Curriculum vitae
Andrew Peter Arana

Personal information

Department of Philosophy, Université de Lorraine
Archives Henri-Poincaré
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Employment

2020 –	Professeur des universités (full professor), Philosophy, Université de Lorraine, and member of the Archives Henri-Poincaré
2015–2020	Maître de conférences (associate professor), Philosophy, Université Paris 1 Panthéon-Sorbonne, and member of the IHPST
2012–2015	Associate professor of philosophy, University of Illinois at Urbana-Champaign
2012–2015	Associate professor of mathematics (0% appointment), University of Illinois at Urbana-Champaign
2011–2012	Associate professor of philosophy, Kansas State University
2004–2011	Assistant professor of philosophy, Kansas State University
2002–2004	Assistant professor of philosophy, Stanford University (three year term)

Other positions

2014–2015	EURIAS fellow, L'institut d'études avancées d'Aix-Marseille (IMéRA), Marseille
May 2013	Invited professor of philosophy, Université Paris 1 Panthéon-Sorbonne
2009–2010	Postdoctoral fellow, Ideals of Proof project, supported by the Agence Nationale de la Recherche, France, with Université Nancy 2, the Collège de France, Université Paris 1 Panthéon-Sorbonne, and Université Paris Diderot 7
May 2007	Invited professor of history and philosophy of science, Université Paris Diderot 7

Education

Ph.D., Philosophy and mathematics, joint program, University of Notre Dame, Notre Dame, IN, 2004. Thesis advisors: Michael Detlefsen (philosophy) and Julia Knight (mathematics)

M.S., Mathematics, University of Notre Dame, Notre Dame, IN, 1999

B.A. Mathematics, Trinity University, San Antonio, TX, 1996

B.S. Computer science, Trinity University, San Antonio, TX, 1996

Areas of specialization

Logic, philosophy and history of mathematics, epistemology

Areas of competence

History of modern philosophy, history of analytic philosophy, history and philosophy of science, philosophy of religion

Monographs

Elements of purity, Cambridge University Press, 2024.

Articles

"Disagreement About New Axioms in Mathematics", *Annals of the Japan Association for Philosophy of Science*, forthcoming.

"Mathematical Hygiene" (with Heather Burnett). *Synthese*, 202(110), 2023, pp. 1–28.

"On The Difficulty Of Discovering Mathematical Proofs" (with Will Stafford). *Synthese*, 202(38), 2023, pp. 1–29.

"Purity and explanation: essentially linked?" In *Mathematical Knowledge, Objects and Applications: Essays in Memory of Mark Steiner*, edited by Carl Posy and Yemima Ben-Menahem, Cham, Springer, 2023, pp. 25–39.

"Idéaux de preuve : explication et pureté". In *Précis de philosophie de la logique et des mathématiques*, volume 2, philosophie des mathématiques, edited by Andrew Arana et Marco Panza, Éditions de la Sorbonne, Paris, 2022, pp. 387–425

"Takeuti's well-ordering proofs revisited" (with Ryota Akiyoshi). *Mita Philosophy Society* 146 (2021), pp. 83–110.

"Sobre la relación entre geometría plana y sólida" (with Paolo Mancosu). In *Infinito, lógica, geometría*, College Publications, 2020

"Takeuti's proof theory in the context of the Kyoto School" (with Ryota Akiyoshi). *Jahrbuch für Philosophie das Tetsugaku-Ronso* 46 (2019), pp. 1–17

"On the alleged simplicity of impure proof." In *Simplicity: Ideals of Practice in Mathematics and the Arts*, edited by Roman Kossak and Philip Ording, Springer (2017), pp. 207–226

"Imagination in mathematics." In *Routledge Handbook of Imagination*, edited by Amy Kind, Routledge (2016), pp. 463-477

"In Memoriam of Aldo Antonelli" (with Curtis Franks). In *Objectivity, Realism, and Proof. FilMat Studies in the Philosophy of Mathematics*, edited by F. Boccuni and A. Sereni, Boston Studies in the Philosophy and History of Science, Springer, 2016, pp. xxxvii–xl

"De la relation entre géométrie plane et géométrie solide" (with Paolo Mancosu). In *Infini, logique, géométrie*, Vrin (2015), pp. 325–407

"On the depth of Szemerédi's Theorem." *Philosophia Mathematica* 23:2 (2015), pp. 163–176

"Plane and solid geometry: a note on purity of methods" (with Paolo Mancosu). In *From Logic to Practice : Italian Studies in the Philosophy of Mathematics*, edited by Gabriele Lolli, Marco Panza, and Giorgio Venturi, Springer (2015), pp. 23–31.

"Purity in arithmetic: some formal and informal issues." In *Formalism and Beyond. On the Nature of Mathematical Discourse*, edited by Godehard Link, De Gruyter (2014), pp. 315–336.

"On the relationship between plane and solid geometry" (with Paolo Mancosu). *Review of Symbolic Logic* 5:2 (2012), 294–353.

"Geometria piana e solida: una nota sulla purezza del metodo" (with Paolo Mancosu). *Notae Philosophicae Scientiae Formalis* 1:1 (2012), 89–102.

"L'infinité des nombres premiers : une étude de cas de la pureté des méthodes" *Les études philosophiques* 2:97 (2011), 193–213.

"Purity of methods" (with Mic Detlefsen). *Philosophers' Imprint* 11:2 (2011).

"Descartes and the cylindrical helix" (with Paolo Mancosu). *Historia Mathematica* 37:3 (2010), 403–427.

"Proof theory in philosophy of mathematics." *Philosophy Compass* 5:4 (2010), 336–347.

"On formally measuring and eliminating extraneous notions in proofs." *Philosophia Mathematica* 17 (2009), 208–219

"Logical and semantic purity." *Protosociology* vol. 25 (2008), pp. 36–48; reprinted in *Philosophy of Mathematics: Set Theory, Measuring Theories, and Nominalism*, Gerhard Preyer and Georg Peter (eds.), Ontos, 2008.

