

Vlerë Mehmeti

Curriculum Vitae

Institut mathématique de Paris-Rive Gauche (IMJ-PRG), UMR 7586
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Employment

- 9/22 **Associate Professor (Maîtresse de Conférences)**, Institut de mathématiques de Jussieu-Paris Rive Gauche (IMJ-PRG), Sorbonne Université, France.
Research team: Topologie et Géométrie algébriques (TGA)
- 10/20 - 9/22 **Postdoc**, lauréate of the Fondation mathématique Jacques Hadamard (FMJH), Laboratoire mathématique d'Orsay, Université de Paris-Saclay, France.
Mentor: David Harari
- 3/20 - 9/20 **Postdoc**, Université de Caen Normandie, France.
Mentor: Jérôme Poineau
- 9/19 - 2/20 **Attaché temporaire d'enseignement et de recherche**, Université de Caen Normandie, France.
Temporary research and teaching position

Education

- 9/16 - 12/19 **Ph.D. Student in Mathematics**, Université de Caen Normandie, France.
Under the supervision of Jérôme Poineau, defended on 04/12/2019
Title: *Patching on Berkovich Spaces and the Local-Global Principle*
- 9/15 - 7/16 **Master 2 Analyse, arithmétique et géométrie**, Université Paris Sud, France.
M.Sc. in Mathematics, *Mention* for the master's programme: *Bien*
- 9/14 - 7/15 **Master 1 in Pure Mathematics**, École Polytechnique, Université Paris Saclay, France.
- 10/10 - 7/14 **B.Sc. in Mathematics**, University of Prishtina, Kosovo.

Publication(s) and Preprint(s)

- 2019 **Patching over Berkovich Curves and Quadratic Forms**, published in *Compositio Math.*, Vol. 155, Issue 12, pg. 2399-2438, 2019
- 2021 **Patching over Analytic Fibers and the Local-Global Principle**, published in *Mathematische Annalen*, Vol. 383, pg. 1825-1904, 2022
- 2022 **An analytic viewpoint on the Hasse principle**, to appear in *Journal de l'École polytechnique*, available on arxiv.org/abs/2203.16234
- 2023 **A survey of local-global methods for Hilbert's Tenth Problem**, joint with S. Anscombe, V. Karemaker, Z. Kisakürek, M. Pagano, L. Paladino. To appear in *Women in Numbers Europe 4*, Association for Women in Mathematics Series, Springer
- 2024 **Variation of the Hausdorff dimension and degenerations of Schottky groups**, joint with N.-B. Dang. Available at <https://arxiv.org/abs/2401.06107>

