

Curriculum Vitae et Studiorum

Personal Information

Family name, First name: **Di Nezza, Eleonora**
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Education

- 2021 Habilitation to conduct research, HDR (highest degree needed to supervise Ph.D students), École Polytechnique, France.
- 2020 Habilitation to become Full Professor in Italy, ASN (highest national degree required to become Full Professor), Italy.
- 2010-2014 Ph.D in Mathematics, “*Geometry of complex Monge-Ampère equations on compact Kähler manifolds*”, Università di Roma Tor Vergata, Italy; and Université Paul Sabatier, France; Supervisors: S. Trapani and V. Guedj.
- 2008-2010 Master in Mathematics (110/110 cum laude, highest honors), Sapienza Università di Roma, Italy.
- 2005-2008 Bachelor in Mathematics (110/110 cum laude, highest honors), Sapienza Università di Roma, Italy.

Current Position

- 2022- Full Professor, Institut de Mathématiques de Jussieu-Paris Rive Gauche (IMJ-PRG), Sorbonne Université, France.
- 2023-2026 Full Professor, Département de mathématiques et applications (DMA) de l'École Normale Supérieure de Paris (ENS Ulm).
- 2023-2028 Honorary Junior Member of Institut Universitaire France (IUF).

Previous Positions

- 2020-2022 Professor Monge (Assistant Professor), Centre de Mathématiques Laurent Schwartz (CMLS), École Polytechnique, France.
- 2018-2022 Maître de Conférence (Associate Professor), IMJ-PRG, Sorbonne Université, France.
- 2017-2018 William Hodge Postdoctoral Fellow, Institut des Hautes Études Scientifiques, France.
2016 Postdoctoral Fellow, Mathematical Sciences Research Institute (MSRI), USA.
- 2014-2017 Research Associate and Marie Curie Fellow, Department of Mathematics, Imperial College London, UK, Supervisor: M. Haskins.

Fellowships and Awards

- 2022-2024 “Tremplin-ERC” Award (funding obtained as my 2021 ERC Starting Grant project “SiGM” was evaluated with an “A” but not funded, French National Research Agency (ANR), France.
2021 CNRS PEPS Award (funding for travel), French National Center for Scientific Research (CNRS), France.
- 2015-2017 Marie Curie Individual Fellowship, Imperial College London, UK.
2015 Fellowship (highly selective academic fellowship, declined after acceptance of the Marie Curie Fellowship), The Royal Society, UK.

Prizes

- 2023 Hanna Neumann Lecturer at the 67th Annual Meeting of the Australian Mathematical Society, Australia.

- 2021 Médaille de Bronze du CNRS;
- 2015 Ph.D Thesis Prize UMI-INDAM-SIMAI.
- 2014 "Michele Cuozzo" Ph.D Thesis Prize.

Supervision

- 2023-2026 Ph.D student: M. Bilal, Sorbonne Université, France.
- 2023-2024 Postdoc: S. Jubert (current Ph.D student, Paul Sabatier, France; and UQAM, Canada).
- 2018-2023 Master 2 students: J. Souami, École Normal Supérieure (ENS) Paris, France; B. Maoui, ENS Lyon, France; W. Faraz International Mathematics Master (IMM), Pakistan; T. T. Nghiem, ENS Paris, France; M. Daheng, ENS Paris, France; T. Franzinetti, Sorbonne Université, France.
- 2021-2022 Supervision of a group of 6 undergraduate students at École Polytechnique, France.
- 2019-2022 Ph.D student (co-supervised with G. Courtois): T. Franzinetti, Sorbonne Université, France.

