

Curriculum Vitæ

Marius BULIGA

Institute of Mathematics of the Romanian Academy, PO-BOX 1-764, 014700 Bucharest, Romania

e-mail: Marius.Buliga@imar.ro , Marius.Buliga@gmail.com

- personal homepage: <http://www.imar.ro/mbuliga/>
- Scholar profile: <https://scholar.google.com/citations?user=1dPWQgsAAAAJ&hl=en>
- arXiv articles: https://arxiv.org/a/buliga_m_1.html
- GitHub repositories:
 - chemlambda <https://github.com/chorasimilarity/chemlambda-gui>
 - needs <https://github.com/chorasimilarity/needs>
 - EM <https://github.com/mbuliga/em>
- Figshare articles and data repositories: http://figshare.com/authors/Marius_Buliga/475484

Research

- Artificial chemistry, graph rewrite systems, lambda calculus, distributed computing
- Emergent algebras, spaces with dilations, non-euclidean analysis, geometry and analysis in metric spaces, sub-riemannian geometry,
- Convex analysis, convexity, quasiconvexity, bipotentials,
- Calculus of variations with applications to brittle fracture mechanics

Studies:

- 2007 - Habilitation à diriger des recherches, Sciences Mathématiques, Université des Sciences et technologies de Lille
- 1997 - Ph.D. in Mathematics, Institute of Mathematics, Romanian Academy
- 1995 - D.E.A. (i.e Master) in Nonlinear Mechanics École Polytechnique, Paris

- 1994 - Diplôme d'auditeur, École Polytechnique, Paris, majeure Science de l'Ingenieur
- 1992 - Solid Media Mechanics Department, Faculty of Mathematics, Bucharest University.

Positions:

- 2000 - researcher — Institute of Mathematics, Romanian Academy
- 2001-2006 - academic guest and post-doctoral position at Tudor Ratiu's chair of Geometric Analysis at Ecole Polytechnique Federale de Lausanne
- 1997-1998 - associated professor, Faculty of Mathematics, Hyperion University, Bucharest
- 1995-1999 - scientific researcher — Institute of Mathematics, Romanian Academy
- Feb. 1993 - Dec. 1993 - research assistant — Institute of Civil Engineering and Faculty of Mathematics, Bucharest University
- Sept. 1992 - Feb. 1993 - professor of Informatics — Petru Poni College, Bucharest

Positions (temporary):

- visiting researcher or professor, various places: USTL Lille, ENS Cachan, EPFL Lausanne, LMS Univ. Poitiers, etc.
- 2010-2011, 6 months, visiting associate professor, Institute of Mathematics, Universidade Federal do Rio de Janeiro, Brazil
- 2010, a month as guest at IHES, with the project Dilatation structures: geometric and algebraic aspects of differential analysis in metric spaces

Premii, granturi

- Premiul Spiru Haret al Academiei Române (2008)
- câștigător, concurs public pentru visiting associate professor position la Institute of Mathematics, Universidade Federal do Rio de Janeiro, Brazil, (2010)
- cu Laurențiu Leuştean, grant PN-II-ID-PCE-2011-3-0383 Proof mining in metric analysis, geometric group theory and ergodic theory , (2011-2013)
- LEA common project (Laboratoire Européen Associé CNRS Franco-Roumain) Math Mode 2009, Bipotentials for non monotone multivalued operators: fundamental results and applications, cu Géry de Saxcé și Claude Vallée
- membru al SCOPES funded grant Lausanne-Bucharest common project on topology, geometry and mechanics
- MCT-ANSTI 627/1998-1999 Energetic Criteria in Fracture Mechanics
- CEEX06-11-12/2006

Teaching experience:

- Courses:

