

Daniele Turchetti

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Research Interests

Algebraic geometry, number theory, analytic geometry

Berkovich spaces, arithmetic curves, tropical geometry, moduli spaces and modular forms, ramification theory, combinatorial algebraic geometry, and group representations.

Education

10/2011 - 11/2014	PhD in Mathematics , <i>Université de Versailles Saint-Quentin-en-Yvelines</i>
Thesis title	Contributions to arithmetic geometry in mixed characteristic.
09/2010 - 07/2011	MSc in Algebra and Arithmetics , <i>Université de Paris 11</i> (Orsay)
10/2005 - 08/2010	BSc, MA in Mathematics , <i>Università di Padova</i>

Professional experience

08/2021 - present	Post-doctoral fellow, <i>University of Warwick</i>
09/2021 - 12/2021	Adjunct lecturer, <i>NYU - London</i>
08/2018 - 12/2020	AARMS post-doctoral fellow, <i>Dalhousie University</i>
08/2018 - 12/2020	Outreach coordinator, <i>Atlantic Association for Research in the Mathematical Sciences</i> (AARMS)
09/2016 - 07/2018	Post-doctoral fellow, <i>Université de Caen - Normandie</i>
09/2015 - 08/2016	Post-doctoral fellow, <i>Max Planck Institute for Mathematics - Bonn</i>
02/2015 - 08/2015	Post-doctoral fellow, <i>University of Leiden</i>
10/2011 - 09/2014	Instructor and Teaching Assistant, <i>Université de Versailles</i>

Selected grants and awards

09-12/2022	Invited researcher at <i>FIM - Institute for Mathematical Research</i> , Zürich
04/2019	“Research in Paris” at <i>Institut Henri Poincaré</i>
01/2019	NSERC PromoScience grant
05/2018	Recipient of the <i>Fondation des Treilles Young Researcher Prize</i>

2017-2020	Conference organization grants by <i>Foundation Compositio Mathematica</i> ; <i>Journal de Théorie des Nombres de Bordeaux</i> ; ANR <i>GLOBES</i> ; GDR <i>GAGC</i> ; <i>Pacific Institute for Mathematical Sciences</i> , <i>AARMS</i>
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Publications

- [1] (with J. Poineau) Berkovich curves and Schottky uniformization I: the Berkovich affine line. In “Arithmetic and geometry over local fields”, *Lecture Notes in Mathematics 2275*, Springer (2021).
- [2] (with J. Poineau) Berkovich curves and Schottky uniformization II: analytic uniformization of Mumford curves. In “Arithmetic and geometry over local fields”, *Lecture Notes in Mathematics 2275*, Springer (2021).
- [3] (with L. Fantini) Triangulations of non-archimedean curves, semi-stable reduction, and ramification. To appear in *Annales de l’Institut Fourier* (2021).
- [4] (with L. Fantini) Galois descent of semi-affinoid spaces. *Mathematische Zeitschrift* (2018), vol. 290: 1085-1114.
- [5] (with G. Chinello) Weil representation and metaplectic groups over an integral domain. *Communications in Algebra* 43 (2015), no. 6: 2388-2419.

*Preprints*¹

- [Pp1] (with A. Obus) Stabilization indices of potentially Mumford curves (2021). Submitted for publication.
- [Pp2] (with J. Poineau) Schottky spaces and universal Mumford curves over \mathbb{Z} (2021). Submitted for publication.
- [Pp3] Equidistant liftings of Galois covers of elementary abelian groups (2020). Submitted for publication.
- [Pp4] Hurwitz graphs and Berkovich curves (2019).

Outreach texts

- [i] Dans les coulisses du *MoMath*. *Images des Mathématiques*, CNRS, 2019.
- [ii] Buissons et balais: la forme des espaces analytiques non-Archimédiens. *Images des Mathématiques*, CNRS, 2013.

Research students

· Charley Finch, MMath Warwick, 2021/22 (Co-advisor: Rob Silversmith)

¹All the preprints are available online at www.mathstat.dal.ca/~dturchetti/.

Teaching

2021-22 (NYU - London)

- **Instructor for *Calculus I*.**
- **Instructor for *Algebra and Calculus I*.**

2021 (Durham University)

- **Tutorials for *Analysis I*.** Topics include: sequences, series, power series, differentiability and integration.
- **Tutorials for *Statistics I*.** Topics include: Bayesian inference, probability distributions, confidence intervals, and hypothesis testing.

2018-19, 2019-20 (Dalhousie University)

- **Instructor for *Matrix Theory and Linear Algebra II*,** for second year students in the Faculty of Science. Topics included: abstract vector spaces, inner product and Hermitian spaces, and applications such as Fourier series, least squares approximation, and linear codes.
- **Online content developer.** In 2020 the *Matrix Theory and Linear Algebra* course was offered online and I have developed remotely accessible resources and content that will be used by future teachers.

2016-17 (Université de Caen)

- **Teaching Assistant for *Mathématiques*,** mathematics course for first year students in Economics, Administration and Social Science. Topics include polynomial equations, linear algebra and graph theory with a focus on applications to economics.

2014-15 (Leiden University College)

- **Instructor for *Statistics*,** statistics course for first year students majoring in Economics and Political Science. I was responsible both for teaching and running lab sessions, teaching the students to use the program *R*.

2011-12, 2012-13, and 2013-14 (Université de Versailles)

For each of the three years of my Ph.D. program I have served as:

- **Teaching Assistant for *Mathématiques Générales 3*,** course in calculus (including linear and ordinary differential equations) and linear algebra for second year math students.
- **Instructor for *Cours préparatoire au concours ENSI*,** to prepare students for the competitive selection process to get admission to the French *Ecoles d'Ingegnieurs*.

