

Ugo Bruzzo

CURRICULUM VITAE

(updated December 19, 2019)

Personal data

Born in Campomorone (Genoa province, Italy), 30 September 1955. Two children, Cristiano born 1983, and Valentina born 1985.

Addresses:

- SISSA, Via Bonomea 265, 34136 Trieste, Italy (office)
- Via dello Sterpeto 5, 34141 Trieste, Italy (personal)

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Present position:

- Professor of Geometry, International School for Advanced Studies, Trieste
- Director, Institute for Geometry and Physics, Trieste.
- Coordinator of the MSc Programme in Mathematics (2016–). Member of SISSA’s hiring committee (2019–).
- Senior Visiting Professor, Department of Mathematics, Universidad Federal da Paraíba, João Pessoa, Brazil.

Languages: Italian (native), Genoese (native), English and Spanish (fluent), French (intermediate), Portuguese (basic).

Bibliometrics (as of December 19, 2019)

Total citations (from Google Scholar): 1851, since 2014: 600

Total citations (from Scopus): 653 (excludes books)

Total citations (from MathSciNet): 432

h Index (from Scopus, corrected by including books): 14

h Index (Google Scholar): 22, since 2014: 13

i10 Index (Google Scholar): 50, since 2014: 15

Job history

- Nov 1979 to Sept 1982: Fellow of the Italian National Research Council (CNR)
- Oct 1982 to Aug 1983: High school teacher (electronics)
- Sept 1983 to Sept 1987: Assistant Professor, University of Genova
- Oct 1987 to Oct 1994: Associate Professor, University of Genova
- Nov 1994 to June 2002: Associate Professor at SISSA
- July 2002 to present: Full Professor at SISSA

¹All to be prefixed by +39 if calling from out of Italy. Leading “0” always to be dialled.

Education & titles

Degree in Physics, 28 March 1979, University of Genova. Thesis work on canonical formalisms in general relativity. Advisor: Prof. E. Massa.

“Notório saber” granted by Universidade Federal da Paraíba (João Pessoa, Brazil) on 23 October 2018.²

Publications

I have authored 3 monographs (in collaboration), 100 research papers and 30 proceeding papers, mostly in collaboration (with about 50 coauthors). I have co-edited 3 conference proceedings, and written a number of lecture note sets and exercise books, made translations from/into English, etc.

Past administrative work

- Head of the Area of Mathematics of SISSA (12 April 2012 to 31 January 2015 — equivalent to Head of Department).
- Head of the SISSA Mathematical Physics Sector (May 24, 2011 - April 11, 2012).
- Member of the Executive Committee of the Department of Mathematics of the University of Genova (1985-87 and 1989-91).
- Coordinator of several research projects, funded by the Italian Ministry for University or the Trieste regional administration (see “Grant history” below).
- Coordinator of joint Italian-Spanish research projects (“Azioni Integrate” — 1993-1994, 1999-2000, 2001-2003, 2007-2009).
- Deputy head of the Mathematical Physics Sector, SISSA (1998–2001).
- SISSA Director’s delegate for international relations (Oct. 2002 – Dic. 2007).
- Coordinator of the SISSA-University of Trieste Mathematics M.Sc. course (2005–2007).
- Coordinator of the Trieste unit of the research project “Nonperturbative gauge dynamics” of the Italian Institute for Nuclear Physics (2005–2011).

Editorial activity

- Advisory Editor of the Journal of Geometry and Physics, Elsevier (Jan 2018–).
- Editor in Chief of the Journal of Geometry and Physics, Elsevier (Nov. 2003–Dec. 2017).
- Associate Editor of “São Paulo Journal of Mathematical Sciences” (since May 2018).
- Editorial Board of “Analysis, Geometry and Number Theory” (founding editor)
- Editorial Board of “Rendiconti dell’Istituto Matematico dell’Università di Trieste”. (since 2008).
- Editorial Board of “Latin American Mathematics Series: UFSCAR Subseries,” Springer-Verlag (since 2013)
- Reviewer/referee for Mathematical Reviews, Zentralblatt für Mathematik, Adv. Appl. Clifford Alg., Adv. Math. Physics., Adv. Theor. Math. Phys., Annals of Global Analysis and Geometry, Ann. Inst. Fourier, Bull. Austral. Math. Soc., Calculus of Variations, Classical and Quantum Gravity, Collec. Math., Complex Manifolds, Compositio Mathematica, International Journal of Mathematics and Mathematical Sciences, Math. Phys. Anal. Geom., Indian J. of Math., International Mathematical Research Notices, Journal of Algebra, Journal of Differential Equations, Journal of Geometry and Physics, Journal of High Energy Physics, Journal of Mathematical