- Introduction to metric spaces with dilations, Instituto de Matemática, Universidade Federal do Rio de Janeiro, 2010-2011
- Relativity Theory (4th semester), cours: 24h/semester, for two years at the Faculty of Mathematics, University of Bucharest, 1993
- Solid Media Mechanics (7th semester), cours: 28h/semester, classes: 140h/semester (2h/week for 5 series of students, during 14 weeks), 1993 at the Faculty of Mathematics, University of Bucharest
- classes of Introductory notions in informatics (1st semester), 56h/semester, at the Institute of Civil Engineering, Bucharest, 1992-1993
- Linear Geometry (first 2 semesters), cours: 84 h/year, classes: 168h/year, for two years at the Faculty of Mathematics, Hyperion University, Bucharest
- Differential geometry (next 2 semesters), cours: 84 h/year, classes: 168h/year, for two years at the Faculty of Mathematics, Hyperion University, Bucharest.
- Classes for the first year Analysis course of Tudor Ratiu at EPFL, 108h/year, for 4 years.
- occasionally replacing Tudor Ratiu for the Analysis I course, during 4 years.
- electronic support (page web with exercises/solutions) for the mentioned cours at EPFL, during 4 years

- Scientific seminars held at the Institute of Mathematics, Romanian Academy: Free discontinuity problems and spaces of functions with bounded variation, Energetic methods in brittle fracture mechanics, Metric geometry.

- Invited talks, conferences:

- 1992- Lie-Lobacevski Symposium, Université de Bucharest,
- 1996- Conférences Nationales de Mécanique des Solides (Roumanie), Constanta 1996, Iasi 1997
- 1996- Differential Equations and Calculus of Variations, summer school and workshop, Pisa, 1996
- 1999- M. Buliga, Energetic criterions in brittle fracture mechanics, The Fourth International Congress on Industrial and Applied Mathematics (ICIAM 99), 1999
- 1999- Applied Analysis and Mechanics Seminars, Hilary Term 1999, Mathematical Institute, Oxford, Quasiconvexity versus group invariance , invited by J.M. Ball
- 1999- Scuola Internazionale Superiore di Studi Avanzati, Trieste, The variational complex of a diffeomorphisms group , invited by A. Braides
- 2000- Département de Mathématiques, École Polytechnique Fédérale de Lausanne, Variational rigidity , invited by T. Ratiu

- 2002- Mathematical Institute, University of Bern, Towards rectifiability in Carnot groups: a theory of irreducible representations of volume preserving bi-Lipschitz homeomorphisms , invited by M. Reimann
- 2003- Mathematical Institute, University of Bern, two lectures during the Séminaire Borel 2003 Tangent spaces to metric spaces , IIIème Cycle Romand de Mathmatiques, Switzerland
- 2004- Centre Bernoulli, École Polytechnique Fédérale de Lausanne, A claim about Hamiltonian mechanics , invited by T. Ratiu
- 2004- Mathematical Institute, University of Bern, Metric profiles and Mitchell theorem 1 , invited by M. Reimann
- 2004- IMA - EPFL , Majorisation and multiplicative quasiconvexity , invited by B. Dacorogna
- 2004- Journées d'automne de la Société Mathématique Suisse, Curvature of metric profiles
- 2004- Universit at Stuttgart, Fakult at Mathematik und Physik, Convexity notions, groups and nonlinear elasticity invited by A. Mielke.
- 2005- Mathematical Institute, University of Bern, Differential structures for sub-Riemannian spaces , invited by M. Reimann.
- 2005- Centre de Mathématiques et d'Informatique, Université de Provence, Séminaire de Géométrie et Singularités, Flots hamiltoniens d'isométries invited by B. Kolev.
- 2005- Laboratoire de Mécanique de Lille, Un test pour les critères énergétiques de rupture , invited by G. De Saxcé.
- 2006- GAMM 2006, Berlin, Germany, G. De Saxcé, M. Buliga, C. Vallée, C. Lerințiu, Construction of a bipotential for a multivalued constitutive law
- 2006- 8-ème Colloque Franco-Roumain de Mathématiques Appliquées, Chambéry, Convexité de Schur et élastomères nématiques
- 2006- Geometric and Asymptotic Group Theory with Applications, Manresa, Spain, satellite conference of ICM2006 Madrid, Dilatation Structures
- 2006- December Monthly Conference of the Institute of Mathematics of the Romanian Academy, Bucharest, Travelling salesman through fractals
- 2007- Geometric linearization of graphs and groups, January 22-26, 2007, Centre Interfacultaire Bernoulli, EPFL, Lausanne, Switzerland, Dilatation structures and linearization of self-similar actions
- 2007- International Symposium on Defect and Material Mechanics, March 25-29, 2007 - Aussois, France, Fracture fattening and energy release rates
- 2007- 6-th Congress of Romanian Mathematicians, June 28 - July 4, 2007 - Bucharest, Romania, Section: Theoretical Computer Science, Operations Research and Mathematical Programming, Self-similar dilatation structures and automata
- 2007- Viertes Deutsch-Rumanisches Seminar über Geometrie Dortmund, 15-18 July 2007, Linear dilatation structures and conical groups
- 2007- The eight international workshop on differential geometry and its applications, August 19-25, 2007, Babeş-Bolyai University, Cluj-Napoca, Romania, Nonholonomic spaces and geometric group theory