Organisation of International Scientific Meetings

- 2025 Workshop Organizer, "Geometric Methods of Complex Analysis", Oberwolfach, Germany.
- 2024 Thematic Semester Organizer, "Special Geometric Structures and Analysis", MSRI, USA.
- 2024 Summer School Organizer, MSRI, USA.
- 2024 Summer School Organizer, Séminaires des Mathématiques Supérieures (SMS), Canada.
- 2024 Workshop Organizer, "Geometrie", Oberwolfach, Germany.
- 2023 Organizer of the "Journée de rentrée de l'IMJ-PRG", Paris, France.
- 2023 Workshop Organizer, "Geometric flows on complex manifolds", National Institute for High Mathematics (INDAM), Italy.
- 2023 Workshop Organizer, "Paris-London seminar", IMJ-PRG, France and UCL, UK.
- 2019 Conference Organizer, "Geometry in Pairs", Università Roma 3, Italy.
- 2019 Conference Organizer, "Forum des jeunes mathématicien-ne-s. Géométrie et interactions", Institut Henri Poincaré (IHP), France.
- 2019 Workshop Organizer, "Workshop on cscK metrics", INDAM and National Science Foundation (NFS), Italy.
- 2019 Conference Organizer, "Singular metrics in Kähler geometry", CIRM, France.
- 2018 Summer School Organizer, "Complex non-Kähler geometry", CIME, Italy.

Institutional Responsibilities

- 2023 Member in the jury for an Associate Professor position in Geometry at IST-Lisbon, Portugal.
- 2023 Member in the jury for thesis defenses: Tai Terje Huu Nguyen, Norwegian University of Science and Technology, Norway.
- 2023-2026 Member of the committee for scientific programming, IHP, France.
- 2022-present Co-organizer, "Séminaire d'analyse et géométrie", IMJ-PRG, Sorbonne Université, France.
- 2018-present Member of the "Equality committee", IMJ-PRG, Sorbonne Université, France.
 - 2023 Member of the committee for the recruitment of "Professeur des Universités" at Sorbonne Université, France.
- 2019-2023 Member of the committee for the recruitment of a "Maître de Conférence" at University of Nice, Sorbonne Université, Paris 7, Orsay, Paul Sabatier, University of Angers and University of Nantes (France).
 - 2022 Chair of the jury for thesis defenses: L. Pille-Schneider (École Polytechnique, France), M. Xia (University of Gothenbourg, Sweden).
 - 2022 Member in the jury for thesis defenses: J. Johansson (University of Gothenbourg, Sweden).
 - 2020 Member of the committee for the recruitment of Ph.D students, The International School for Advanced Studies (SISSA), Italy.
 - 2019 Member of the committee for the recruitment of a Postdoc, University of Florence, Italy.

2018-2020 Organizer of the “PhD seminar”, IMJ-PRG, Sorbonne Université, France.

2011-2012 Organizer of the “Junior seminar”, Università di Roma Tor Vergata, Italy.

Reviewing Activities

2023 Jury member for the selection of projects submitted to “Emergence Maths-Info Sorbonne Université 2023-2024”, France.

2023-present Editorial Board Member, *Astérisque*.

2022-present Editorial Board Member, *Bulletin des sciences mathématiques*.

2016-present Referee: *Algebraic Geometry, Compositio Mathematica, Geometry and Topology, Journal of Differential Geometry, Journal of London Math. Society, Journal of Functional Analysis, IMNR, Indiana*, among others.

2015-present Reviewer: *Zentralblatt MATH and MathSciNet*.