²“Notório saber” is a title granted by some Brazilian universities which attests that the subject, in spite of not having a formal PhD title, has equivalent knowledge, as testified by her/his publications, career and professional experience.

Physics, Journal of Physics A: Mathematical and General, Nuovo Cimento, Pacific Journal of Mathematics, Rivista Matematica dell'Università di Parma, Rendiconti dell'Istituto Matematico dell'Università di Trieste, SIGMA, Transactions of the Amer. Math. Soc.

Grant history

- Italian-Spanish research projects “Azione integrata” (Years 1993-1994, 1999-2000, 2001-2003, 2006-2009).
- National research project “Geometry of differentiable manifolds” (1993-1996).
- National research project “Classification and properties of real and complex manifolds” (1997-1998).
- “Noncommutative geometry: algebraic, analytic and probabilistic aspects and applications in mathematical physics”, funded by the Friuli-Venezia Giulia region (1999-2001).
- National research project “Singularities, Integrability, Symmetries” (2000-2002).
- “Geometry of moduli spaces and applications in mathematical physics”, funded by the Friuli-Venezia Giulia region (2002-2004).
- National research project “Geometry of algebraic varieties” (2002-2004, 2010-2012, 2013-2016, 2016-2019).
- EINSTEIN Consortium project “Duality in integrable systems” (2008-2009).
- MATPYL (Mathématiques en Pays de Loire) project “Lie algebroids, equivariant cohomology, and topological quantum field and string theories” (2008-2009).
- “Nuevas tendencias en Geometría Algebraica Derivada y Espacios de Móduli con una mirada a la Teoría de Cuerdas”, Junta de Castilla y León, Spain (2008-2011).
- INFN Research Project “Nonperturbative dynamics of gauge theories” (2005-2014; coordinator of the Trieste Unit, 2005-2011).
- INFN Research Project “Gauge and string theory” (2014–)
- EINSTEIN Consortium project “Integrability in topological string and field theory” (2009-2010).
- GEANPYL-II Angers-SISSA project “Generalized Lie algebroid structures” (2010–2012).

Memberships

- Scientific council of the Arnold-Regge institute, Torino
- European Research Group “Vector Bundles on Algebraic Curves” (member of the scientific committee)
- “More Geometrico” project (member of the scientific committee)
- National Group for Geometry and Algebra, Istituto Nazionale di Alta Matematica
- Società Italiana di Relatività Generale e Gravitazione (SIGRAV) (life member, past member of the scientific committee)
- Unione Matematica Italiana
- INFN — Istituto Nazionale di Fisica Nucleare (INFN)

Visits

- Sept – Oct 1977: “Student Fellowship”, Max-Planck-Institut für Strömungsforschung, Göttingen, Germany.
- May – Jun 1984: “Visiting Fellowship”, Princeton University.
- Apr 1986, May – Jun 1989, May 1990, Jun – Jul 1999: Visiting scientist, University of Salamanca, Spain