"Possible m-diagrams of models of arithmetic." In *Reverse Mathematics 2001*, ed. Stephen G. Simpson, *Lecture Notes in Logic* 21, A.K. Peters Publishers / Association for Symbolic Logic, 2005, pp. 1–18.

"Arithmetical independence results using higher recursion theory." *Journal of Symbolic Logic* 69:1 (2004), pp. 1–9.

"Solovay's Theorem cannot be simplified." *Annals of Pure and Applied Logic* vol. 112 (Sept. 2001), pp. 27–41.

Edited books

Idéaux de preuves. Œuvres choisies de Michael Detlefsen, volume 1, edited by Emmylou Haffner, David Rabouin and Andrew Arana, Vrin, Paris, 2024

Précis de philosophie de la logique et des mathématiques, volume 2, philosophie des mathématiques, edited by Andrew Arana and Marco Panza, Éditions de la Sorbonne, Paris, 2022

Encyclopedia articles

"Non-Euclidean Geometries", in the *New Catholic Encyclopedia Supplement 2012-13: Ethics and Philosophy*, Robert Fastiggi (ed.), 4 vols., Detroit: Gale, 2013

"Theorem", in the *New Catholic Encyclopedia Supplement 2012-13: Ethics and Philosophy*, Robert Fastiggi (ed.), 4 vols., Detroit: Gale, 2013

Reviews

Reviewer for *Mathematical Reviews*, published by the American Mathematical Society (AMS); numerous reviews published to date.

Review of *Reactionary Mathematics. A Genealogy of Purity* by Massimo Mazzotti, University of Chicago Press (2023). *Physis* LIX:2 (2024), pp. 614–618.

Review of *Model theory and philosophy* by Tim Button and Sean Walsh, Oxford University Press (2018). *Bulletin of Symbolic Logic* 26:3-4 (2020), pp. 287–292.

"The changing practices of proof in mathematics". Review of *Computation, proof, machine* by Gilles Dowek, *Metascience*, 26:1 (2017), pp. 131–135 .

Review of *Computability: Turing, Gödel, Church, and Beyond*, edited by B. Jack Copeland, Carl J. Posy, and Oron Shagrir. *Notre Dame Philosophical Reviews* 3:20 (2015).

Review of *Plato's Ghost* by Jeremy Gray. *Philosophia Mathematica* 20:2 (2012), pp. 252–255.

Review of *Visual Thinking in Mathematics* by Marcus Giaquinto. *Analysis* 69 (2009), pp. 401–403.

Review of *The Architecture of Modern Mathematics*, edited by José Ferreirós and Jeremy Gray. *Mathematical Intelligencer* 30:4 (2008), pp. 57–61.

Review of *Toward a philosophy of real mathematics* by David Corfield. *Mathematical Intelligencer* 29:2 (2007), pp. 80–83.

Review of *In the Light of Logic* by Solomon Feferman. *Mathematical Intelligencer*, 27:4 (2005) pp. 38–40.

Articles for the public

« L'infini existe-t-il ? », in the magazine *L'Éléphant*, hors-série Univers, November 2022, pp. 58–64
« L'infini dans les maths : une question sans fin », in the magazine *L'Éléphant*, hors-série Univers, November 2022, pp. 65–67

Grants

ANR PRC (492 902,13 €) MATHY : Mathematical Hygiene, with Heather Burnett, 2024–2028

International Emerging Action (IEA) CNRS, between the Archives Poincaré and the department of logic and philosophy of science at the University of California, Irvine, "Formalization in Logic, Language, and Mathematics", 2022-2023, 6 000 € per year

Lauréat, Asgard fellowship, Embassy of France in Norway, 2024, for travel to Norway

Invited talks

"Meaning, interpretation, and purity", conference Meaning and Equivalence of Formal Theories, philosophy, University of Vienna, December 2024

"The importance of philosophy for understanding preferences for the local: linguistic, mathematical, and social perspectives", UNESCO World Philosophy Day, Faculty of Philosophy, Gadjah Mada University, Yogyakarta, Indonesia, November 2024

"Mathematical Hygiene", philosophy department, University of Bergen, Norway, October 2024

"An introduction to purity in mathematics", philosophy department, University of Oslo, Norway, October 2024

"Mathematical Hygiene", conference Mathematics with a Human Face, Boston University Center for the Humanities, Boston, April 2024

"Varieties of reversals", Logic Seminar, Tohoku University, Sendai, Japan, April 2024

"Complexity and discovery of proof", workshop on complexity of proof, Keio University, Tokyo, Japan, April 2024

"Intuition in Kant, Fichte and Nishida", colloquium Self and Infinity II, Kyoto University, Kyoto, Japan, April 2024

"Disagreement in mathematics", colloquium Désaccord en logique et dans le raisonnement, IHPST, Paris, March 2024

"Géographicité et hybridité en mathématiques", Séminaire Philosophie et Mathématiques, ENS Ulm, Paris, February 2024

"Mathematical hygiene", FilMat Graduate Conference 2024, University of Rome Tor Vergata, January 2024

"Knowledge and science: mathematical hygiene", Contemporary Issues in Philosophy and Social Justice, Gadjah Mada University, Indonesia (online), November 2023

"Hybrid objects in mathematics, Workshop on Ontology, Institut Mémoires de l'édition contemporaine (IMEC), Abbaye d'Ardenne, Saint-Germain-la-Blanche-Herbe, September 2023

"The geographicity of mathematics as a philosophical problem", 1st Conference of the European Society for the Philosophy of Mathematics, King's College, London, September 2023

"Géographicité et hybridité en mathématiques", Colloque Raisonnement, calcul, langages, l'Université Bordeaux Montaigne et l'Université de Bordeaux, June 2023

"Concealing diagrams: a case from projective geometry", The Mathematical Drawing/Diagram conference, Helsinki, Finland, June 2023

"Takeuti on finite and infinite sets", Kyoto University, Center for Applied Philosophy and Ethics, November 2022

