

Curriculum Vitae
ALESSIA MANDINI

Date of birth: 19 March 1979 **Place of birth:** Cento (Fe), Italy **Nationality:** Italian

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CURRENT POSITION

Ricercatrice at Department of Computer Science, University of Verona, Italy, since September 2023;

PROFESSIONAL EXPERIENCE

- Professora Adjunta at UFF – Universidade Federal Fluminense, Niteroi, Rio de Janeiro, Brasil, since January 2020 and currently on leave (since August 2023).
- Professora Adjunta PUC-RIO, Pontifícia Universidade Católica, Rio de Janeiro, Brasil, March 2015 - January 2020;
- Professora auxiliar at Universidade Lusófona de Humanidades e Tecnologias, Lisbon, Portugal, 2011.

EDUCATION AND TITLES

From 18/09/2018 Abilitazione Scientifica Nazionale, Settore Concorsuale 01/A2
to 18/09/2030 II Fascia - Quinto Quadrimestre

4 June 2007 *PhD in Mathematics*, University of Bologna, Italy.
PhD thesis: *The geometry of the moduli space of polygons in the Euclidean space*
Advisor: Professor Luca Migliorini.

18 July 2003 *Degree in Mathematics, cum laude*, University of Bologna, Italy.
Degree thesis: *The convexity theorem for the moment map* (in Italian)
Advisor: Professor Luca Migliorini.

RESEARCH INTERESTS

Symplectic geometry and topology, algebraic geometry, integrable systems and mathematical physics and relation between these areas of research. Precisely, I am interested in the following main lines of research:

- group actions and integrable systems, equivariant cohomology, quantization, cobordism;
- study of symplectic invariants: Gromov width, symplectic capacity function and symplectic embeddings (in particular in the toric setting);
- study of Kähler and hyperkähler manifolds (in particular of polygon and hyperpolygon spaces), moduli problems such as moduli of parabolic and parabolic Higgs bundles.

GRANTS AND HONOURS

Research Grants

1. Investigadora doutorada of the Research Project SympDyn PTDC/MAT-PUR/29447/2017 at Instituto Superior Técnico, Lisbon, Portugal, September 2020 - February 2021;
2. ERC Post Doc at University of Pavia, Italy, September 2013 - February 2015;
3. FCT post doctoral fellowship at the Mathematics Department, Instituto Superior Técnico, Universidade Técnica de Lisboa, Lisbon, Portugal, June 2009 - August 2013;
4. Post-doc at the *Centro de Análise Matemática, Geometria e Sistemas Dinâmicos*, Instituto Superior Técnico, Universidade Técnica de Lisboa, Lisbon, Portugal, September 2007 - May 2009;
5. “Marco Polo” research grant, Utrecht University, The Netherlands, February - June 2007.

Short term visiting positions and fellowships

1. Oberwolfach Research Fellowship to develop the research project *Hyperspherical Varieties* with Johan Martens (University of Edinburgh), Guido Pezzini (Università di Roma La Sapienza), Bart Van Steirteghem (FAU Erlangen-Nürnberg), 9–22 February 2025.
2. IAS – Institute for Advanced Studies, Princeton, Summer collaborations, USA, June 2017.
3. Mathematics Department, University of Bologna, Italy, visiting Prof. Luca Migliorini, December 2015 – February 2016.
4. IHES – Institut des Hautes Etudes Scientifiques, participating in the Summer School on Moduli Problems in Symplectic Geometry, IHES, Paris, France, 6 – 17 July 2015.
5. “Oversea visitor” at the National University of Singapore, participating in the programme The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles, Singapore, July 2014.
6. Invited participant at the Programme on Mathematical Physics Hausdorff Research Institute for Mathematics, Bonn, Germany, fall 2012.
7. Invited participant at the Programme on Moduli Spaces (thematic period on Representations of Surface Groups and Higgs Bundles) held at the Isaac Newton Institute for Mathematical Sciences, University of Cambridge, UK, March 2011.
8. MSRI - Mathematical Sciences Research Institute Research Membership during the 2009/2010 academic year program *Symplectic and Contact Geometry and Topology*. I visited the MSRI (Berkeley - USA) for the period March– May 2010.
9. Short term visitor at the Department of Algebra and Geometry, Universitat de Barcelona, Spain, on invitation of Prof. Ignasi Mundet i Riera, November-December 2009.
10. Long term visitor at the Department of Mathematics, Utrecht University, The Netherlands, taking part in the master class programme *Symplectic Geometry and Beyond*, February-June 2007.
11. Short term visitor at CRM, *Centro di Ricerca Matematica Ennio de Giorgi*, Pisa, Italy, November-December 2006.

