CURRICULUM VITAE FOR RUI LOJA FERNANDES

Department of Mathematics
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801

EDUCATION

Habilitation ("Agregação") in Mathematics, IST-Lisbon, 2002
Ph.D. in Mathematics, University of Minnesota, 1994 (advisor: Peter J. Olver)
M.Sc. in Mathematics, University of Minnesota, 1992
Licenciatura in Physics Engineering, IST-Lisbon, 1988

PROFESSIONAL EXPERIENCE

2012- -- University of Illinois at Urbana-Champaign, Lois M. Lackner Professor of Mathematics
2007-2012 IST-Lisbon, Professor of Mathematics
2003-2007 IST-Lisbon, Associate Professor of Mathematics
1994-2003 IST-Lisbon, Assistant Professor of Mathematics
1989-1994 University of Minnesota, Teaching Fellow

APPOINTMENTS

2010 – 2012 Head of the Department of Mathematics, IST-Lisbon
2010 – 2012 Member of the Executive Committee of the European Mathematical Society
2009 – 2012 Member of the Senate of the Technical University of Lisbon
2009 – 2010 Member of the Scientific Board of IST-Lisbon
2005 – -- Member of the Scientific Board of CIM - Centro Internacional de Matemática
2001 – 2008 Member of the Senate of IST-Lisbon

AWARDS, GRANTS AND DISTINCTIONS

NSF Support since arriving in the USA in 2013
Beca del Ministerio de Educación y Ciencia 2008 for sabbatical at CRM-Barcelona, Spain
Chercheur invité CNRS at Université de Paul Sabatier-Toulouse, France, 2007
Corresponding member of the Lisbon Academy of Sciences since December 2006.
Calouste Gulbenkian Foundation Award for the Basic Sciences, 2001
Outstanding Thesis Award, University of Minnesota, USA, 1994
NATO PhD Grant at University of Minnesota 1989-93
Fulbright-Hays Grant 1989-90

BOOKS AND LECTURE NOTES

1. R.L. Fernandes and M. Ricou, Introdução à Algebra, 2nd Edition, ISBN: 978 9728469 276 Coleção Ensino da Ciência e Tecnologia, IST-Press, 2003, 484 pp.
2. Geometry and Physics: XVI International Fall Workshop, R.L. Fernandes and R. Picken (eds.), AIP Conference Proceedings Volume 1023, 228 p., 2008.
3. Celebrating 10 years of the Geometry in Lisbon Seminar, Proceedings of the Summer School held at IST, Lisbon, July 13–17, 2009. R.L. Fernandes and A. Cannas da Silva (eds.), *Port. Math.* **67** (2010), no. 2, 119.
4. Proceedings of the conference Poisson 2010 - Poisson Geometry in Mathematics and Physics, H. Bursztyn, R.L. Fernandes J-H. Lu and A. Weinstein, (eds.), special issue of the *Bulletin of the Brazilian Mathematical Society* **42** (2011) nº 4.
5. M. Crainic and R.L. Fernandes, Lectures on Integrability of Lie Brackets, *Geometry & Topology Monographs* **17** (2011) 1-107.

RESEARCH PAPERS

1. R.L. Fernandes, On the master symmetries and bi-Hamiltonian structure of the Toda lattice, *J. Phys. A: Math. Gen.* **26**, (1993) 3797-3803.