"On the difficulty of discovering mathematical proofs, Keio University, Tokyo, Japan, November 2022

"Meaning and interpretation in mathematics", Workshop on Proofs and Formalization in Logic, Mathematics and Philosophy, Utrecht University, Netherlands, September 2022

"Varieties of reversals", Colloquium on Reverse Mathematics and Its Philosophy, University of Chicago Center in Paris, June 2022

"La géographicité des mathématiques", keynote address Rencontres doctorales internationales de philosophie des sciences (RDIPS), Société de Philosophie des Sciences, Strasbourg, May 2022

"Purity and Explanation: Essentially Linked?", Colloquium on Mathematical Explanation, IH-PST, Université Paris 1 Panthéon-Sorbonne, May 2022

"Einstein on purity in geometry", Seminar on History and Philosophy of Mathematics, 19-21st centuries, SPHère, Université Paris Cité, April 2022

"Finitism and purity", Seminar on infinity in mathematics, chaire Blaise Pascal of Paolo Mancosu, Paris, March 2022

"Infinity in Western and Japanese mathematics", Trinity University math majors seminar, San Antonio, Texas (online), February 2022

"Mathematical hygiene: a case study of Cartesian geometry" (with Heather Burnett), Conference on Modern Geometry and its Foundations, Universität Wien, Austria (online), janvier 2022

"Mathematical hygiene" (with Heather Burnett), Leibniz-Zentrum Allgemeine Sprachwissenschaft (ZAS), Berlin, Germany, November 2021 (at distance)

"A vectorial conception of problem-solving", PhilMath Intersem 2021, Université Paris Cité, June 2021

"Mathematical hygiene" (with Heather Burnett), Munich Center for Mathematical Philosophy Online Seminar, Ludwig-Maximilians-Universität Munich, Germany (online), July 2021

"L'infini d'Ouest en Est", Conference histoire et philosophie des sciences, Université Gustave Eiffel, France (online), May 2021

"Mathematical hygiene" (with Heather Burnett), Orange Country-Inland Empire (OCIE) Seminar in the History and Philosophy of Mathematics and Logic, California (online), May 2021

"The sense of an ending of a proof", conference on fictionalism and mathematics, Université Paris Cité (online), April 2021

"Einstein on purity in geometry", conference on Modern Geometry – Origins and Foundations, Universität Wien, Austria (online), February 2021

"On the difficulty of discovering proofs", conference on Applied Proof Theory, University of Melbourne, Australia (online), November 2020

"Term rewriting, Knuth-Bendix completion & purity", conference Mathematical and logical understanding and formalization, in honor of Pr. Mitsuhiro Okada, IHPST, Université Paris 1, February 2020

« Takeuti on finite and infinite sets », workshop on set theory and the philosophy of mathematics, Université Paris-Diderot, February 2020

"The significance of reversals", philosophy of mathematics seminar, Tel Aviv University, Israel, December 2019

"Purity and content in mathematics", philosophy of mathematics seminar, Hebrew University of Jerusalem, Israel, December 2019

"Le fini et l'infini : perspective occidentale, perspective japonaise", Jeudis de l'histoire et de la philosophie des sciences, École Normale Supérieure, Paris, November 2019

"Epistémologie historique et philosophie analytique des mathématiques", PhilMathMED 2019 : L'épistémologie historique, hier et aujourd'hui, Toulouse, France, June 2019

"Purity and interpretability", Mathematics in Philosophy: Purity and Idealization, University of Notre Dame, USA, March 2019

"Purity and content", Algebra and Logic Seminar, Nova University of Lisbon, October 2018

"Takeuti's finitism and his proof of the consistency of arithmetic", 1st Workshop on Proof Theory and its Applications of the Proof Society, University of Ghent, Belgium, September 2018

"The delimitation of geometry", five lectures, Summer School on the Foundations of Geometry in Historical Perspective, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, July 2018

"The disunity of mathematics", conference on historical epistemology and the disunity of science, Paris, May 2018

"Takeuti's argument for the finitistic admissibility of transfinite induction", Second Workshop on Mathematical Logic and its Applications, Kanazawa, Japan, March 2018

"Axiomatic and Intuitive Grasp in Geometry", Modern Axiomatics and Early Metatheory Workshop, University of Vienna, Austria, February 2018

"Knowledge, objectivity, and perspectivism", Centre for Logic and Philosophy of Science, Vrije Universiteit Brussel, Belgium, November 2017

"Seeing the infinite", On the Infinite: An Interdisciplinary Symposium, Paris, October 2017

"Geometric knowledge and geometric legitimacy" parts 1, 2, 3, philosophy department, Keio University, Tokyo, Japan, July 2017

"Proofs and meaning in arithmetic", workshop on logic and philosophy of mathematics, Keio University and Waseda University, Tokyo, Japan, July 2017

"Meaning and interpretation in mathematics", Paris Proofs Workshop, IHPST, Paris, June 2017

"Meaning and interpretation in mathematics", Mathematical Logic Seminar, University of Lisbon, May 2017

"Geometric legitimacy", Algebra and Logic Seminar, Nova University of Lisbon, May 2017

"Mathematical depth: a case study of the philosophy of mathematical practice", Centre for Logic and Philosophy of Science, Vrije Universiteit Brussel, Belgium, April 2017

"Pourquoi nos géométries ? Quelques réflexions à partir du point de vue de la théorie des modèles", mathematics colloquium, Université Clermont Auvergne, February 2017, and Université Paul Sabatier, Toulouse, March 2017

"Purity, explanation and grounding", colloquium Metaphysical explanation, mathematical explanation: new perspectives, IHPST, Paris, February 2017

"Meaning and interpretation in mathematics", Midlands Logic Seminar, University of Birmingham, UK, November 2016

"Mathematical depth and Szemerédi's theorem", Warwick Philosophy of Mathematics Seminar, University of Warwick, UK, November 2016

"Imagination and space in early modern geometry", University of Bucharest, Romania, July 2016

"Complexity of proof and purity of methods", University of Bucharest, Romania, July 2016