12. Short term visitor at *ICTP, The Abdus Salam International Center for Theoretical Physics*, Trieste, Italy, October 2006.

PUBLICATIONS

- [1] D. Cristofaro-Gardiner, T. Holm, A. Mandini, A. R. Pires, *Symplectic embeddings and infinite staircases*, *J. Differential Geom.* 129 (2025), no. 2, 335–413.
- [2] L. Godinho, A. Mandini, *Quasi-parabolic Higgs bundles and null hyperpolygon spaces*, *Trans. Amer. Math. Soc.* 374 (2021), no. 10, 7411–7447.
- [3] A. Mandini, M. Pabiniak, *Gromov width of polygon spaces*, *Transformation Groups*, 23 (2018), no.1, 149–183.
- [4] I. Biswas, C. Florentino, L. Godinho, A. Mandini, *Symplectic form on hyperpolygon spaces*, *Geometriae Dedicata*, Vol. 179 (2015), Issue 1, 187–195.
- [5] A. Mandini, *The Duistermaat–Heckman formula and the cohomology of moduli spaces of polygons*, *J. Symplectic Geom.* Vol. 12 (2014), No. 1, 171–213.
- [6] I. Biswas, C. Florentino, L. Godinho, A. Mandini, *Polygons in Minkowski three space and parabolic Higgs bundles of rank two on $\mathbb{C}P^1$* , *Transformation Groups* 18 (2013), 995–1018.
- [7] L. Godinho, A. Mandini, *Hyperpolygon spaces and moduli spaces of parabolic Higgs bundles*, *Adv. Math.* 244 (2013), 465–532.
- [8] A. Mandini, *Some results on polygon and hyperpolygon spaces*, *Actas do Encontro Nacional da SPM, Boletim da Sociedade Portuguesa de Matematica* (2010), 57–61.
- [9] A. Mandini, *The cobordism class of the moduli space of polygons in \mathbb{R}^3* , *J. Symplectic Geom.* 7 (2009), no. 1, 1–27.
- [10] A. Mandini, *A Note on the Moduli Space of Polygons*, XVI International Fall Workshop, R. L. Fernandes and R. Picken (eds.), *AIP Conference Proceedings Volume 1023*, pp. 158 - 161, 2008.
- [11] A. Mandini, *The geometry of the moduli space of polygons in the Euclidean space*, Ph.D. thesis in Mathematics, University of Bologna, Italy, June 2007.

INVITED LECTURES

- Mini-course *Everything you always wanted to know about Polygons** (*but were afraid to ask), delivered at the workshop “Geometry in Algebra and Algebra in Geometry VIII”, IMPA, Rio de Janeiro, Brasil, September 2025
- Mini-course *Symmetries and reduction in symplectic geometry* delivered at the 12th International Young Researchers Workshop on Geometry, Mechanics and Control, University of Padova, Italy, January 2018

- *Hiperpoligonos e fibrados parabolicos de Higgs*, Colloquium of the Mathematics Department, PUC–Rio, Rio de Janeiro, Brazil, 25 March 2014
- *Polygons and Hyperpolygons spaces: a journey to moduli spaces of Higgs bundles*, University of Augsburg (Germany), 13 June 2013
- *Parabolic Higgs Bundles and Hyperpolygons*, 3 lectures, Hausdorff Research Institute for Mathematics, Bonn (Germany), 27–28 September 2012.
- *Polygons and Beyond*, 4 lectures, Geometry and Topology mini-courses, UTAD, Vila Real (Portugal), 6–8 September 2012.
- *Symplectic Cobordism*, 4 lectures, Mathematics Department, University of Bologna, Italy, May 2006