- Sep 1990: “Visiting Associate Professorship”, Baruch College, City University of New York.
- Oct 1994, Aug – Oct 1998: “Visiting Associate Professorship”, Victoria University of Wellington, New Zealand.
- Dec 2000: Visiting “Maître de conférences”, Laboratoire de Physique Théorique des Hautes Energies, Université Paris VII.
- Feb – Apr 2006: Visiting Professor, Tata Institute for Fundamental Research, Mumbai, India.
- Jan – May 2008: Senior Visiting Professor, University of Pennsylvania, Philadelphia.
- June 2009: Visiting Professor, Université des Sciences et Technologies de Lille.
- May – Aug 2010: Chercheur associé, CNRS, Université des Sciences et Technologies de Lille.
- Sep – Dec 2010: Distinguished Visiting Professor, University of Pennsylvania, Philadelphia.
- Jan - Feb 2011: Institut des Hautes Études Scientifiques, Paris.
- March - April 2011, March 2012, Nov 2013: Max-Planck-Institut für Mathematik, Bonn.
- May - June 2011: Isaac Newton Institute, Cambridge, UK.
- Oct 2013: Visiting Professor, Université des Sciences et Technologies de Lille.
- Feb 2015 - Jan 2016: Visiting Professor, Universidade Federal de Santa Catarina, Florianópolis, Brazil.
- May 2016: Visiting Professor, University of Pennsylvania, Philadelphia.
- June 2016: Visiting Professor, Université Paris VI.
- Jan – May 2017: Visiting Professor, University of Pennsylvania, Philadelphia.
- Feb – April 2018: Visiting Professor, Universidade de São Paulo, Brazil (FAPESP grant).
- July 2018: Visiting Professor, Université de Lille.
- Feb — March 2019: Visiting Professor, Université de Lille.
- April 2019 — Visiting Professor, Universidade Federal da Paraíba, João Pessoa, Brazil.

Moreover I made short visits at University of Georgia (Athens, USA), Gannon University (Erie, USA), Université Paris VI, King’s College University of London, University of Edinburgh, Universidad Autónoma de Madrid, University of Queensland in Brisbane (Australia), Instituto Superior Técnico (Lisbon), Universität Kaiserslautern (Germany), Université d’Angers (France), Humboldt Universität Berlin, Tsinghua University (Beijing), Universidad de Barcelona, University of Pennsylvania (Philadelphia, USA), University of Ottawa (Canada), Penn State University (State College, PA), University of Wisconsin at Madison, Nankai University (Tianjin, China), Rutgers University (Piscataway, USA), Ukrainian Academy of Sciences (Kiev), IMPA (Rio de Janeiro), Universidade Estadual de Campinas (Brazil), Florida State University (Tallahassee), Centro de Recerca Matemàtica (Bellaterra, Spain), Universidade de São Paulo, São Carlos (Brazil), Universidade Federal de Santa Catarina (Florianópolis, Brazil), Hong Kong University of Science and Technology, University of Hong Kong, University of Adelaide (Australia), CIMAT (Guanajuato, Mexico), Heriot-Watt University (Edinburgh), University of Alberta (Edmonton, Canada), Institute for Mathematical Sciences (National University of Singapore), Universidade Estadual de Londrina (Brazil), Universidade Federal Fluminense (Rio de Janeiro, Brazil), Universidade Federal da Paraíba (João Pessoa, Brazil), Rudjer Boskovic Institute of the University of Zagreb (Croatia), Universidade de São Paulo, São Paulo (Brazil), University of Western Ontario (London, Canada), University of Oxford, University of Lisbon.

In Italy I gave talks at the Universities of Pavia, Roma “La Sapienza”, Bologna, Roma “Tor Vergata”, Napoli, Milano Bicocca, Torino, Padova, Trieste, Firenze, Lecce, Scuola Normale Superiore (Pisa), Università del Piemonte Orientale (Alessandria), Udine, Roma 3.

During February 2004 I spent two weeks at “Mathematisches Forschungsinstitut Oberwolfach” (Germany) as a “Research in pairs” fellow.

Teaching

- Problem solving classes in general physics, classical mechanics, partial differential equations (University of Genoa, 1979-1992).

- Undergraduate/master courses in calculus, PDEs, mathematical physics (analytical mechanics, continuum mechanics, electromagnetism, quantum mechanics, special and general relativity), differential geometry (including Lie groups), symplectic geometry, algebraic topology, algebraic geometry. Delivered at the Universities of Genoa, Trieste and Padova, at SISSA, at ICTP and at University of Pennsylvania.
- PhD courses in: sheaf theory, homological algebra, algebraic geometry, toric geometry, Hodge theory, Teichmüller theory, elliptic curves, fibre bundles, instantons. Delivered at SISSA, University of Genoa, Universidade Federal da Paraíba.