"Meaning and interpretation in mathematics", symposium Crossing Worlds: Mathematical logic, philosophy, art, University of Helsinki, Finland, June 2016

"In Memoriam of Aldo Antonelli", colloquium Ontological Commitment In Mathematics, IHPST, Paris, December 2015

"Non-euclidean geometry and geometrical content", Oxford Philosophy of Mathematics Seminar, Oxford University, UK, October 2015

"Mathematical depth and Szemerédi's theorem", Midlands Logic Seminar, University of Birmingham, UK, October 2015

"Non-euclidean geometry and geometrical content", Warwick Philosophy of Mathematics Seminar, University of Warwick, UK, October 2015

"Mathematical depth and Szemerédi's theorem", special session on philosophy of mathematics, Logic Colloquium 2015, University of Helsinki, Finland, August 2015

"Imagination and space in early modern geometry", conference Geometry and Space in the Early Modern Age, Berlin, Germany, July 2015

"Purity and content", logic seminar, University of Helsinki, Finland, April 2015

"Purity of methods", EURIAS annual meeting, Vienna, Austria, April 2015

"Grumeaux d'ordre dans une pâte informe: on the depth of Szemerédi's Theorem", seminar on non-classical logics, Institut d'Histoire et de Philosophie des Sciences et des Techniques (IHPST), Université Paris 1 Panthéon-Sorbonne, October 2014

"Grumeaux d'ordre dans une pâte informe: on the depth of Szemerédi's Theorem", conference on mathematical depth, UC Irvine, USA, April 2014

"Non-euclidean geometry and geometrical content", conference on Geometry and Logic. The Shape of Mathematical Proof from Antiquity to the Early Modern Age, Centro di Ricerca Matematica, Scuola Normale Superiore, Pisa, Italy, June 2013

"Non-euclidean geometry and geometrical content", philosophy of mathematics colloquium, Institut d'Histoire et de Philosophie des Sciences et des Techniques (IHPST), Université Paris 1 Panthéon-Sorbonne, Paris, France, May 2013

"Simplicity and the interface of algebra and geometry", Conference on Simplicity: Ideals of Practice in Mathematics & the Arts, Graduate Center of the City University of New York, USA, April 2013

"Descartes and the virtues of algebraic reasoning in geometry", 10th Brazilian History of Mathematics Conference, UNICAMP, Campinas, Brazil, March 2013

"Transfer in algebraic geometry", 1st CLE Colloquium for Philosophy and History of Formal Sciences, UNICAMP, Campinas, Brazil, March 2013

"Transfer in algebraic geometry", Montreal Inter-University Workshop on the History and Philosophy of Mathematics, Montreal, Canada, November 2012

"Purity & transfer in algebraic geometry", philosophy of mathematics colloquium, IHPST, Paris, France, June 2012

"Purity of methods", seminar in philosophy of mathematics, University of Michigan, USA, April 2012

"On the relationship between plane and solid geometry", colloquium, L'Institut de Mathématiques de Toulouse, Toulouse, France, March 2012

"Descartes & the virtues of algebraic reasoning in geometry", colloquium, Max Planck Institute for the History of Science, Berlin, Germany, March 2012

"The transformation of the geometrical from the classical to the modern era", conference "What Makes Modern Mathematics Different from Classical Mathematics?", IHPST, Paris, France, December 2011

"Geometrical reasoning & geometrical knowledge", colloquium, Department of Philosophy, University of Illinois at Urbana-Champaign, USA, November 2011

"Toward a measure of the difficulty of following proofs", PhilMath Intersem, Paris, France, June 2011

"Purity of methods and the varieties of content", colloquium, Department of Logic and Philosophy of Science, University of California–Irvine, January 2011

"The preference for 'pure' proofs", colloquium, L'Institut de Mathématiques de Toulouse, Toulouse, France, December 2010

"On the relationship between plane and solid geometry", First Meeting of the Association for the Philosophy of Mathematical Practice, Brussels, Belgium, December 2010

"Purity in arithmetic: formal and informal issues", conference on the number concept: axiomatization, cognition and genesis, Université Nancy 2, Nancy, France, November 2010

"The preference for 'pure' proofs", Midwest Model Theory Day, University of Illinois–Chicago, October 2010

"Contrasting metric and projective proofs of Desargues' theorem", colloquium on contrasting proofs, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, June 2010

"Descartes and the cylindrical helix", colloquium for Henk Bos, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, May 2010

"The geometric / algebraic distinction", philosophy colloquium, Université Blaise Pascal, Clermont-Ferrand, France, April 2010

"The complexity of pure and impure proof", philosophy of mathematics colloquium, IHPST, Université Paris 1 Panthéon-Sorbonne, Paris, France, April 2010

"Purity and the carving of mathematics", séminaire de philosophie des mathématiques, workshop on "carving mathematics up", REHSEIS, Université Paris 7 - Diderot, Paris, France, April 2010

"The geometric / algebraic distinction", colloquium on mathematical practices, Universidad Autónoma de Madrid, Madrid, Spain, March 2010

"Simplicity and elementary methods", colloquium on simplicity as an epistemological value in scientific practice, Institut d'Etudes Avancees Paris and REHSEIS, Université Paris Diderot - Paris 7, Paris, France, January 2010

"Purity of methods and the identity of problems", colloquium on the imaginary, the ideal and the infinite in mathematics, Pont-à-Mousson, France, June 2009

"Purity of methods", Foundational Adventures: a conference in honor of the 60th birthday of Harvey Friedman, Columbus, OH, May 2009

"Purity and understanding", colloquium on mathematical understanding, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, June 2008

"Purity of methods: some thoughts on relevance", colloquium on the foundations of mathematics from Kant to Hilbert: analytical philosophy in perspective, Universidad Nacional Autónoma de México (UNAM), Mexico City, Mexico, September 2007

"Coxeter, Frege, and determining problems", colloquium on philosophy of mathematics as an interpretative enterprise: how much history of mathematics should the philosophy of mathematics be able to account for? REHSEIS, Université Paris Diderot - Paris 7, Paris, France, June 2007