- 2008- Petit-dej, LMT Cachan, May 2008, A hamiltonian associated to the Ambrosio-Tortorelli functional and a proposal concerning a brittle damage model
- 2009- Workshop on Differential Geometry and its Applications Iasi, September 2 - 4, 2009, Approximately symmetric spaces and their metric geometry
- 2009- LMA- Univ.de Provence, Oct. 2009, Comment utiliser le bipotentiel dans un schéma numérique, suivant Berga et de Saxce
- 2010- IECN-Nancy, Séminaire Groupes de Lie et analyse harmonique , Apr. 2010, Géométrie approximative du point de vue algébrique
- 2011- IM-UFRJ, Rio de Janeiro, 10-20 Jan. 2011, Summer School on Nonlinear analysis, Carnot-Carathéodory spaces as metric spaces with dilations
- 2011- LEA Math Mode Colloque, 28-29 Nov., IMAR, Non-euclidean analysis of dilation structures
- 2012- (unfortunately not able to attend but see the course notes on my homepage) CIMPA research school on sub-riemannian geometry, January 30 - February 9, Lebanese University, Beirut (Lebanon), Metric spaces with dilations and sub-riemannian geometry from an intrinsic viewpoint
- 2014- Marius Buliga, Louis H. Kauffman, *Chemlambda, universality and self-multiplication*, Fourteenth International Conference on the Synthesis and Simulation of Living Systems, New York, NY, USA, July 30th – Aug 2nd 2014
- 2014- Marius Buliga, *Comment introduire la dissipation en dynamique hamiltonienne et l'appliquer à l'endommagement*, Laboratoire de Mécanique de Lille , 12 Juin 2014.
- 2014- Marius Buliga, *Hamiltonian systems with dissipation*, Séminaire d'Alembert, Institut d'Alembert, UMR CNRS 7190 UPMC, 17 Juin 2014.
- 2014- Marius Buliga, *Internet of Things not Internet of Objects*, 4th Offtopicarium, Jan. 2014, online
- 2015- Abdelbacet Oueslati, Djimedo Kondo, Gery de Saxcé, An Danh Nguyen, Marius Buliga, Space-time Variational Principle for Dynamics of Viscoplastic Dissipative Structures with Damage, European Solid Mechanics Conference, ESMC15, Madrid, July 6-10, 2015

- stagii de cercetare:

- LMS, École Polytechnique, Paris, 1994
- LPMTM, Université Paris 13, 1995

- burse:

- bourse dans le Programme Européen de l' École Polytechnique, Paris, 1994
- bourse de D.E.A. de l' École Polytechnique, Paris, 1995

Limbi cunoscute: Română, Engleză, Franceză