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

Professional experience

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

Selected grants and awards

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

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

Publications

[1] (with J. Poineau) Schottky spaces and universal Mumford curves over $\mathbb{Z}$. *Selecta Mathematica*, no. 28, 79 (2022).

[2] (with L. Fantini) Triangulations of non-archimedean curves, semi-stable reduction, and ramification. To appear in *Annales de l'Institut Fourier* (2021).

[3] (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).

[4] (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).

[5] (with L. Fantini) Galois descent of semi-affinoid spaces. *Mathematische Zeitschrift* (2018), vol. 290: 1085-1114.

[6] (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 M. Matignon) On the arithmetic and geometry of spaces $L_{m+1,n}$ (2022).

[Pp2] (with A. Obus) Stabilization indices of potentially Mumford curves (2021).

[Pp3] Equidistant liftings of Galois covers of elementary abelian groups (2020).

[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)

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[1] All the preprints are available online at `https://danieleturchetti.github.io/`.

Teaching

2022-23 (ETH - Zürich)

- **FIM minicourse:** *Berkovich analytification and tropicalization*.

2021-22 (NYU - London)

- *Calculus I* **(instructor)**. Limits, derivatives, integrals, fundamental theorem of calculus. Applications to optimization problems, classical mechanics, mathematical modeling.

- *Algebra and Calculus I* **(instructor)**. Functions in one variable: polynomials, exponentials, logarithms, trigonometric functions.

2021 (Durham University)

- *Analysis I* **(tutorials)**. Sequences, series, power series, differentiability and integration.

- *Statistics I* **(tutorials)**. Bayesian inference, probability distributions, confidence intervals, and hypothesis testing.

2018-19, 2019-20 (Dalhousie University)

- *Matrix Theory and Linear Algebra II* **(instructor)**. Abstract vector spaces, inner product and Hermitian spaces. Focus on applications: 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)

- *Mathématiques* **(teaching assistant)**. Polynomial equations, linear algebra and graph theory with a focus on applications to economics.

2014-15 (Leiden University College)

- *Statistics* **(instructor)**, 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)

- *Mathématiques Générales 3* **(teaching assistant)**. The course covered topics in calculus (including linear and ordinary differential equations) and linear algebra.

- *Cours préparatoire au concours ENSI* **(instructor)**, to prepare students for the competitive selection process to get admission to the French *Ecoles d'Ingegneurs*.

Public Outreach

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

Service activities

	Referee for peer-reviewed international mathematical journals
2023	Co-organizer of the *Algebraic Geometry Seminar*, University of Warwick
01/2020	Co-organizer of *Combinatorial Algebra meets Algebraic Combinatorics 2020* (international research conference), Dalhousie University
10/2019	Assistant organizer of *Science Atlantic - Mathematics, Statistics and Computer Science 2019* (research undergraduate event), Dalhousie University
11/2017	Co-organizer of the conference *Algebraic Geometry with "Fancy" Coefficients*, Université de Caen (international research conference)
2012 - 2014	Graduate student representative at the graduate school *Sciences et Technologies de Versailles*
2012 - 2014	Organizer of the *Young Researchers Seminar* at Versailles
2012 - 2014	Co-organizer of the workshop *Les Incontournables*, on the fundamental papers of algebraic geometry, Institut de Mathématiques de Jussieu

Selected Talks

Invited research talks

02/2023	*Algebra seminar*, University of Bristol
11/2022	*Séminaire de Théorie des Nombres*, Université de Bordeaux
10/2022	*Groups, arithmetic, and algebraic geometry*, EPFL, Lausanne
10/2021	*Linfoot Number Theory Seminar*, University of Bristol
09/2021	Conference *Non-Archimedean and tropical geometry*, University of Frankfurt
06/2021	*Algebraic Geometry Seminar*, University of Warwick
03/2021	*Séminaire de théorie des nombres de l'IMJ-PRG*, Paris
01/2021	*Arithmetic Study Group*, Durham University
07/2020	*(Quarantined) Number Theory and Algebraic Geometry Seminar*, Simon Fraser University
05/2019	Conference *ALGANT Alumni Network Symposium*, Benasque
04/2019	*Seminario di Geometria Algebrica e Teoria dei Numeri*, Universitá di Padova
03/2019	*Quebec-Vermont Number Theory seminar*, McGill University, Montréal
12/2018	*Abstract Algebra guest lecture*, Yeshiva University, New York
06/2018	*Séminaire de Théorie des Nombres*, Université de Bordeaux
03/2018	*Séminaire de Géométrie Algébrique*, Université de Montpellier
03/2018	*Séminaire d'Arithmétique et Géométrie Algébrique*, Université de Strasbourg
02/2018	*Galois seminar*, University of Pennsylvania, Philadelphia
01/2018	*Séminaire d'Arithmétique*, Université de Rennes 1
07/2017	Conference *Berkovich spaces, Tropical Geometry and Model Theory*, Bogotà
06/2017	*Journée de la Federation Normandie Mathématiques*, Rouen
05/2017	*MAGIC Seminar*, Imperial College, London
	Symmetrie, Geometrie und Arithmetik seminar, Universität Heidelberg
03/2016	*Séminaire géométrie et singularités*, Université de Rennes 1
	Ergodic Theory seminar, Ecole Polytechnique
	Séminaire de théorie des nombres, Université de Bordeaux 1
06/2015	*Séminaire de Théorie des Nombres*, Université de Montpellier
05/2015	*Séminaire de Théorie des Nombres*, Université de Limoges
11/2014	*Galois seminar*, University of Pennsylvania, Philadelphia
05/2014	*Algebra und Geometrie Oberseminar*, Goethe University, Frankfurt
04/2014	*Séminaire de géométrie tropicale*, Institut de Mathématiques de Jussieu
03/2014	*Collaborative Number Theory Seminar*, CUNY, New York
02/2014	*Algebraic geometry seminar*, NYU, New York

Contributed conference talks

08/2022	*LMS-Bath Workshop in Combinatorial Algebraic Geometry*, Bath
08/2021	*Young Researchers in Algebra and Number Theory*, Bristol
06/2020	*Algebraic and Tropical Online Meetings*
01/2019	*Combinatorial Algebra meets Algebraic Combinatorics 2019*, University of Ottawa
06/2018	*Géométrie Algébrique en Liberté XXVI*, Strasbourg
09/2017	*Jeunes en Arithmetique et Variétés Algébriques*, Tatihou
07/2017	*Journées arithmétiques XXX*, Caen
06/2014	*Géométrie Algébrique en Liberté XXII*, SISSA, Trieste