"Purity of methods", Philosophy of Mathematics Colloquium, IHPST, Université Paris 1 Panthéon-Sorbonne, Paris, France, May 2007

"Semantic uncertainty in nineteenth century mathematical analysis", Colloquium on the Development of Mathematical Analysis in the 18th and 19th Centuries, UNAM, Mexico City, October 2005

"Purity of methods", Pennsylvania State University Logic Seminar, State College, PA, June 2005

"Purity of methods: some logical perspectives", Southern Wisconsin Logic Colloquium, Madison, WI, May 2005

"Purity of methods", University of Wisconsin–Madison Mathematics Colloquium, Madison, WI, May 2005

"Purity in mathematics", Trinity University Mathematics Colloquium, San Antonio, TX, February 2005

"Systematicity in Descartes' geometry", colloquium on the history and philosophy of mathematics, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, January 2005

"Purity of proof", Seminar on the history and philosophy of mathematics, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, January 2005

"The epistemic value of purity", Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Central Division, Chicago, IL, April 2004

"The epistemic value of purity", Department of Philosophy, Kansas State University, Manhattan, KS, January 2004

"The epistemic value of purity", Department of Philosophy, Virginia Polytechnic Institute and State University, Blacksburg, VA, January 2004

"Degree complexity of models of arithmetic and connections with independence result", UCLA Logic Colloquium, Los Angeles, CA, October 2003

"Purity in early modern geometry", Working group in history and philosophy of logic, mathematics, and science, University of California, Berkeley, CA, September 2003

"Degree complexity of models of arithmetic and connections with independence results", Logic Colloquium, University of California, Berkeley, CA, September 2003

"Effectiveness questions in arithmetic", Fall Central Section Meeting, American Mathematical Society, Special Section on Effectiveness Questions in Model Theory, Madison, WI, October 2002

"Methodological purity as a mathematical ideal", Carnegie Mellon University Pure and Applied Logic Colloquium, Pittsburgh, PA, March 2002

"Arithmetical incompleteness as a metamathematical tool", University of Wisconsin–Madison Logic Seminar, Madison, WI, March 2002

"Methodological purity as a mathematical ideal", Department of Philosophy, Stanford University, Stanford, CA, January 2002

"Methodological purity as a mathematical ideal", Department of Philosophy, Indiana University, Bloomington, IN, January 2002

Workshop talks

"L'hygiène mathématique : une introduction illustrée par le cas Bourbaki", Journée ANR BANANA, Paris, November 2024

"Table ronde sur *Elements of purity*", École thématique CNRS Mathématiques et Philosophie Contemporaines XI, Saint-Ferréol, France, June 2024

"Mathematical Hygiene'", Fourth Nancy-Irvine Workshop on Formalization in Logic, Language, and Mathematics, Nancy, May 2024

"Intuition from the perspectives of Kitaro Nishida and Gaisi Takeuti", Nancy-Liège Workshops on Mathematical Intuition, Liège edition, November 2023

"The geographicity of mathematics as a philosophical problem", Third Nancy-Irvine Workshop on Formalization in Logic, Language, and Mathematics, Nancy, September 2023

"Poincaré, uniformisation and purity", Second Nancy-Irvine Workshop on Formalization in Logic, Language, and Mathematics, Irvine, California, April 2023

"Takeuti on finite and infinite sets", École Normale Supérieure, Archives Husserl, workshop on Self and Infinity, March 2023

"Takeuti on finite and infinite sets", Arctic Set Theory Workshop 6, Kilpisjärvi, Finland, February 2023

"Meaning and interpretation in mathematics", First Nancy - Irvine Workshop on Formalization in Logic, Language, and Mathematics, Archives Poincaré, Nancy, September 2022

"Purity of methods chez Poincaré", Poincaré colloquium, Archives Henri Poincaré, July 2022

"Table ronde sur les précis de philosophie de la logique et des mathématiques", École thématique CNRS « Computation et algorithmes : anciens et nouveaux enjeux pour la philosophie des mathématiques », Marcoux (château de Goutelas), France, June 2022

"Mathematical hygiene" (with Heather Burnett), Ling Lunch, UFR de linguistique et Laboratoire de linguistique formelle, Université Paris Cité, October 2021

"The significance of reversals in Hilbert's geometry", Working group on axioms and definitions (Paris 1 / Paris 7 / Aix-Marseille), Université Paris 7, June 2019

"The very idea of a reversal", History and Philosophy of Reverse Mathematics workshop, Ludwig-Maximilians-Universität Munich, Germany, May 2019

"Simplicity and reverse mathematics", History and Philosophy of Reverse Mathematics workshop, Université Paris 1, February 2019

"Purity, content, and arithmetic", Arctic Set Theory Workshop 4, Kilpisjärvi, Finland, January 2019

"Logical purity and normalization", French-Japanese Workshop on Philosophy of Logic and Mathematics, Keio University, Tokyo, Japan, January 2018

"Imagination, geometry and algebra", Arctic Set Theory Workshop 3, Kilpisjärvi, Finland, January 2017

"Purity and content — the purity constraint, in the case of arithmetical proofs", French-Japanese Workshop on Philosophy of Logic and Mathematics—Towards Philosophy of Proofs, Keio University, Tokyo, Japan, January 2017

"Signification, interprétation et l'objectivité de la pureté", CNRS thematic school for young researchers on mathematics and contemporary philosophy (MPhC IV), Toulouse, France, June 2016

"Complexity of proof and purity of methods", French-Japanese Workshop on Philosophy of Proofs, Keio University, Tokyo, Japan, January 2016

"Les théorèmes de Gödel : une introduction", Université Paul Sabatier, Toulouse, France, December 2015

"La profondeur mathématique", workshop on problems in the philosophy of mathematics, IMéRA, Marseille, France, April 2015

"La profondeur mathématique", CNRS thematic school for young researchers on mathematics and contemporary philosophy (MPhC III), Toulouse, France, March 2015