INVITED TALKS AT CONFERENCES

September 2025	Workshop in Algebraic Geometry and Physics 2025: “Geometry and Physics of Higgs moduli”, Razlog, Bulgaria
November 2024	XI Workshop on Poisson Geometry and Related Topics, Manaus, Brasil
July 2023	14th International ISAAC congress, Ribeirão Preto, Brasil
July 2023	34th CBM, IMPA, Rio de Janeiro, Brasil
June 2022	Spherical surfaces and related topics, Cortona, Italy
September 2021	CLAM - Congreso Latinoamericano y del Caribe de Matemática, on line
November 2020	Seminário SemEAR UFF, Rio de Janeiro, Brasil
October 2020	OktoberMat, PUC-Rio, Brasil
July 2019	32 Congresso Brasileiro de Matematica, IMPA, Rio de Janeiro
June 2019	Teichmuller Theory, Hyperbolicity and Dynamics, IMPA, Rio de Janeiro
December 2018	Character Varieties and Topological Quantum Field Theory, Università di Auckland, New Zealand
November 2018	Geometry in Algebra and Algebra in Geometry, USP, São Paulo, Brazil
June 2018	Workshop on Poisson geometry and related topics Unicamp, Campinas, Brazil
January 2018	Dynamics and integrability of nonholonomic and other non-Hamiltonian systems University of Padova, Italy
Nov.-Dec. 2017	II Mini-Workshop em Geometria Simplética, UFES, Vitoria, Brazil

November 2017	Geometry day @UFF, Niterói, Brazil
July 2017	MCA 2017- Mathematical Congress of the Americas, Montreal, Canada Thematic session: <i>Geometry and Physics of Higgs Bundles</i> Thematic session: <i>Symmetries of Symplectic Manifolds and Related Topics</i>
January 2017	V Iberoamerican Meeting on Geometry, Mechanics and Control La Laguna, Tenerife, Spain
December 2016	II Congresso Brasileiro de Jovens Pesquisadores em Matemática Pura e Aplicada, Campinas, Brasil
September 2016	Unusual Configuration Spaces, ICERM, Brown University, USA
July 2016	V CLAM, Congreso Latino-americano de Matemáticos, Barranquilla, Colombia
June 2016	Current trends on spectral data for Higgs bundles II Simons Center for Geometry and Physics, Stony Brook, USA
June 2016	New perspectives on Higgs bundles, branes and quantization Simons Center for Geometry and Physics, Stony Brook, USA
January 2015	Symplectix, IHP – Institut Henri Poincaré, Paris, France
July 2014	The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles, National University of Singapore
December 2013	Workshop on Algebraic Geometry - Seminario di Natale, University of Milan, Italy
July 2013	2013 Georgia Topology Conference, University of Athens, Georgia, U.S.A.
June 2013	ERC Research Meeting on Donaldson-Thomas theory, BPS states and related topics, University of Pavia, Italy.
March 2013	Conference on Analytic and Algebraic Geometry Related to Bundles, TATA Institute for Fundamental Research, Mumbai, India.
May 2012	Workshop on Surface Group Representations, CRM Barcelona, Spain.
June 2011	Closing conference of the Programme on Moduli Spaces, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, UK
July 2010	Encontro Nacional da Sociedade Portuguesa de Matemática 2010, Leiria, Portugal.
October 2006	Recent Advances in Real and Complex geometry, Levico Terme, Trento, Italy.
June 2006	Giornata di Geometria Differenziale Pescara, Science Department, Pescara, Italy.