PhD theses in mathematics advised/current PhD students:

1. C. Bartocci, Elementi di una teoria globale delle supervarietà (Università di Genova, 1990). Presently Associate Professor at the University of Genoa, Italy.
2. F. Thompson, New approaches to quaternionic algebra and geometry (SISSA, 1999). Presently CEO, Dragonfly Science, Wellington, New Zealand.
3. G. Marelli, A Fourier transform for sheaves on Lagrangian families of real tori (SISSA, 2001). Presently associate Professor, University of Namibia, Windhoek.
4. A. Tacca, Heisenberg-Clifford super algebras and moduli spaces of instantons (University of Genova, 2005). Presently Head of Pricing and Financial Valuation, Banca Popolare di Milano.
5. E. Macrì, Stability conditions in derived categories (SISSA, 2006). Presently Associate Professor, Northeastern University, Boston.
6. A. Ricco, Some comments on the local curve (B-side) (SISSA, 2006, with L. Bonora). High school teacher, Rome.
7. L. Cirio, Symmetries of noncommutative spaces and equivariant cohomology (with G. Landi, SISSA, 2008). Last known job: Researcher at Westfälische Wilhelms-Universität Münster, Germany.
8. F. Ferrari Ruffino, Topics on topology and D-branes (SISSA, with L. Bonora, 22 October 2009). Presently Assistant Professor, Universidade Federal de São Carlos, São Carlos, Brazil.
9. A. A. Henni, Monads and coherent sheaves on blowups of the projective plane (SISSA, 27 November 2009). Presently Assistant Professor at Universidade Federal de Santa Catarina, Florianópolis, Brazil.
10. F. Sala, Some topics in the geometry of framed sheaves and their moduli spaces (SISSA, with D. Markushevich, 6 October 2011). Presently Postdoc at IPMU, University of Tokyo, Japan.
11. P. Tortella, Λ -modules and holomorphic Lie algebroids (SISSA, with D. Markushevich, 6 October 2011). Presently working as data scientist, Milan area.
12. C. Rava, ADHM data for framed sheaves on Hirzebruch surfaces (SISSA, 27 February 2012, with C. Bartocci). Unemployed.
13. S. Holguín Cardona, Approximate Hermitian-Yang-Mills structures and semistability for Higgs bundles (SISSA, 3 May 2012). Presently Research Scientist at the University of Oaxaca, Mexico.
14. G. Abdellaoui, Topology of moduli spaces of framed sheaves (SISSA, 27 September 2013). Last known job: Postdoc at Universität Osnabrück, Germany.
15. A. Lo Giudice, Some topics on Higgs bundles over projective varieties and their moduli spaces (SISSA, 27 September 2013). Presently working at UniCredit Business Integrated Solutions, Milan, Italy.
16. A. Pustetto, Semistability and decorated bundles (SISSA, 27 September 2013). Presently working as programmer, Trieste area.
17. M. Pedrini, Moduli spaces of framed sheaves on stacky ALE spaces, deformed partition functions and the AGT conjecture (SISSA, 11 October 2013, with F. Sala). Presently Data Scientist at CGnal, Milan.
18. A. Gandolfo, The outset of connections (Univ. of Genoa, 24 February 2016, with C. Bartocci). High school teacher.

19. J. Scalise (SISSA, 19 September 2016). Framed symplectic sheaves on surfaces and ADHM data. High School Teacher, London.
20. A. Celotto (SISSA, 25 June 2017). Topology of the moduli space of framed sheaves on ALE orbifolds. Unemployed.
21. A. Maiorana (SISSA, 14 September 2018). Moduli of sheaves, quiver moduli, and stability. Working in a private firm, Milan.
22. F. Sorrentino (SISSA, 31 January 2019). On numerically flat Higgs bundles. Occupation unknown.
23. W. Montoya (SISSA, 27 September 2019). Noether-Lefschetz theory for toric varieties.
24. V. Peragine (SISSA, PhD expected September 2020).
25. M. Graffeo, (SISSA, PhD expected September 2022).
26. U. Shazhad, (SISSA, PhD expected September 2022).