2019 Editor, “Complex Non-Kähler Geometry”, *CIME Lecture Notes in Mathematics*.

2018 Grant Assessor, National Science Center, Poland.

2016 Grant Assessor, INdAM-DP-COFUND-2015 Doctoral program (Horizon Europe 2020).

Publications and Preprints

The following publications are available on my webpage

<https://perso.pages.math.cnrs.fr/users/eleonora.di-nezza/>

1. Relative pluripotential theory on compact Kähler manifolds, Di Nezza et T. Darvas, C. Lu, accepted in *Pure and Applied Mathematics Quarterly* (2023), arXiv:2303.11584.
2. The regularity of envelopes, with Stefano Trapani (2023), accepted in *Annales Scientifiques de l'ENS*, arXiv:2110.14314.
3. Geodesic distance and Monge-Ampère measures on contact sets, with Chinh Lu, *Analysis Mathematica* (2022), DOI:10.1007/s10476-022-0159- .
4. Uniform estimates for cscK metrics, with Alix Deruelle, *Annales de la Faculté des Sciences de Toulouse*, (6) 31 (2022), no. 3, 975–993.
5. Finite entropy vs finite energy, with V. Guedj, C. Lu, *Commentari Mathematici Helvetici*, 96 (2021), no. 2, 389–419.
6. Special Metric in Kähler geometry (survey), *Boll. Unione Mat. Ital.* (2021), no. 1, 43–49.
7. Families of singular Kähler-Einstein metrics, with H. Guenancia, V. Guedj (2020), accepted in *JEMS*.
8. Monge-Ampère measures on contact sets, avec S. Trapani (2020), to appear in *Math. Res. Letters*.
9. The metric geometry of singularity types, with T. Darvas, C. Lu, *J. Reine Angew. Math.* 771 (2021), 137–170.
10. L^p metric geometry of big and nef cohomology classes, with C. Lu, *Acta Math. Vietnam.* 45 (2020), no. 1, 53–69.
11. Log-concavity of volume and complex Monge-Ampère equations with prescribed singularity, with T. Darvas, C. Lu, *Math. Annalen* 379 (2021), no. 1-2, 95–132.
12. L^1 metric geometry of big cohomology classes, with T. Darvas, C. Lu, *Ann. Inst. Fourier (Grenoble)* 68 (2018), no. 7, 3053–3086.
13. Regularity of push-forward of Monge-Ampère measures, with C. Favre, *Ann. Inst. Fourier (Grenoble)* 68 (2018), no. 7, 2965–2979.
14. Monotonicity of non-pluripolar products and complex Monge-Ampere equations with prescribed singularity, with T. Darvas, C. Lu (2018), *Analysis & PDE*, 11-8 (2018), 2049-2087.
15. Geometry and topology of the space of Kähler metrics on singular varieties, with. V. Guedj, *Compos. Math.* 154 (2018), no. 8, 1593–1632.
16. The Monge-Ampère class \mathcal{E} , contribution in the book “Complex and Symplectic Geometry”, Springer INdAM Series 21, Springer, 2017, 51-59.

17. On the singularity type of full mass currents in big cohomology classes, with T. Darvas, C. Lu, *Compositio Math.*, Vol. 154 (2018), 380-409.
18. Divisorial Zariski Decomposition and some properties of full mass currents, with E. Floris. S. Trapani, *Annali della Scuola Normale Superiore*, issue 4, Vol. XVII (2017).
19. Uniqueness and short time regularity of the weak Kähler-Ricci flow, with C. H. Lu, *Advances in Mathematics*, Vol. 305C (2016), 953-993.
20. Finite Pluricomplex energy measures, *Potential Analysis*, 44 (2016), no. 1, 155–167.
21. Generalized Monge-Ampère Capacities, with C. H. Lu, *Int. Math. Res. Not. IMRN* (2015), no. 16, 7287–7322.
22. Complex Monge-Ampère equations on quasiprojective varieties, with C. H. Lu, *J. Reine Angew. Math.* 727 (2017), 145–167.
23. Stability of Monge-Ampère energy classes, *J. Geom. Anal.*, Vol. 25 (2015), no. 4, 2565-2589.
24. Hitchhiker’s guide to the fractional Sobolev spaces, with G. Palatucci, E. Valdinoci, *Bulletin des Sciences Mathématiques*, Vol. 136 (2012), no. 5, 521-573.