CONTRIBUTED TALKS AT CONFERENCES

- 2 September 2014 VBAC 2014 – Algebraic Varieties: Bundles, Topology, Physics
Freie Universität Berlin, Germany.
- 18 June 2012 Conference on Geometry and Quantization of Moduli Space, VBAC2012,
CRM Barcelona, Spain.
- 9 June 2010 X Gesta meeting, “Symplectic Geometry with Algebraic Techniques”, Lisbon, Portugal.
- 7 September 2007 Fall Workshops on Geometry and Physics, Lisbon, Portugal.
- 15 May 2007 Algebraic Geometry and Group Actions, IAS – Institute for Advanced Study
Princeton, USA.

INVITED SEMINARS

- 25 February 2025 Seminario di Geometria, Università di Trento
- 7 February 2025 Seminario di Geometria, Università di Ferrara
- 12 November 2024 Seminario de Geometria Algebraica e Complexa, UFF Rio de Janeiro
- 20 March 2024 Seminario di Algebra, Università di Verona
- 23 September 2020 Seminário BRAG - Brazilian Algebraic Geometry
- 16 June 2020 Seminário Geometria em Lisboa
- 16 June 2020 Geometria em Lisboa, Lisboa + Rio de Janeiro webinar
- 7 June 2019 Seminario de Geometria, UFF, Rio de Janeiro, Brasil
- 6 June 2019 Seminario de Geometria, UFRJ, Rio de Janeiro, Brasil
- 12 March 2019 Q.t.p. seminar, PUC-Rio, Brazil
- 18 September 2018 Differential Geometry seminar, IMPA, Rio de Janeiro, Brasil
- 9 May 2017 Seminário Salomônico, UFF, Rio de Janeiro, Brasil
- 20 May 2016 Symplectic Geometry in Rio, joint seminar IMPA - PUC - UFRJ - UFF, Rio de Janeiro, Brazil
- 4 May 2016 Geometry and Topology Seminar, Universidade Federal do Rio de Janeiro, Brazil
- 17 February 2016 Geometry seminar, University of Pavia, Italy
- 16 February 2016 Geometry seminar, University of Bologna, Italy

10 February 2016	Geometry seminar, University of Parma, Italy
5 May 2015	Universidade Federal Fluminense, Niteroi (RJ), Brazil
11 February 2015	Geometry seminar, University of Milan, Italy
13 January 2015	Geometry seminar, University of Milano-Bicocca, Italy
5 January 2015	Geometry Seminar, University of Strasbourg, France
5 November 2014	Symplectic Geometry Seminar, University of Toronto, Canada
31 October 2014	Symplectic Geometry Seminar, IAS and Princeton University, USA
21 October 2014	Geometria em Lisboa, Instituto Superior Tecnico, Lisbon, Portugal
20 May 2014	Algebraic and Symplectic geometry seminar, University of Oxford, UK
31 March 2014	IMPA, Rio de Janeiro, Brasil
24 February 2014	University of Pavia, Italy
5 February 2014	University of Coimbra, Portugal
3 February 2014	IST informal geometry seminar, Lisbon, Portugal
15 October 2013	University of Heidelberg, Germany
15 July 2013	University of Toronto, Canada
12 February 2013	University of Florence, Italy
8 February 2013	University of Toulouse, France
20 March 2012	University of Coimbra, Portugal
1 December 2011	University of Padova, Italy
6 May 2011	University of Nantes, France
10 February 2011	University of Bologna, Italy
3 May 2010	University of California - Berkeley, USA
11 December 2009	University of Barcelona, Spain
13 May 2009	University of Bologna, Italy
23 February 2009	University of Porto, Portugal
6 November 2007	Instituto Superior Tecnico, Lisbon, Portugal
10 May 2006	University of Parma, Italy.

POSTER PRESENTATIONS

Cobordism and Quantisation of Polygons Spaces, presented at “New Horizons in Toric Topology”, 7-11 July 2008, Manchester University, UK.

TEACHING EXPERIENCE

My teaching activity includes (or has included) lecture classes both on theory and exercises, planning and preparing course materials, written and oral exams.