"Grumeaux d'ordre dans une pâte informe : sur la profondeur du théorème de Szemerédi", conference of resident fellows, IMéRA, Marseille, France, December 2014

"La pureté des méthodes", conference of resident fellows, IMéRA, Marseille, France, September 2014

"Purity of methods in contemporary mathematics", CNRS thematic school for young researchers on mathematics and contemporary philosophy, Saint-Flour, France, June 2012

"Imagination & geometry in Descartes" (with Sébastien Maronne and David Rabouin), workshop on early modern mathematics, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, March 2012

"Complexity and opacity in early modern geometry" (with Sébastien Maronne), Ideals of Proof conference, University of Notre Dame, USA, November 2011

"Geometric model theory and the foundations of mathematics", Philosophy of Mathematics Workshop, REHSEIS (Recherches Epistémologiques et Historiques sur les Sciences Exactes et les Institutions Scientifiques), Université Paris Diderot - Paris 7, Paris, France, November 2010

"The algebraic / geometric distinction", Philosophy of Mathematics Workshop, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, June 2010

"The complexity of pure and impure proof", IP Fellows seminar, Paris, France, January 2010

"The identity of problems", colloquium on problems, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, December 2009

"Constructions and equations in early modern geometry" (with Sébastien Maronne), workshop on early modern mathematics, REHSEIS, Paris, France, October 2009

"The geometric / algebraic distinction", IP Fellows seminar, Paris, France, September 2009

"Purity as an ideal of proof", meeting of the von Humboldt TransCoop Programme "Imaginary and Ideal Elements and Limit Concepts in Mathematics: Their Theory, History and Philosophical Understanding", Ludwig-Maximilians-Universität München, Munich, Germany, June 2008

"On formally measuring and eliminating extraneous notions in proofs", midterm meeting of the von Humboldt TransCoop Programme "Imaginary and Ideal Elements and Limit Concepts in Mathematics: Their Theory, History and Philosophical Understanding", University of Notre Dame, Notre Dame, IN, October 2007

"Purity", Working seminar on the history and philosophy of mathematics, REHSEIS, Université Paris Diderot - Paris 7, Paris, France, June 2007

"Elementary purity", Workshop on philosophical approaches to mathematics and its history, University of Pittsburgh, Pittsburgh, PA, July 2003

"A defense of systematic purity", Workshop on philosophical approaches to mathematics and its history, University of Pittsburgh, Pittsburgh, PA, July 2003

Many research talks in Notre Dame, Stanford, Illinois, and Paris logic and history and philosophy of mathematics seminars over the years

Conference talks

"Intuition and creativity: the Japanese perspectives of Kitaro Nishida and Gaisi Takeuti", International Congress of Logic, Methodology and Philosophy of Science and Technology (CLMPST), Buenos Aires, Argentina, July 2023

"Comments on Baldwin", Symposium on John Baldwin's *Model Theory and the Philosophy of Mathematical Practice*, International Congress of Logic, Methodology and Philosophy of Science and Technology (CLMPST), Prague, Czech Republic, August 2019

"Logic curricula in undergraduate philosophy education", Association for Symbolic Logic / American Philosophical Association, Central Division, New Orleans, LA, February 2013

"On the relationship between plane and solid geometry", Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, October 2010

"Purity of methods", Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2006

"Logic instruction and philosophy graduate training", Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Pacific Division, San Francisco, CA, March 2005

"Systematicity in Descartes' geometry", Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2004

"Methodological purity as a mathematical ideal", Midwest Philosophy of Mathematics Workshop, University of Notre Dame, Notre Dame, IN, November 2001

"Minimal consistency and independence over PA", Spring Meeting, Association for Symbolic Logic / American Philosophical Association, Central Division Meeting, Minneapolis, MN, May 2001

"Arithmetic and independence", Annual Meeting, Association for Symbolic Logic, University of Pennsylvania, Philadelphia, PA, March 2001

"Arithmetic and independence", Midwest Philosophy of Mathematics Workshop, Carnegie Mellon University, Pittsburgh, PA, December 2000

"Possible m-diagrams of models of arithmetic", Annual Meeting, Association for Symbolic Logic, University of California at San Diego, San Diego, CA, March 1999

Professional service

Elected member of the Comité National des Universités (CNU), Section 17, rang A, suppléant, since 2023

Chair of the Association for Symbolic Logic (ASL) Committee for Logic in Europe, since 2020

Elected member of the administrative council of the Comite National Français d'histoire et de Philosophie des Sciences et des Techniques, since 2023

Elected member, Comite National Français d'histoire et de Philosophie des Sciences et des Techniques, since 2021

Council, Association of Symbolic Logic, since 2016

Editor of *Philosophers' Imprint*, since 2018

Elected member of the Comité National des Universités (CNU), Section 17, rang B, suppléant, 2019–2020

Coordinating editor of the *Review of Symbolic Logic*, 2016–2019

Editor of the *Review of Symbolic Logic*, 2014–2015

Directive committee, Association for the Philosophy of Mathematical Practice (APMP), 2014–2018

Editor of the Open Logic Project (https://openlogicproject.org) since 2013

Referee for Blackwell, Cambridge University Press, Longman, Birkhauser, World Scientific, Springer, *Journal of Philosophy*, *Philosophers' Imprint*, *Philosophy and Phenomenological Research*, *Synthese*, *Journal of Symbolic Logic*, *Bulletin of Symbolic Logic*, *Review of Symbolic Logic*, *Notre Dame Journal of Formal Logic*, *Journal of the History of Analytic Philosophy*, *Dialectica*, *Erkenntnis*, *Thought*, *Philosophia Mathematica*, *Historia Mathematica*, *Minds and Machines*, *Dialogue*, *Annals of Mathematics and Artificial Intelligence*, *Ergo*, *Axiomathes*, *Perspectives on Science*, *Philosophia Scientiae*, *Philosophical Problems in Science* (*Zagadnienia Filozoficzne w Nauce*), *Semantic Studies*, *Teaching Philosophy* and *CultureMATH*