2. R.L. Fernandes, A Note on Poisson Symmetric Spaces, in *Proceedings of the Cornelius Lanczos International Centenary Conference*. Eds. J. Davis Brown, Moody T. Chu, Donald C. Ellison, Robert J. Plemmons, SIAM Philadelphia, USA (1994) 638-642.
3. R.L. Fernandes, Completely Integrable bi-Hamiltonian Systems, *J. Dynam. Diff. Eq.* **6**, (1994) 53-69.
4. R.L. Fernandes, Integrability of the Periodic KM System - together with João P. Santos, *Reports on Math. Phys.* **40**, (1997) 475-484.
5. P. Duarte, R.L. Fernandes and W. Oliva, Dynamics on the Attractor of the Lotka-Volterra Equation, *J. Diff. Equations* **149**, (1998) 143-189.
6. R.L. Fernandes and W. Oliva, Hamiltonian Dynamics of the Lotka-Volterra Equations, *Proceedings of the Equadiff 95 Conference*, Lisbon, Eds. L. T. Magalhães, C. Rocha, L. Sanchez, World Scientific, Singapure, (1998).
7. R.L. Fernandes, Contravariant Connections on Poisson Manifolds, in *Proceedings of the Summer School on Differential Geometry*, Eds. A. M. Breda, F. Carvalho, J. Costa, B. Wegner, Univ. Coimbra, 1999.
8. R.L. Fernandes, Deformation Quantization and Poisson Geometry, *Resenhas IME-USP* **4**, (2000) 327-361.
9. R.L. Fernandes, Connections in Poisson Geometry I: Holonomy and Invariants, *J. of Differential Geometry* **54**, (2000) 303-366.
10. R.L. Fernandes and P. Vanhaecke, Hyperelliptic Prym Varieties and Integrable Systems, *Commun. Math. Phys*. **221**, (2001) 169-196.
11. P. Damianou and R.L. Fernandes, From the Toda lattice to the Volterra lattice and back, *Reports on Math. Phys.* **50**, (2002) 361-378.
12. R.L. Fernandes, Invariants of Lie algebroids, *Differential Geometry and its Applications* **19**, (2003) 223-243.
13. M. Crainic and R.L. Fernandes, Integrability of Lie brackets, *Annals of Mathematics* **157**, (2003) 575-620.
14. M. Crainic and R.L. Fernandes, Integrability of Poisson brackets, *J. of Differential Geometry* **66**, (2004) 71-137.
15. R.L. Fernandes and P. Monnier, Linearization of Poisson brackets, *Lett. Math. Phys*. **69**, (2004) 89-114.
16. M. Crainic and R.L. Fernandes, Exotic Characteristic Classes of Lie Algebroids, in *Quantum Field Theory and Noncommutative Geometry*, Lecture Notes in Physics, Vol. 662. Eds. Carow-Watamura, Ursula; Maeda, Yoshiaki; Watamura, Satoshi, Springer-Verlag, Berlin, 2005.
17. R.L. Fernandes, A note on proper Poisson actions, *Proceedings of the 10th International Conference in Modern Group Ananlysis,* Oct. 2004, Eds. N.H.Ibragimov, C.Sophocleous, P.A.Damianou, Larnaca, Cyprus, (2005) 77-84.
18. M. Crainic and R.L. Fernandes, Rigidity and flexibility in Poisson geometry, *Trav. Math.* **16** (2005), 53-68.
19. P. Damianou and R.L. Fernandes, Integrable hierarchies and the modular class, *Annales de l'Institut Fourier* **58** no. 1, (2008) 107-137.
20. R.L. Fernandes, The symplectization functor, in Proceedings of XV International Workshop on Geometry and Physics (Puerto de la Cruz, Tenerife, 2006) *Publ. R. Soc. Mat. Esp.* **11**, (2008) 67-82.
21. R.L. Fernandes and O. Brahic, Poisson fibrations and fibered symplectic groupoids, in Poisson Geometry in Mathematics and Physics, 41--60, *Contemporary Mathematics* **450**, American Mathematical Society, Providence, RI; 2008.
22. R.L. Fernandes and I. Struchiner, Lie Algebroids and Classification Problems in Geometry, *São Paulo J. of Math. Sci.* **2** no. 2, (2008) 263-284.
23. R.L. Fernandes, J.P. Ortega and T. Ratiu The momentum map in Poisson geometry, *Amer. J. of Math.* **131**, no. 5, (2009) 1261-1310.
24. R.L. Fernandes and D. Iglesias-Ponte Integrability of Poisson-Lie group actions, *Lett. Math. Phys.* **90**, (2009) 137-159.
25. M. Crainic and R.L. Fernandes, Stability of symplectic leaves, *Inventiones Mathematicae* **180**, no. 3, (2010), 481-533.
26. M. Crainic and R.L. Fernandes, A geometric approach to Conn's linearization theorem, *Annals of Math* **173** (2011), 1119-1137.
27. R.L. Fernandes and P. Frejlich, A h-principle for symplectic foliations, *International Mathematics Research Notices* **2012**, no. 7, (2012), 1505-1518.

28. R.L. Fernandes and Raquel Caseiro, Modular classes of Poisson maps, *Annales de l'Institut Fourier* **63** no. 4 (2013), 1285-1329.
29. R.L. Fernandes and I. Struchiner, The Classifying Lie Algebroid of a Geometric Structure I: Classes of Coframes, *Transactions of the AMS* **366**, no 5 (2014), 2419–2462.
30. R.L. Fernandes and O. Brahic, Integrability and Reduction of Hamiltonian Actions on Dirac Manifolds, *Indagationes Mathematicae* **25** no. 5 (2014), 901–925.
31. M. del Hoyo and R.L. Fernandes, Riemannian Metrics on Lie Groupoids, accepted for publication in Crelle, Preprint arXiv:1404.5989.