- * *Geometria*, Bachelor in Mathematics at the University of Verona, 52 hours, professor in charge of the course. Taught during the academic year 2023/2024, 2024/2025 and 2025/2026;
- * *Differential Geometry*, Master in Mathematics at the University of Verona, 48 hours, partially taught (20 hours) in the academic years 2023/2024, 2024/2025 and 2025/2026; professor in charge of the course in 2025/2026;
- * *Advanced Geometry*, Master in Mathematics at the University of Verona, 48 hours, professor in charge of the course. Taught during the academic year 2023/2024, 2024/2025 and 2025/2026.
- * *Calculus I*, Bachelor in Engineering at UFF - Universidade Federal Fluminense, 120 hours per semester, taught in both semesters in 2020, 2021, 2022 and in the first semester of 2023.
- * *Linear Algebra*, Bachelor in Engineering at PUC-Rio, Pontifícia Universidade Católica, 60 hours per semester, taught in both semesters in 2016, 2018 and 2019.
- * *Calculus III*, Bachelor in Engineering at PUC-Rio, Pontifícia Universidade Católica, 60 hours per semester, taught in both semesters in 2017, 2018 and 2019.
- * *Calculus II*, Bachelor in Engineering at PUC-Rio, Pontifícia Universidade Católica, 60 hours per semester, taught in both semesters in 2015 and 2016.
- * *Abstract Algebra*, Master in Mathematics at PUC-Rio, Pontifícia Universidade Católica, 60 hours, taught in the first semester of 2017.
- * *Introduction to differentiable manifolds*, Master in Mathematics at PUC-Rio, Pontifícia Universidade Católica, 60 hours, taught in the second semester of 2017.
- * *Differentiable manifolds*, Graduate course at PUC-Rio, Pontifícia Universidade Católica, 60 hours, taught in the second semester of 2017.
- * *Symplectic Geometry*, Graduate course at PUC-Rio, Pontifícia Universidade Católica, 60 hours, taught in the second semester of 2018.
- * *Matemática I*, Bachelor in Engineering at Universidade Lusófona de Humanidades e Tecnologias, first semester of the academic year 2011/2012;
- * *Matemática II*, Bachelor in Engineering at Universidade Lusófona de Humanidades e Tecnologias, second semester of the academic year 2011/2012;
- * *Tutor for the courses Analysis I*, Faculty of Engineering, University of Bologna, academic years 2003/2004, 2004/2005, 2005/2006;

* *Tutor for the courses Analysis II*, Faculty of Engineering, University of Bologna, academic years 2003/2004, 2004/2005;

* *Tutor for the courses Analysis III*, Faculty of Engineering, University of Bologna, academic years 2005/2006;

STUDENTS

Ph.D.:

- Fabiola Valeria Cordero Uriona, Ph.D. Thesis title “Estudo comparativo dos sistemas integráveis nos espaços de polígonos, matrizes e fibrados” co-supervision with Prof. Sergey Galkin (PUC-Rio). Fabiola successfully defended her Ph.D. on 29 September 2021 at OUC-Rio and her Ph.D. thesis available at https://www.dbd.puc-rio.br/pergamum/tesesabertas/1521407_2021_completo.pdf
- Raimundo Neto Nunes Leão, Ph.D. Thesis title “A geometria de espaços de polígonos generalizados” co-supervision with Prof. Marcos Craizer (PUC-Rio). Raimundo successfully defended his Ph.D. on 1 October 2020 at PUC-Rio and his Ph.D. thesis available at https://www.dbd.puc-rio.br/pergamum/tesesabertas/1521985_2020_completo.pdf

Master

- Simone de Freitas de Souza, master’s thesis title “A construção de Delzant para variedades tóricas simpléticas”, defended on 27 September 2017 at PUC-Rio.

Bachelor’s degree:

- O’maia Miguel Said, thesis title “Il gruppo fondamentale”, Laurea in Matematica Applicata, University of Verona, October 2025.
- Chiara Bortolazzi, thesis title “Il teorema di Gauss-Bonnet” Laurea in Matematica Applicata, University of Verona, March 2026.