Referee for National Science Centre, Poland

Referee for Social Sciences and Humanities Research Council (SSHRC), Canada

Referee for the FNRS (National Fund for Scientific Research), Belgium

Referee for the VQR 2011-2014, Italy

Referee for the Notre Dame Institute for Advanced Study, University of Notre Dame, United States

Referee for l'École des hautes études hispaniques et ibériques, Madrid, Spain

Referee for Posgrado en Filosofía de la Ciencia, Universidad Nacional Autónoma de México

Referee for the Programme de Bourses Fernand Braudel–IFER incoming, Fondation Maison des Sciences de l'Homme, Paris, France, 2014

Referee for LATA 2014 (8th International Conference on Language and Automata Theory and Applications), November 2013

Scientific organisation

Organizing committee, Sixteenth French Philosophy of Mathematics Workshop (FPMW16), Archives Poincaré, Nancy, October 2024

Co-organiser, Nancy-Liège Workshops on Mathematical Intuition, Liège edition, November 2023

Co-organiser, Conference: Political and Social Aspects of Language and Mathematics (PSALM), Université Paris Cité, October 2023

Organiser, Nancy-Irvine Workshop on Formalization in Logic, Language, and Mathematics, Nancy, September 2023

Co-organiser, Nancy-Liège Workshops on Mathematical Intuition, Nancy edition, May 2023

Organiser, Nancy-Irvine Workshop on Formalization in Logic, Language, and Mathematics, Nancy, September 2022

Co-organiser, Conference on Reverse Mathematics and Its Philosophy (with Denis Hirschfeld, mathematics, Chicago ; Laurent Bienvenu, computer science, Bordeaux ; Benoit Monin, computer science, Fontainebleau ; Ludovic Patey, computer science, Lyon), University of Chicago Center in Paris, June 2022

Scientific committee, French Philosophy of Mathematics Workshop, since 2010

Local organizing committee (co-chair), Eleventh French Philosophy of Mathematics Workshop (FPMW11), Paris, France, November 2019

Co-organiser of Paris-Munich seminar on the History and Philosophy of Reverse Mathematics, Université Paris 1 and Ludwig Ludwig-Maximilians-Universität Munich, financed by the Centre de coopération universitaire franco-bavarois (BayFrance), February and May 2019

Local organizing committee (co-chair), Tenth French Philosophy of Mathematics Workshop (FPMW10), Paris, France, November 2018

Program committee, Computability in Europe 2017, Univeristy of Turku, Finland, June 2017

Organizing committee, Seventh French Philosophy of Mathematics Workshop (FPMW7), Paris, France, November 2015

Local organizing committee (chair), ASL Annual Meeting, University of Illinois, March 2015

Local organizer and program committee, Second International Meeting of the Association for the Philosophy of Mathematical Practice, University of Illinois, October 2013

Local organizer and program committee, Fourteenth Midwest PhilMath Workshop, University of Illinois, October 2013

Program committee (chair), ASL / APA Central Division meeting, New Orleans, February 2013

Member of the ASL Committee on Logic Education, 2005–2008 term, 2008–2011 term, 2011–2014 term

Scientific committee, Logicism Today conference, Besse-en-Chandesse, France, June 2011

Program committee, Third International Congress on Tools for Teaching Logic (TICTTL), Salamanca, Spain, June 2011

Co-organizer of the philosophy of mathematics seminar, University Paris Diderot – Paris 7, 2009–2010

Program committee, 2005 APA / ASL Pacific Division meeting, for the ASL joint session, and co-chair of the Logic Instruction and Philosophy Graduate Training panel, San Francisco, CA

Organizing committee for the APA Mini-Conference on Rufus of Cornwall, 2005 APA Pacific Division meeting, San Francisco, CA

Local organizing committee, 2005 ASL annual meeting, at Stanford University, Stanford, CA

Co-organizer, First Annual Graduate Conference in Mathematical Logic, Notre Dame, IN, 1999

University service

Co-chair, committee to develop an undergraduate general educational course (UGE) course, Center for the Understanding of Origins, KSU, 2004–5

Organizer, Stanford Humanities Center workshop "Logical Methods in the Humanities", 2003–4, 2002–3 (co-organizer), Stanford University

Faculty representative, Guiding Concilio of El Centro Chicano, 2003–4, Stanford University

Departmental service

Director, Archives Henri-Poincaré (UMR 7117), CNRS, Université de Lorraine and Université de Strasbourg, since June 2022

Search committee, for assistant professor of logic, Université de Lille, 2024
Search committee, for professor of philosophy of science, Université de Lorraine, 2022
Executive committee, Paris 1 philosophy, 2018–2020

Undergraduate program committee, Illinois philosophy, 2014–2015

Search committee for open rank position in the philosophy of the sciences (chair), Illinois philosophy, 2014–2015

Search committee for one year position in logic (chair), Illinois philosophy, 2013–2014

Search committee for senior position in the philosophy of the sciences (chair), Illinois philosophy, 2013–2014

Search committee for one semester position in logic (chair), Illinois philosophy, 2013–2014

Associate chair, Illinois philosophy, 2012–2014

Course scheduler, Illinois philosophy, 2012–2014

Graduate program committee, TA oversight committee, admissions committee, grievance committee, Illinois philosophy, 2013–2014

Departmental review committee (chair), Illinois philosophy, 2012–2013

Courses and curriculum committee (chair), graduate program committee, TA oversight committee, Illinois philosophy, 2012–2013

Speaker series coordinator, KSU philosophy, 2011–2012

Search committee, junior tenure-track position in social and political philosophy, KSU philosophy, 2011–2012

Curriculum committee, KSU philosophy, 2011

Search committee, junior tenure-track position in metaphysics and epistemology, KSU philosophy, 2011

Search committee, one-year open area position, KSU philosophy, 2011

Departmental webmaster, KSU philosophy, 2004–2012

Departmental representative, Kansas State (KSU) NEH Library Committee, 2004–2012

Search committee, junior tenure-track position in philosophy of physics, KSU philosophy, 2004–5

Colloquium committee chair, Stanford philosophy, 2003–4 academic year

Honors and awards

Teacher Ranked as Excellent, for Philosophy 501, University of Illinois, Spring 2014

Teacher Ranked as Excellent, for Philosophy 206, University of Illinois, Fall 2013

Teacher Ranked as Excellent, for Philosophy 206 and Philosophy 439, University of Illinois, Spring 2013

Teacher Ranked as Excellent, for Philosophy 206 and Philosophy 454, University of Illinois, Fall 2012

Kaneb Center Outstanding Graduate Teaching Assistant Award (Philosophy), University of Notre Dame, 2002

Graduate Student Union Teaching Award for Instructors, University of Notre Dame, 2001 (university-wide, given to one student instructor per year)

Kaneb Center Outstanding Graduate Teaching Assistant Award (Mathematics), University of Notre Dame, 2000

Languages

Fluent: English (mother tongue), French

Competences: Spanish, Italian, German, Japanese

Graduate supervision

Rémi Blondel, philosophy, Université de Lorraine, 2024 –

Daniel Usma Gomez, *Les objets des mathématiques comme 'intentions' : philosophie des mathématiques dans l'œuvre de Thomas D'Aquin*, philosophy, Université de Lorraine, 2022 –

Adrien Champougny, *Quel type de connaissance les résultats d'inversion en mathématiques à rebours nous procurent-ils ?*, philosophy, Université Paris 1, 2019–

James Keller, *Investigations Linking The Philosophy And Psychology Of Mathematics*, philosophy, University of Illinois at Urbana-Champaign, thesis defended 3 April 2020

Ian Hegger, *Nothing to disagree about: Aristotle, Newton, and the existence of void as seen through a Kuhnian lens*, philosophy, University of Illinois at Urbana-Champaign, thesis defended 27 July 2015

Director of numerous masters theses at Univ. Lorraine and at Univ. Paris 1

Teaching

(1: introductory undergraduate, 2: sophomore/junior, 3: advanced undergraduate, 4: graduate)

Courses taught at Université de Lorraine

Epistemology of formal sciences and AI, Fall 2024 (4)

General philosophy (on infinity), Fall 2020, Fall 2021 (3)

General philosophy (Plato, Augustine, Nietzsche), Spring 2021, Spring 2022, Spring 2023, Spring 2024 (2)

Formal epistemology, Fall 2020, Fall 2021, Fall 2022, Fall 2023 (4)

Philosophy of language, Spring 2021, Spring 2022 (2)

Philosophy of logic, Fall 2020, Fall 2021, Fall 2022, Fall 2023 (4)

Philosophy of mathematics, Spring 2021, Spring 2022, Spring 2023, Spring 2024 (4)

Courses taught at Université Paris 1 Panthéon-Sorbonne

Philosophy of mathematics, Fall 2016, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020 (4)

Model theory, Fall 2015, Spring 2016, Fall 2016, Fall 2017, Fall 2018, Fall 2019 (4)

Theory of knowledge, Fall 2015, Spring 2017 (on theoretical and practical knowledge); Spring 2018 (on formal epistemology) (4)

Non-euclidean geometry, Fall 2015 (3)

Algebraic geometry, Fall 2017, Fall 2018, Fall 2019 (3)

Projective geometry, Fall 2017, Fall 2018, Fall 2019 (2)

Logic for non-specialists, Fall 2018 (4)

Philosophy of logic, Spring 2016 (3)

Logic, Spring 2016, Spring 2017 (1)

Courses taught at Illinois

Spinoza seminar, Spring 2014 (4)

Dissertation seminar, Fall 2013 (4)

Philosophy of mathematics, Spring 2013 (3, 4)

Advanced symbolic logic, Fall 2012 (3, 4)

Early modern philosophy, Fall 2012, Spring 2013, Fall 2013 (2)

Independent study in early modern philosophy, Fall 2012 (4)

Independent study in philosophy of physics, Spring 2013 (4)

Independent study in philosophy of mathematics, Spring 2014 (4)

Courses taught at Kansas State

Ancient philosophy, Fall 2011 (2)

History of modern philosophy, Spring 2008, Spring 2009, Spring 2011 (2)

Epistemology, Fall 2007 (3)

Symbolic logic 2, Spring 2007 (3)

Philosophy of religion, Spring 2006, Fall 2008 (3)

The development of analytic philosophy, Spring 2005, Spring 2012 (3)

Introduction to philosophy of religion, Fall 2005, Spring 2006, Summer 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Summer 2009, Fall 2010, Spring 2011, Fall 2011 (1)

Introduction to moral philosophy, Fall 2010 (1)

Introduction to formal logic, Spring 2005 (1)

Introduction to philosophical problems, Fall 2004, Fall 2005 (1)

Independent study in mathematical logic (model theory, computability theory), Fall 2005, Spring 2006, Summer 2006, Fall 2006, Spring 2007, Fall 2007 (4)

Courses taught at Stanford

Philosophy of mathematics seminar (on creation in mathematics), Spring 2004 (4)

Computability and logic, Spring 2003, 2004 (3, 4)

First–order logic, Winter 2003, 2004 (3, 4)

Basic concepts in mathematical logic, Fall 2002, 2003 (3, 4)

Directed readings in theories of truth and in the philosophy of algebra, Fall 2003 (4)

Directed readings in the history of analytic philosophy, focused on Frege's philosophy of language, Summer 2003 (3)

Theory of knowledge, Winter 2003 (3)

Courses taught at Notre Dame

Introduction to philosophy, Spring 2001, Fall 2001 (1)

Calculus II for mathematics, science, and engineering students, Fall 2000 (1)

Calculus I for arts and letters students, Fall 1999 (1)

Calculus II for business students, Summer 1998, Spring 1999 (1)

Teaching assistant for various sections of Introduction to philosophy (1), Calculus II (1), and Linear algebra (2), 1997–2000