Public Outreach

07/2023	Co-organizer of the <i>BRIDGES Math and Art in Halifax</i> conference
03/2022	Speaker at <i>Royal Institution Masterclass</i> on “The shape of our world”
2019 - 2020	Online and in-person contributor for <i>NS MathCircles</i> workshops
10/2018 - 12/2019	Co-host of <i>Math challenge club</i> at Dalhousie University
11/2019	Co-organizer of <i>Discovery days: Rubik’s cube and other puzzles</i> at the Discovery Centre, Halifax, NS
06/2019	Co-organizer of the <i>Discovery days: Tau Day</i> math festival at the Discovery Centre, Halifax, NS
05/2019	Outreach invited speaker at the <i>Algant Alumni Network Symposium 2019</i>
05/2019	Co-organizer of <i>All SySTEMs go! 2019</i> , Halifax, NS
2013 - 2019	Contributor and referee for the CNRS sponsored website <i>Images des maths</i>
2017 - 2018	Associated member of the equipe <i>Diffusion de la culture mathématique</i> at the University of Caen
11/2017	Curator of the exhibition <i>IMAGINARY - Open Mathematics</i> in Caen
2013 - 2016	Workshop presenter for the <i>Fête de la Science</i> at Sorbonne Université & University of Caen
06/2013	Workshop presenter for the scientific festival of the association <i>Paris Montagne</i> at the <i>Ecole Normale Supérieure de Paris</i>

Service activities

2017 - Ongoing	Referee for peer-reviewed international mathematical journals
01/2020	Co-organizer of <i>Combinatorial Algebra meets Algebraic Combinatorics 2020</i> (international research conference), Dalhousie University
10/2019	Assistant organizer of <i>Science Atlantic - Mathematics, Statistics and Computer Science 2019</i> (research undergraduate event), Dalhousie University
11/2017	Co-organizer of the conference <i>Algebraic Geometry with “Fancy” Coefficients</i> , Université de Caen (international research conference)
2012 - 2014	Graduate student representative at the graduate school <i>Sciences et Technologies de Versailles</i>
2012 - 2014	Organizer of the <i>Young Researchers Seminar</i> at Versailles
2012 - 2014	Co-organizer of the workshop <i>Les Incontournables</i> , on the fundamental papers of algebraic geometry, Institut de Mathématiques de Jussieu

Selected Talks

Invited research talks

10/2021	<i>Linfoot Number Theory Seminar</i> , University of Bristol
09/2021	Conference <i>Non-Archimedean and tropical geometry</i> , University of Frankfurt
06/2021	<i>Algebraic Geometry Seminar</i> , University of Warwick
03/2021	<i>Séminaire de théorie des nombres de l'IMJ-PRG</i> , Paris
01/2021	<i>Arithmetic Study Group</i> , Durham University
07/2020	<i>(Quarantined) Number Theory and Algebraic Geometry Seminar</i> , Simon Fraser University
05/2019	Conference <i>ALGANT Alumni Network Symposium</i> , Benasque
04/2019	<i>Seminario di Geometria Algebrica e Teoria dei Numeri</i> , Università di Padova
03/2019	<i>Quebec-Vermont Number Theory seminar</i> , McGill University, Montréal
12/2018	<i>Abstract Algebra guest lecture</i> , Yeshiva University, New York
06/2018	<i>Séminaire de Théorie des Nombres</i> , Université de Bordeaux
03/2018	<i>Séminaire de Géométrie Algébrique</i> , Université de Montpellier
03/2018	<i>Séminaire d'Arithmétique et Géométrie Algébrique</i> , Université de Strasbourg
02/2018	<i>Galois seminar</i> , University of Pennsylvania, Philadelphia
01/2018	<i>Séminaire d'Arithmétique</i> , Université de Rennes 1
07/2017	Conference <i>Berkovich spaces, Tropical Geometry and Model Theory</i> , Bogotá
06/2017	<i>Journée de la Federation Normandie Mathématiques</i> , Rouen
05/2017	<i>MAGIC Seminar</i> , Imperial College, London
	<i>Symmetrie, Geometrie und Arithmetik seminar</i> , Universität Heidelberg
03/2016	<i>Séminaire géométrie et singularités</i> , Université de Rennes 1
	<i>Ergodic Theory seminar</i> , Ecole Polytechnique
	<i>Séminaire de théorie des nombres</i> , Université de Bordeaux 1
06/2015	<i>Séminaire de Théorie des Nombres</i> , Université de Montpellier
05/2015	<i>Séminaire de Théorie des Nombres</i> , Université de Limoges
11/2014	<i>Galois seminar</i> , University of Pennsylvania, Philadelphia
05/2014	<i>Algebra und Geometrie Oberseminar</i> , Goethe University, Frankfurt
04/2014	<i>Séminaire de géométrie tropicale</i> , Institut de Mathématiques de Jussieu
03/2014	<i>Collaborative Number Theory Seminar</i> , CUNY, New York
02/2014	<i>Algebraic geometry seminar</i> , NYU, New York

Contributed conference talks

08/2021	<i>Young Researchers in Algebra and Number Theory</i> , Bristol
06/2020	<i>Algebraic and Tropical Online Meetings</i>

01/2019	<i>Combinatorial Algebra meets Algebraic Combinatorics 2019</i> , University of Ottawa
06/2018	<i>Géométrie Algébrique en Liberté XXVI</i> , Strasbourg
09/2017	<i>Jeunes en Arithmétique et Variétés Algébriques</i> , Tatihou
07/2017	<i>Journées arithmétiques XXX</i> , Caen
01/2015	<i>MAA-AMS Joint Mathematical Meeting</i> , San Antonio
06/2014	<i>Géométrie Algébrique en Liberté XXII</i> , SISSA, Trieste