JOURNAL EDITORSHIPS

1. Associate Editor of J. of Geometric Mechanics
2. Associate Editor of Portugaliae Mathematica (Editor-in-Chief between 2007-2012)

RECENT CONFERENCE, SEMINAR AND COLLOQUIA TALKS

Recent Conferences:

- "Pic($\mathfrak{g}$*) = OutAut($\mathfrak{g}$)", talk at the Gone Fishing meeting, UC Berkeley, November 2014.
- "Linearization and geometry around leaves", Workshop on Geometry and Dynamics of Foliations, ICMAT, Madrid, September, 2014.
- "Riemannian metrics on Lie groupoids", Second Miniworkshop on Poisson Geometry and Related Topics, Universidade de São Paulo, Brazil, June 2014.
- "Poisson manifolds of proper type", Seminário Simplético - IMPA-PUC-UFF-UFRJ, PUC, Rio de Janeiro, May 2014.
- "Non-commutative Integrable Systems", AMS Sectional Meeting, Washington University, St. Louis, special session on "Spectral, Index, and Symplectic Geometry", October 2013.
- "Normal forms for regular proper groupoids and symplectic complete isotropic realizations", Workshop on "Normal forms", University of Utrecht, The Netherlands, February, 2013.
- "Noncommutative Integrable Sytems", Joint Symplectic Seminar Penn-Cornell, Cornell University, Ithaca, USA, October 2012.
- "Lie Algebroids and Classification Problems in Geometry", talk at the Gone Fishing meeting, UCLA, September 2012.
- "Stability of leaves", in "BiHamiltonian Systems and all That", Conference in Honour of Franco Magri's 65th Birthday, Universidade Bicocca, Milano, Italy, September 2011.
- "A h-principle in Poisson Geometry", XX International Workshop on Geometry and Physics, Madrid, Spain, September 2011
- "Non-commutative integrable systems", Workshop on Mathematical Physics, SigmaPhi2011 - International Conference on Statistical Physics, Cyprus, July 2011.
- "Stability of Leaves", Seminário de Física-Matemática, IMPA, April 2011.
- "The Equivariant Picard group in Poisson geometry", Conference 'Quantization of Singular Spaces', Center for Quantum Geometry of Moduli Spaces, Aarhus, Dinamarca, December 2010.
- "A universal stability theorem", Conference Higher Structures in Mathematics and Physics – 2010, Erwin Schrödinger Institute, Vienna, Austria, October 2010.
- "Stability and Lie algebroid Theory", III Latin American Conference on Lie Groups in Geometry, Universidade de Los Andes, Bogotá, Colombia, July 2010.
- "The Modular Class of a Poisson Map", AIMS Conference-Special Session in Geometric Mechanics, Dresden, Germany, April 2010.
- "The Equivariant Picard Group", Séminaire Géometrie des Crochets, Université de Luxembourg, Luxembourg, January 2010.
- "Picard groups of Poisson manifolds", Centre de Mathématiques Laurent Schwartz, École Polytechinique, Paris, December 2009.
- "Stability of symplectic leaves", Conference Paulette Libermann, Héritage et Descendence, Institute Henri Poincaré, Paris, December 2009.
- "A geometric approach to Conn's linearization theorem", XVIII Oporto Meeting on Geometry, Topology and Physics, Porto, July 2009

- "The Symplectization Functor", Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil, January 2009.

Recent Colloquium talks and Short Courses:

- "Lie theory beyond Lie groups", plenary speaker at the 30th International Colloquium on Group Theoretical Methods in Physics (Group30), Ghent University, Belgium, July, 2014.
- "Normal Forms in Poisson Geometry and Lie Groupoid Theory", Short course given at XXXIII Workshop on Geometric Methods in Physics, Bialowieza, Poland, July 2014.
- "Lie theory beyond Lie groups", Colloquium of the Department of Mathematics, University of Notre Dame, April 2014.
- "Linearization of Lie groupoids", Colloquia of the Department of Mathematics, University of Toronto, Canada, April 2013.
- "Poisson Geometry-Global Aspects", Short course given at the Summer School of Poisson 2012, University of Utrecht, The Netherlands, July 2012
- "Stability of leaves", Colloquia of the Department of Mathematics, University of Hawaii, February 2012
- "Stability of leaves", Colloquia of the Department of Mathematics, Temple University, February 2012
- "Stability of leaves", Colloquia of the Department of Mathematics, University of Connecticut, February 2012

CONFERENCE AND SEMINAR ORGANIZATION

- Poisson 2014 - Poisson Geometry in Mathematics and Physics, Conference and Summer School, UIUC, July 28-August 28, 2014 - main organizer.
- Gone Fishing – a series of short meetings in Poisson Geometry. Meetings in WUSTL (2011), UCLA (2012), Temple University (2013) and UC Berkeley (2014). – co-organizer.
- Alan Weinstein's 70th birthday Conference, EPFL, Switzerland, July 22-26, 2013 – co-organizer.
- Poisson 2010 - Poisson Geometry in Mathematics and Physics, IMPA, Rio de Janeiro, July 20-30 - head of the scientific committee.
- XVI International Workshop on Geometry and Physics, September 5-8, 2007, Instituto Superior Técnico - main organizer
- Poisson Geometry and Applications, Oberwolfach Workshop, Germany, April 29-May 5, 2007 – co-organizer
- EMS Mathematical Weekend, September 12-14, 2003, Fundação Calouste Gulbenkian - main organizer
- Poisson 2002 - Conference on Poisson Geometry, 2-7 September, 2002, Instituto Superior Técnico - main organizer
- