from *the Berlin Mathematical School* for the Ph.D. thesis “Degrees of essentiality for secants of knots”
- 2007-08 *Erasmus* scholarship, to study for one academic year at the University of Paris 7
- 2005-06 Grant for academic achievements from the University of Bologna (“Incentivi studenti terzo anno, per merito”)
- 2004-05 TASSEP (Transatlantic Science Student Exchange Program) scholarship, to study for one academic year at University of Calgary, Canada

teaching

AS PRIMARY INSTRUCTOR

- *Theories of Knowledge*, PHIL 313, Fall Semester 2020-2021, Princeton University
- *Philosophy of Mathematics* (with John Burgess), PHIL 314, Fall Semester 2019-2020, Princeton University
- *Philosophy of Mathematics*, PHIL 162, MATH 162, (TA: Declan Thompson) Winter Quarter 2017-2018, Stanford University
- *Introduction to Philosophy*, PHIL 102, Fall Semester 2016-2017, City College New York
- *Algebraic Topology*, MA 512, Spring Semester 2013-2014, Montana State University, Bozeman

AS TEACHING ASSISTANT

- *Philosophy and Literature*, PHIL 81, (Instructors: R. Lanier Anderson and Joshua Landy) Winter Quarter 2016-2017, Stanford University
- *Epistemology*, PHIL 184, (Instructor: Eli Alshanetsky) Spring Quarter 2015-2016, Stanford University
- *Introduction to Philosophy of Science*, PHIL 60, (Instructor: Helen Longino) Winter Quarter 2015-2016, Stanford University
- *Topology* (Instructor: John Sullivan), Berlin Mathematical School Master course, Winter Semester 2010-2011, Technical University of Berlin

conference and symposia organization

- [POSTPONED] With John Burgess: *The ‘End’ of Philosophy of Mathematics?*, Conference at Princeton University (3-5 April 2020)

PAST

- *Association for the Philosophy of Mathematical Practice* symposium, 16th Congress of Logic, Methodology and Philosophy of Science and Technology, Prague (5-10 August 2019), <http://clmpst2019.flu.cas.cz>
- *Association for the Philosophy of Mathematical Practice* symposium, XXIV World Congress of Philosophy, Beijing (13-20 August 2018)

- With Rebecca Morris: *Mathematical Reasoning*, Workshop at Stanford University (9-10 February 2018)
- *Varieties of Visualization in Mathematics*, Workshop as part of the Fourth International Meeting of the Association for the Philosophy of Mathematical Practice, Salvador, Brazil (23-27 October 2017)
- With Paula Findlen and Greg Priest: *Tools of Reason: The Practice of Scientific Diagramming from Antiquity to the Present*, Workshop at Stanford University (10-11 February 2017)

professional service

- 2019 – Organizing the **Princeton Philosophy of Mathematics Reading Group**
- 2019 – **PhilPapers Editor** of the categories “**Mathematical Practice**,” “**Visualization in Mathematics**,” “**Philosophy of Literature**,” and “**Fiction**.”
- 2018 – **Member of the Directive Committee** of the *Association for the Philosophy of Mathematical Practice* (APMP)

REFEREEING

Synthese, Erkenntnis, Journal for General Philosophy of Science, Journal of Humanistic Mathematics, Manuscripta, Theoria, Dialectica, Éditions de la Sorbonne

PROGRAM COMMITTEE FOR CONFERENCES

- 2020 *Diagrams 2020*, 11th International Conference on the Theory and Application of Diagrams, Philosophy Track, Tallinn (24-28 August)
- 2020 [member of the organizing Committee] *5th International Conference of the Association for the Philosophy of Mathematical Practice*, ETH, Zurich (18-21 January)
- 2018 *Diagrams 2018*, 10th International Conference on the Theory and Application of Diagrams, Philosophy Track, Edinburgh (18-22 June)

presentations

- [POSTPONED] *Mathematics of weaving*, Humboldt University, Berlin (June 5, 2020)
TBD
- [POSTPONED] University of Trento, joint talk department of philosophy and mathematics (May 25, 2020)
TBD
- [CANCELLED] *Dimensions of Epistemic Justification*, University of Cologne (March 26-27, 2020)
Commentator at Large
- [POSTPONED] *Understanding Mathematical Explanation: Uniting Philosophical and Educational Perspectives*, Rutgers University (April 6, 2020)
TBD
- [POSTPONED] *The 'End' of Philosophy of Mathematics?*, Princeton University (April 3, 2020)
"Mathematical Justification Ain't What it Seems"
- 5th International Conference of the Association for the Philosophy of Mathematical Practice*, ETH, Zurich (January 18-21, 2020)

“A Fallibilist Account of Mathematical Justification”

2019

Carnegie Mellon University, philosophy department, colloquium talk (8 November 2019)

“Diagrammatic Notations in Mathematical Proofs”

Rutgers University, Talk at the *Proof Comprehension Research Group* (1 November 2019)

“Mathematical Diagrams”

16th Congress of Logic, Methodology and Philosophy of Science and Technology, Prague (5-10 August)

“The Epistemic Basing Relation in Mathematics”

Masterclass in the Philosophy of Mathematical Practice, Vrije Universiteit Brussel (19-21 June)

“Mathematical Justification in Practice”

Explanatory and Heuristic Power of Mathematics (invited paper), Roma La Sapienza (13-14 June)

“Grasping How a Proof Supports its Conclusion”

Intersem Talk, organized by Mic Detlefsen, Paris 7, Sphere, (6 June)

“Rigorous Diagrammatic Proofs”

Big Proofs Workshop, International Centre for Mathematical Sciences—ICMS (invited paper), Edinburgh (26-31 May)

“Diagrammatic Notations in Mathematical Proofs”

Macalester College, department colloquium (April 25)

“Mathematical Justification in Practice”

Pacific APA, Society for Realist-Antirealist Discussion, Vancouver (April 17-20)

“Proof, Simil-Proofs, and Mathematical Justification”

2018

Mathematics in Action (invited paper), Henri Poincaré Archives, Nancy (13-14 December)

“Mathematical Justification in Practice”

Association for the Philosophy of Mathematical Practice session, XXIV World Congress of Philosophy, Beijing (13-20 August)

“What is a Mathematical Diagram”

XXIV World Congress of Philosophy, Beijing (13-20 August)

“Fruitful Over-determination for Mathematical Notations”

Proofs and Representations Workshop (invited paper), Munich Center for Mathematical Philosophy (6-8 July)

“Heterogenous Notations for Mathematical Proofs”

Diagrams 2018, 10th International Conference on the Theory and Application of Diagrams, Philosophy Track (18-22 June)

“Fruitful Over-Determination in Knot Diagrams”

Stanford University, Psychology Department, Jay McClelland Laboratory (6 March)

“Diagrams in Mathematics”

University of British Columbia, Okanagan campus, department colloquium (23 February)

“Diagrams in Mathematical Practice”

Eastern APA, Society for Realist-Antirealist Discussion, Savannah (3-7 January)

“Proofs and Diagrams in Mathematics”

2017

4th International Conference of the Association for the Philosophy of Mathematical Practice, Varieties of Visualization Workshop, Salvador, Brazil (23-27 October)

“Varieties of Mathematical Diagrams”

Visual Reasoning and Intuition in Mathematics. From Kant’s Euclidicity to Digitalization conference (invited paper), Free University of Berlin, (29 June-1 July)

“Knots and Embeddings: New Tools for Incongruent Counterparts”

Logic in Question 7 conference (invited paper), Paris Sorbonne (13-14 June)

“Thinking with Diagrams: The Case of Mathematics”

PhilMath seminar series (invited paper), IHPST, Paris (12 June)

“Varieties of Mathematical Diagrams”

PROOFS workshop (invited paper), IHPST, Paris (1-2 June)

“The Notion of Proof in the Practice of Mathematics”

Mathématiques en action seminar series, Archives Henri Poincaré, Nancy (24 April)

“What is a Mathematical Diagram?”

Tools of Reason workshop, Stanford University (10-11 February)

“Thinking with Diagrams: The Case of Mathematics”

2016

Midwest PhilMath Workshop 17, Notre Dame University (12-13 November)

“Thinking with Diagrams: The Case of Mathematics”

City College New York, department colloquium (22 September)

“Aspects of Diagrammatic Reasoning in Mathematics”

Vrije Universiteit Brussel, colloquium (08 July)

“Aspects of Diagrammatic Reasoning in Category Theory” (with I. Goyvaerts)

University of Udine, mathematics and computer science colloquium (29 June)

“Pensare con i Diagrammi: il caso dei Nodi”

Five Years MCMP: Quo Vadis, Mathematical Philosophy? conference (invited paper), Munich Center for Mathematical Philosophy (2-4 June)

“Varieties of Visualizations in Mathematics”

43rd philosophy of science conference in Dubrovnik (invited paper), Croatia (11-15 April)

“Diagrams in Algebra”

2015

3rd International Conference of the Association for the Philosophy of Mathematical Practice (keynote speaker), Institut Henri Poincaré, Paris (2-4 November)

“‘Chasing’ The Diagram – The Use of Visualizations in Algebraic Reasoning”

Proofs and Pictures conference, University of South Carolina, Columbia (20 March)

“‘Diagram Chase’ Techniques – The Use of Space in Algebraic Reasoning”

2009–2014

What is? Seminar, Berlin Mathematical School (8 February 2013)

“What is a Rational Tangle?”

Filosofia della matematica: dalla logica alla pratica conference, Scuola Normale Superiore, Pisa, Italy (24-36 September 2012)

“La dinamica dei diagrammi in teoria dei nodi” (with V. Giardino)

Società Italiana di Filosofia Analitica (SIFA) conference, Alghero, Italy (13-15 September 2012)

“Roles and Forms of Diagrams in Knot Theory” (with V. Giardino)

Mathematical Cultures conference, London (10-13 September 2012)

“Low-dimensional topology as visual mathematics” (with V. Giardino)
Free University of Berlin, Sybille Krämer’s colloquium (19 June 2012)
“Die epistemische Rollen von Diagrammen in der Topologie”
Société de philosophie analytique (SOPHA) conference, École Normale Supérieure, Paris (5 May 2012)
“Diagrammes et Illustrations en Topologie: Le Cas des Nœuds”
Work in Progress Seminar, Munich Center of Mathematical Philosophy, Munich (19 January 2012)
“The Knot Moves: A Case Study on Diagram Dynamics”
University of Sevilla, philosophy colloquium (15 November 2011)
“Use and Epistemic Roles of Diagrams in Knot Theory”
What is? Seminar, Berlin Mathematical School (4 December 2009)
“What is a Seifert Surface?”

languages

Italian (mother tongue), English (excellent), French and German (fluent reading and speaking)

references

Thomas Ryckman, Professor of Philosophy, Stanford University

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450 Serra Mall
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Marcus Giaquinto, Honorary Emeritus Professor of Philosophy, University College London

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450 Serra Mall

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Helen Longino (teaching), Clarence Irving Lewis Professor of Philosophy, Stanford University

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