Moreover, I have advised 30 students for their MSc theses (in mathematics or theoretical physics). My former PhD student Emanuele Macrì is a recipient of a “Poincaré Chair” at Institut Henri Poincaré, Paris.

My former MSc students Guido Sanguinetti and Elia Saini won the “Premio Franco Tricerri” of the Italian Mathematical Union for the best MSc thesis in differential geometry, in the years 1999 and 2015, respectively. E. Saini also won “Premio Schena” (Fondazione Credito Valtellinese).

Postdoc coordination (2014-2018)

- R. Torres Ruiz (2014-2018, SISSA Excellence Research Grant)
- A. Boralevi (2014-2016, SISSA Postdoctoral fellow)
- A. Rizzardo (Sept 2012 – Sept 2014; Oct 2015 – Sept 2016, SISSA Postdoctoral fellow)

Organization of conferences

I have organized (or participated in the scientific committees of) 30+ international conferences.

In particular since 1996 I am the main organizer of the series “Schools and Workshops on Algebraic Geometry and Physics,” that have taken place in Trieste (4 times), Medina del Campo (Spain), Marseille, Genova, Como, Salamanca, Lisbon, Philadelphia, Vienna, Seoul (Korea), Tianjin (China, twice), Hangzhou (China), Maresias (Brazil), Saint Jean de Monts (France), Leiden (The Netherlands), Guanajuato (Mexico).

I am a member of the Scientific Committees of the interdisciplinary project “More Geometrico” and of the VBAC (Vector Bundles on Algebraic Curves) conference series.

Talks and participation in conferences

I have given about 90 talks in different universities and research institutions. Moreover I have participated in about 185 conferences, giving about 100 talks (mostly invited) and lectures series. I have given 10 talks to high school students, high school teachers or general audiences.

Other activities

- National committee for the hiring of Associate Professors in Mathematical Physics (1992).
- Several hiring committees (commissioni di concorso) at different levels (SISSA).
- PhD defence committees in Salamanca (three times), Rome (twice), Milano, Genova (twice), Instituto Superior Técnico (Lisbon), and many times at SISSA.
- Advisory board of “SUPERSYMMETRY 2000 – Encyclopedic Dictionary” (Jim Gates chief editor).

- Chair of a committee for the awarding of high school degrees (twice).
- Referee for National Research Projects applications (PRIN).
- Evaluator for CIVR (Comitato di Indirizzo per la Valutazione della Ricerca), Ministero dell'Università e della Ricerca Scientifica.
- Committee for the conferment of an Habilitation degree at Humboldt Universität, Berlin.
- Referee for Volkswagen Stiftung grants (three times) and member of the midterm evaluation board for one of them (2011).
- Committees for the awarding of the “Agregação” degree, Instituto Superior Técnico, Lisbon (2009).
- Committee for the awarding of a full professorship at Instituto Superior Técnico, Lisbon (2011).
- Referee for the Portuguese Exact Sciences and Engineering Council (2012).
- Referee for the Romanian Agency for Higher Education, Research, Development and Innovation Funding (2012).
- Referee for FONDECYT (Chile, 2014 and 2018).
- Referee for ANVUR (Agenzia nazionale di valutazione del sistema universitario e della ricerca, 2012-3).
- Member of the External Advisory Committee of LISMATH — Lisbon Mathematics PhD programme (2013–).
- Evaluator for INdAM COFUND-2012.
- Member of a committee for a “Maître de conférences” position, Université d'Angers (2016).
- Member of a committee for the awarding of a Tenure Track assistant professorship (Università Statale di Milano, 2017).
- Member of a committee for “Livre-Docência”, Universidade de São Paulo (2018).
- Member of a committee for granting tenure, Università di Padova (2019).