Talks

- 04/24 **Aromaths-Seminar for Bachelor's students**, Sorbonne Université, Paris
 Géométrie non archimédienne et applications
- 04/24 **Séminaire de géométrie complexe**, Université de Lorraine, Nancy
 Comportement asymptotique des familles de Schottky dégénérantes
- 03/24 **Groupe de Travail “Analyse, Géométrie et Dynamique”**, Université d'Orléans
 Dimension d'Hausdorff des ensembles limites de familles de Schottky dégénérantes
- 12/23 **Journée de l'équipe Topologie et géométrie algébriques**, Université Paris Cité
 Dimension de Hausdorff et espaces de Berkovich
- 11/23 **Séminaire géométrie et topologie**, Jussieu, France
 Variation de la dimension d'Hausdorff et dégénérescence des groupes de Schottky
- 07/23 **Regensburg days on non-archimedean geometry**, Conference, University of Regensburg, Germany
 Variation of Hausdorff dimensions of limit sets
- 05/23 **Théorie des modèles des corps valués**, Conference, CIRM, France
 A Hasse principle over Berkovich analytic curves
- 02/23 **Non-Archimedean methods in Arithmetic Geometry**, Conference, Les Diablerets, Switzerland
 Local-global principles over non-Archimedean analytic curves
- 02/23 **Mathématiques : Nom Féminin ?**, Intended for highschool students
 Géométrie p -adique et racines de polynômes
- 12/22 **Algebraic Geometry Seminar**, IMJ-PRG
 Recollement sur des fibres analytiques et principe local-global
- 10/22 **Colloquium de Créteil**, LAMA, Créteil
 Géométrie analytique non archimédienne et applications
- 09/22 **Seminar on Arithmetic Geometry and Algebraic Groups**, online
 Patching on analytic fibers and local-global principles
- 09/22 **Journée de rentrée de l'IMJ-PRG**, Jussieu
 Espaces de Berkovich et points rationnels
- 02/22 **Algebraic Geometry Seminar**, University of Warwick
 Rational points on varieties and Berkovich spaces
- 01/22 **Séminaire de combinatoire et théorie des nombres**, Institute Camille Jordan, University Lyon 1
 Principes de Hasse sur les courbes analytiques non archimédien
- 01/22 **Séminaire de géométrie arithmétique et motivique**, Université Paris 13
 Principes locaux-globaux et courbes de Berkovich
- 12/21 **Number Theory Seminar**, University of Copenhagen
 Local-global principles and Berkovich analytic curves
- 12/21 **Séminaire de théorie des nombres**, LMNO, University of Caen
 Divers principes locaux-globaux sur les courbes de Berkovich
- 11/21 **Non-Archimedean and Tropical Geometry**, École polytechnique (hybrid)
 Les squelettes des courbes de Berkovich et un principe de Hasse

- 11/21 **UP Seminar**, University of Prishtina, Kosovë (online)
 Colloquium: Local-global principle and non-Archimedean geometry
- 11/21 **Séminaire de théorie des nombres**, Institut Fourier, Grenoble
 Principe de Hasse sur les courbes analytiques non archimédiennes
- 10/21 **Séminaire de théorie des nombres**, Université de Franche-Comté, Besançon
 Hasse principles on non-Archimedean analytic curves
- 06/21 **France-Korea IRL Webinar**, online seminar
 Non-Archimedean analytic curves and the local-global principle
- 04/21 **Oberwolfach workshop: Algebraic Groups**, Oberwolfach (online)
 Local-global principles for homogeneous spaces and Berkovich analytic curves
- 02/21 **Séminaire arithmétique et géométrie algébrique (SAGA)**, LMO, Orsay
Espaces de Berkovich, recollement et principe local-global
- 07/20 **ALGAR 2020: Valuations, quadratic forms and definability**, (online) Summer school, University of Antwerp
Berkovich spaces, quadratic forms and the u-invariant
- 07/20 **GAAAAG: Geometric, Algebraic and Analytic Approaches to Arithmetic Geometry**, online workshop
Patching on Berkovich spaces
- 02/20 **Séminaire "Arithmétique et géométrie algébrique" de Strasbourg**, IRMA, Strasbourg
Recollement sur les courbes de Berkovich et principe local-global
- 01/20 **Number Theory Seminar**, Clermont-Ferrand
Espaces de Berkovich et principe local-global
- 08/19 **Non-Archimedean and Tropical Geometry**, Young Researcher's Conference, University of Regensburg
A Local-Global Principle over Berkovich Curves
- 05/19 **XXIX Rencontres Arithmétiques de Caen**, Île Tatihou
Berkovich Curves and a Local-Global Principle
- 04/19 **Séminaire "Réseau des Étudiants en Géométrie Algébrique"**, Institute Henri Poincaré, Paris
Courbes de Berkovich et principe local-global
- 03/19 **Séminaire "Géométrie et Théorie des modèles"**, École Normale Supérieure, Paris
Patching over Berkovich Curves
- 02/19 **Algebra Seminar**, University of Pennsylvania, Philadelphia
Patching on Berkovich Curves and a Local-Global Principle
- 11/18 **Seminar of Young Researchers**, Laboratoire de mathématiques Nicolas Oresme, Caen
Local-Global Principle
- 06/18 **École Jeunes Chercheurs en Théorie des Nombres 2018**, University of Franche-Comté, Besançon

