

Curriculum Vitae

ALESSIA MANDINI

Date of birth: 19 March 1979 **Place of birth:** Cento, Ferrara, Italy **Nationality:** Italian

Address: PUC-RIO, Mathematics Department,
Rua Marquês de São Vicente, 225
Edifício Cardeal Leme, sala 862
Gávea – Rio de Janeiro – CEP 22451-900
Brazil

email addresses: alessia.mandini@mat.puc-rio.br *or* alessia.mandini@gmail.com

web page: http://www.mat.puc-rio.br/docentes_alessia.html

CURRENT POSITION

March 2015 – Assistant Professor (Professora Adjunta) at PUC-RIO, Rio de Janeiro, Brazil.

EDUCATION

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 POSITIONS HELD

Sept. 2013 – Feb 2015 ERC Post Doc at University of Pavia. Italy.

June 2009 – August 2013 FCT post doctoral fellowship at the Mathematics Department
Instituto Superior Tecnico, Universidade Tecnica de Lisboa, Lisbon, Portugal.

September 2007 – May 2009 Post-doc at the *Centro de Análise Matemática, Geometria e Sistemas Dinâmicos*,
Instituto Superior Tecnico, Universidade Tecnica de Lisboa, Lisbon, Portugal.

Feb–June 2007 “Marco Polo” research grant, Utrecht University, The Netherlands.

RESEARCH ACTIVITY

My main research interests are in symplectic and algebraic geometry and relation between these areas of research. I am interested in the study of Kähler and hyperkähler manifolds (in particular of polygon and hyperpolygon spaces), moduli problems such as moduli of parabolic and parabolic Higgs bundles, group actions and integrable systems, equivariant cohomology, quantization, cobordism, Gromov width and related topics.

PUBLICATIONS AND PRE-PRINTS

- [1] 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.

- [2] 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.
- [3] A. Mandini, *The cobordism class of the moduli space of polygons in \mathbb{R}^3* , J. Symplectic Geom. 7, no. 1, 1–27, 2009.
- [4] A. Mandini, *Some results on polygon and hyperpolygon spaces*, Actas do Encontro Nacional da SPM, Boletim da Sociedade Portuguesa de Matematica, 57–61, 2010.
- [5] L. Godinho, A. Mandini, *Hyperpolygon spaces and moduli spaces of parabolic Higgs bundles*, Adv. Math. 244, 465–532, 2013.
- [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 8, 995–1018, 2013.
- [7] A. Mandini, *The Duistermaat–Heckman formula and the cohomology of moduli spaces of polygons*, J. Symplectic Geom. Vol. 12, No. 1, 2014.
- [8] I. Biswas, C. Florentino, L. Godinho, A. Mandini, *Symplectic form on hyperpolygon spaces*, Geometriae Dedicata, Vol. 179, Issue 1, 187–195, 2015.
- [9] A. Mandini, M. Pabiniak, *Gromov width of polygon spaces*, preprint (2015), arXiv:1501.00298.
- [10] F. Battaglia, L. Godinho, A. Mandini, D. Zaffran, *Toric contact-symplectic spaces*, in preparation.
- [11] D. Cristofaro-Gardiner, T. Holm, A. Mandini, A.R. Pires, *Symplectic embeddings and infinite staircases*, in preparation.

VISITING POSITIONS

- December 2015 – February 2016, Mathematics Department, University of Bologna.
- July 2014, “oversea visitor” at the National University of Singapore, participating in the programme The Geometry, Topology and Physics of Moduli Spaces of Higgs Bundles.
- Fall 2012, invited participant at the Programme on Mathematical Physics Hausdorff Research Institute for Mathematics, Bonn, Germany.
- March 2011, 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.
- 2009/2010, 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.
- November-December 2009, short term visitor at the Department of Algebra and Geometry, Universitat de Barcelona, Spain, on invitation of Prof. Ignasi Mundet i Riera.
- February-June 2007, long term visitor at the Department of Mathematics, Utrecht University, The Netherlands, taking part in the master class programme *Symplectic Geometry and Beyond*.

- November-December 2006, short term visitor at *CRM, Centro di Ricerca Matematica Ennio de Giorgi*, Pisa, Italy.
- October 2006, short term visitor at *ICTP, The Abdus Salam International Center for Theoretical Physics*, Trieste, Italy.

INVITED LECTURES

- *Hiperpoligonos e fibrados parabolicos de Higgs*, Colloquium of the Mathematics Department, PUC – 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 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 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.

- 27 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, Institute for Advanced Study, Princeton, USA.

INVITED SEMINARS

- 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.

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.

- 2016 Linear algebra and Calculus II.

- 2015: First semester: “Differentiable manifolds” (graduate course), Second semester: “Calculus II” and “Introduction to analysis”, at PUC-Rio;
- Fall semester 2011: “Professor auxiliar” at Universidade Lusófona de Humanidades e Tecnologias, school of Engineering, teaching “Matemática I”, theory and exercise classes.
- Spring semester 2011: “Professor auxiliar” at Universidade Lusófona de Humanidades e Tecnologias, school of Engineering, teaching exercise classes of “Matemática II”.
- Academic year 2005-2006: Tutor for the courses Analysis I and Analysis III, Faculty of Engineering, University of Bologna.
- Academic years 2004-2005 and 2003-2004: Tutor for the courses Analysis I and Analysis II, Faculty of Engineering, University of Bologna.

STUDENTS

Iniciação científica (introduction to research): Pedro Thiago de Souza Marmello

ADMINISTRATIVE AND PROFESSIONAL SERVICES

- 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.
- Member of the scientific and organizing committee for the workshop “Mirror symmetry, enumerative geometry and related topics”, Pavia, 26-30 May 2014.
- Referee for *Indagationes Mathematicae*, Elsevier.

PARTICIPATION IN PROJECTS / GRANTS

- Bolsa de Produtividade PUC–RIO, 2015–2017.
- 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).

LANGUAGE SKILLS

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

REFEREES

- Professor **Luca Migliorini**, (Ph.D. Advisor)
Email address: luca.migliorini@unibo.it
Telephone: +39 051 2094438
Dipartimento di Matematica, Università di Bologna, Piazza di Porta San Donato 5, 40126 Bologna, Italy.
- Professor **Leonor Godinho**,
Email address: lgodin@math.ist.utl.pt
Telephone: +351 21 8417109
Mathematics Department, Instituto Superior Tecnico, Av. Rovisco Pais, 1049-001, Lisboa , Portugal.
- Professor **Henrique Bursztyn**
Email: henrique@impa.br
IMPA - Instituto Nacional de Matematica Pura e Aplicada, Estrada Dona Castorina 110, Rio de Janeiro, 22460-320, Brazil
- Professor **Miguel Abreu**
Email: mabreu@math.ist.utl.pt
Mathematics Department, Instituto Superior Tecnico, Av. Rovisco Pais, 1049-001, Lisboa, Portugal.
- Professor **Dusa McDuff**,
Email address: dusa@math.columbia.edu
Telephone: 01 212.854.5079
Mathematics Department, Columbia University, New York, USA.
- Professor **Teresa Almada** (for reference on **teaching skills**)
Email: talmada@ulusofona.pt
Universidade Lusófona de Humanidades e Tecnologias, Campo Grande, 376, 1749 - 024 Lisboa, Portugal.