“Iniciação científica” (similar to bachelor’s degree):

- Antonio Catão, PBIC grant for “scientific initiation”, PUC-Rio 2018
- Igor Leandro Vieira, PBIC grant for “scientific initiation”, PUC-Rio 2017.

ORGANIZATION OF CONFERENCES

- Member of the scientific committee for “Teichmüller Theory, Hyperbolicity and Dynamics”, IMPA, Rio de Janeiro, Giugno 2019
- Member of the scientific committee for the workshop “Mirror symmetry, enumerative geometry and related topics”, Pavia, 26-30 Maio 2014.
- Organizer of OktoberMat 2017 e 2018, PUC-Rio.
- Organizer of the III Mini-workshop em Geometria Simpletica, PUC-Rio, June 2018

PARTICIPATION IN PROJECTS / GRANTS

- Project *Symplectic Dynamics*,
reference number: PTDC/MAT-PUR/29447/2017
awarded by Fundação para a Ciência e a Tecnologia (FCT/Portugal).
- IAS Summer Collaborations Grant, awarded by Institute for Advanced Studies, Princeton, in 2017.
Team members: D. Cristofaro-Gardiner (University of California at Santa Cruz), T. Holm (Cornell University), A. Mandini (PUC–Rio) and A. R. Pires (Cambridge University).
- Bolsa de Produtividade PUC–RIO, 2015–2017 and 2017–2019
- Team member of the Ciencia Sem Fronteiras project “Homotopy moment maps, deformation theory, singular foliations and Poisson topology”, based in Curitiba (Brasil), funded by CAPES. The coordinators of the project are Eduardo Hoefel and Marco Zambon.
- Team Member ERC Starting Grant 307119 - StabAGDG, Stability and wall-crossing in algebraic and differential geometry. P.I.: Prof Jacopo Stoppa
- Post-doctoral Research Grant SFRH/BPD/44041/2008 awarded by Fundação para a Ciência e a Tecnologia (FCT/Portugal).
- Project *Symplectic Geometry*,
reference number: PTDC/MAT/098936/2008
awarded by Fundação para a Ciência e a Tecnologia (FCT/Portugal).
- Project *Hamiltonian actions and Integrability in geometry and topology*,
reference number: PTDC/MAT/117762/2010.
awarded by Fundação para a Ciência e a Tecnologia (FCT/Portugal).
- Project *Higgs bundles and character varieties*,
reference number: PTDC/MAT/120411/2010.
awarded by Fundação para a Ciência e a Tecnologia (FCT/Portugal).

ADMINISTRATIVE AND PROFESSIONAL SERVICES

- Member of the Open Arms Sub-Committee for equal opportunity of ICM2018
- PhD-Committee member:
 - William Osnayder Esquivel, Ph.D., UFRJ - Universidade Federal do Rio de Janeiro, October 2025;
 - Darío Martín Aza, Ph.D., Univesidad de Buenos Aires March 2026.
 - Ana María Caparro Castañeda, PH.D., UFRJ - Universidade Federal do Rio de Janeiro, June 2023;
 - Lilian Cordero Brambila, PhD, PUC-Rio, April 2018;
 - Eder de Moraes Correa, PhD, Unicamp, Campinas, June 2017;
 - Marco Trozzo, PhD, Università di Bologna, December 2016.

- Committee member for master defence:
 - Joelso Giovanelli, UFES, May 2019;
 - Simone de Freitas de Souza, PUC-Rio September 2018;
 - Martin Pablo Santacatterina, PUC-Rio, September 2017;
- Member of the "Comissão de quadro de horario", UFF.
- Member of the committee for Research and Graduate Program, PUC-Rio.
- Member of the committee for undergraduate program, PUC-Rio.
- Member of the scientific committee for the master and Ph.D. programme of Universidade Lusófona de Humanidades e Tecnologias, Lisboa (Portugal), in the years 2011–2012.
- Referee for Indagationes Mathematicae, Regular and Chaotic Dynamics e Mathematische Nachrichten.

LANGUAGE SKILLS

- **Italian**, native;
- **English** and **Portuguese**, fluent;
- **Spanish** and **German**, basic notions.