Berkovich Curves and a Local-Global Principle

- 03/18 **Séminaire “Variétés Rationnelles”,** École Normale Supérieure, Paris
Patching on Berkovich Curves and Local-Global Principle
- 11/17 **Number Theory Seminar,** Laboratoire de mathématiques Nicolas Oresme, Caen
Patching on Berkovich Curves and Local-Global Principle

Mini-courses

- Sept. 2024 Mini-course: **Hilbert’s tenth problem and local-global principles**, École JCJC, CIRM, Marseille
- March 2024 Mini-course: **Berkovich spaces, Schottky groups, and the Hausdorff dimension of their limit sets**, ANR SINTROP meeting, École polytechnique, France
- August 2023 Mini-course: **Berkovich spaces and local-global principles for quadratic forms**, ALGAR Summer School, University of Antwerp, Belgium
- August 2022 Mini course: **Berkovich Spaces**, Young researchers’ conference on Non-Archimedean and Tropical Geometry, University of Regensburg
- July 2022 Course: **Introduction to Geometric Group Theory**, Summer School at the University of Prishtina, Kosovë
Website: <https://sites.google.com/view/geometric-group-theory-pisu-20>

Activities

- 2023 - 2024 **Reading group: Analytifications, Tropicalisations and compactifications of character varieties**, IMJ-PRG, Jussieu, Sorbonne Université (co-organiser)
- 2021 - 2022 **Workshop on étale cohomology**, University Paris-Saclay (co-organiser)
- 2020 - 2021 **Workshop on motivic integration**, University Paris-Saclay
- 02/2019 **Research visit at the University of Pennsylvania**, invitation by D. Harbater and J. Hartmann, dates: 25/02 - 01/03
- 2018 - 2019 **Workshop on Perfectoid Spaces**, University of Caen
- 2018 **Workshop on Ramanujan Graphs**, University of Caen
Talk: *The arithmetic of integer quaternions*
- 2017 - 2018 Co-organiser of the **Seminar of Young Researchers** of the Laboratoire de Mathématiques Nicolas Oresme, University of Caen
- 06/17 **Seminar of Young Researchers**, Laboratoire de mathématiques Nicolas Oresme, Caen
Square triangulations
- 10/16 **Seminar of Young Researchers**, LMNO, University of Caen
Topological Coverings and Complex Covers
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- Teaching (Caen Normandy 2016-2020, Paris-Saclay 2020-2021, Sorbonne University 2022-current)**
- 2023-2024 Exercise Sessions in *Algebra and Arithmetics*, 3rd year Mathematics
Exercise Sessions in *Algebra*, 3rd year Mathematics
Exercise Sessions in *Mathématiques Approfondies*, 1st year Mathematics

- Exercice Sessions in *Topology and differential calculus*, 3rd year Mathematics
- 2022 - 2023 Exercise Sessions in *Algebra*, 3rd year Mathematics
Exercise Sessions in *Algebra and Arithmetics*, 3rd year Mathematics
Exercise Sessions in *Introduction to Probability*, 2nd year Mathematics
Exercise Sessions in *Mathématiques Approfondies*, 1st year Mathematics
- 2021 - 2022 Exercise Sessions in *Linear Algebra*, 2nd year Mathematics
- 2020 - 2021 Exercise Sessions in *Linear Algebra*, 2nd year Mathematics (online)
- 2019 - 2020 Exercise Sessions in *Probability Theory*, 1st year Mathematics (2 groups)
Exercise Sessions in *Mathematics*, 1st year Economics and Management
- 2018 - 2019 Exercise Sessions in *Probability Theory*, 1st year Mathematics
Exercise Sessions in *Mathematics*, 1st year Economics and Management
Exercise Sessions in *Differential Calculus*, 3rd year Mathematics
- 2017 - 2018 Exercise Sessions in *Probability Theory*, 1st year Computer Science
Exercise Sessions in *Mathematics*, 1st year Economics and Management
Exercise Sessions in *Linear Algebra*, 1st year Computer Science
- 2016 - 2017 Exercise Sessions in *Probability Theory*, 1st year Computer Science
Exercise Sessions in *Mathematics*, 1st year Economics and Management
Remediation Exercise Sessions in *Linear Algebra*, 1st year Computer Science