Conference Talks (16 of 54 total)

- 2023 Plenary speaker at the 67th Annual Meeting of the Australian Mathematical Society, University of Queensland, Australia.
- 2023 Geometric Flows and Applications, International Centre for Mathematical Sciences (ICMS), Edinburgh.
- 2023 Complex Analysis and Geometry, celebrating the 70+1th birthday of Laszlo Lempert, Budapest, Hungary.
- 2023 Complex Geometry in Merida: A Celebration of A. Verjovsky’s 80th Birthday, UADY, Mexico.
- 2022 Conference in memory of Nessim Sibony, Orsay, France.
- 2022 Conference for S. Kolodziej’s 60th birthday, Jagiellonian University, Poland.
- 2022 Special Metrics in Complex Geometry", UT Dallas, USA.
- 2021 Heinz Hopf Symposium, ETH, Switzerland.
- 2021 Oberwolfach Workshop “Differential Geometrie im Grossen", Germany.
- 2021 AMAZER (Analysis of Monge-Ampère: a tribute talk for A. Zeriahi), Paul Sabatier, France.
- 2019 Geometric Analysis, Submanifolds, and Geometry of PDE’s, University of Torino, Italy.
- 2019 Semi-plenary speaker UMI conference, Pavia, Italy.
- 2019 1st Joint meeting Brasil-France in Mathematics, IMPA, Brazil.
- 2018 Constant scalar curvature Metrics in Kähler and Sasaki Geometry, CIRM, France.
- 2016 Workshop at Simons Center, Stony Brook University, USA.
- 2016 Geometric Flows in Riemannian and Complex Geometry, MSRI, USA.
- 2015 Geometric Flows: Recent Developments and Applications, BIRS, Canada.

Seminar Talks (9 of 45 total)

- 2022 Aarhus-Gothenburg seminar, Chalmers University of Technology, Sweden.
- 2022 DARBOUX seminar, Université de Montpellier, France.
- 2021 Géométries seminar, Université Claude Bernard, France.
- 2018 Geometry week seminar, University of Maryland, USA.
- 2017 Geometry seminar, Université libre de Brussels, Belgium.
- 2016 Geometry seminar, CUNY, USA; Complex Geometry seminar, Columbia University, USA.
- 2015 Algebraic Geometry seminar, University of Cambridge, UK.
- 2015 Analysis Seminar, Warwick University, UK.
- 2014 Geometry and Analysis seminar, Imperial College London, UK.

Mini Courses

During my career I was also asked to give several mini-courses in summer schools or for programs in developing countries. Here below a list:

- 2023 Lectures during the "Atelier d'Analyse et Géométrie complexe", Ziguinchor, Senegal.
- 2022 Course in Differential Geometry in Lahore (Pakistan) -online-. This course is part of the "International Mathematics Master" (IMM).
- 2022 12 hours on *Pluripotential theory in Kähler geometry*, Università di Roma Tor Vergata, Italy.
- 2021 6 hours on *Skoda uniform integrability theorem and Monge-Ampère equations with prescribed singularities*, Uzbekistan CIMPA school and workshop -on zoom-.
- 2019 3 hours on *Uniform estimates for cscK metrics*, Workshop on cscK metrics in Cortona, Italy.
- 2017 4 lectures on *Pluripotential theory on compact Kähler manifolds*, CIMPA-ZIGUINCHOR-2017 Géométrie Complexe et Applications, Senegal.
- 2017 5 lectures on *A Variational Approach to Complex Monge-Ampère Equations*, Graduate Student and Postdoc Workshop, Center for Mathematics at Notre Dame, USA.
- 2013-2014 30 hours on *Kähler Einstein metrics*, Ph.D course at Università di Roma Tor Vergata, Italy

Outreach

- 2023 Talk "Femmes et mathématiques" at the high school "Jean-Baptiste Say", Paris, France.
- 2023 Talk at "Mathematic Park", IHP, France.
- 2023 Talk at "Les séminaires des Mathématiques", ENS Ulm, Paris, France.
- 2022 Talk at the "Rentré de Master 2022, FMJH", Orsay, France.
- 2019 Talk during the visit at IHES of high-school students from l'Academie de Versailles, *Les mathématiques pour découvrir le monde, et manger de la pizza*, IHES, France.
- 2019 Testimonial of the project "Si, geniale", Italy.
- 2019 Testimonial at the *Speed-meeting* at Lycée Rodin, France.
- 2016 Talk at the Math Circle in Berkeley, California.