Attended Conferences and Workshops

- 08/23 *ALGAR Summer School*, University of Antwerp, Belgium
- 07/23 *Regensburg days on non-archimedean geometry*, University of Regensburg, Germany
- 05/23 *Théorie des modèles des corps valués*, CIRM, France
- 03/23 *Arizona Winter School: Unlikely intersections*, Tucson, Arizona
- 02/23 *Non-Archimedean methods in Arithmetic Geometry*, Les Diablerets, Switzerland
- 08/22 *Women in Numbers Europe (WINE)*, University of Utrecht
- 08/22 *Young researchers' conference on Non-Archimedean and Tropical Geometry*, University of Regensburg
- 09-12/2021 *Non-Archimedean and Tropical Geometry*, École polytechnique (hybrid format)
- 04/21 *Oberwolfach workshop: Algebraic Groups*, Oberwolfach (online)
- 07/20 *ALGAR 2020: Valuations, quadratic forms and definability*, online summer school
- 07/20 *GAAAAG: Geometric, Algebraic and Analytic Approaches to Arithmetic Geometry*, online
- 09/19 *Algebraic and p-adic fundamental groups*, University of Caen, France
- 08/19 *Non-Archimedean and Tropical Geometry*, University of Regensburg, Germany
- 07/19 *Summer School: Perfectoid Spaces*, University of Rennes, France
- 05/19 *XXIX Rencontres Arithmétiques de Caen*, Île Tatihou, France
- 11/18 *Chow Lectures: by Peter Scholze*, University of Leipzig, Germany
- 07/18 *Berkovich Spaces 30 Years*, IHP Paris, France
- 06/18 *École Jeunes Chercheurs en Théorie de Nombres*, Université de Franche-Comté, Besançon, France

- 11/17 *Algebraic Geometry with Fancy Coefficients*, University of Caen, France
 09/17 *JAVA: Period Mappings - from complex to p -adic*, Île Tatihou, France
 08/17 *Non-Archimedean and Tropical Geometry*, University of Regensburg, Germany
 07/17 *Berkovich Spaces, Tropical Geometry and Model Theory*, Universidad de los Andes, Bogotà, Colombia
 03/17 *Géométrie analytique et équations différentielles p -adiques*, CIRM, Marseille, France
 03/17 *Arizona Winter School: perfectoid spaces*, University of Arizona, Tucson, Arizona
 06/16 *École Jeunes Chercheurs en Théorie des Nombres*, University of Clermont-Auvergne, Clermont-Ferrand, France

Distinctions

- 2024 Tremplin “Nouveaux entrants”
 2024 PEPS “Jeunes chercheuses et Jeunes chercheurs”
 2020 - 2022 Laureate for a postdoctoral fellowship funded by the Fondation mathématique Jacques Hadamard (FMJH)
 2020 Lauréate of the Séphora Berrebi scholarship for young women in advanced mathematics

Internships

- 3/16 - 7/16 **Master Thesis:** *Berkovich Spaces and Covers*
 Under the supervision of Charles Favre and Jérôme Poineau, *École Polytechnique and University of Caen*
 3/15 - 7/15 **M1 Thesis:** *Prime Numbers of the form $x^2 + ny^2$*
 Under the supervision of Benjamin Schraen and Vincent Sécherre, *Université de Versailles Saint-Quentin-en-Yvelines*
 3/14 - 7/14 **Bachelor Thesis:** *p -adic numbers*
 Under the supervision of Qëndrim Gashi, *University of Prishtina*

Languages

- Albanian** Native Language
English Fluent
French Fluent
German Beginner
Serbian Fluent
Spanish Fluent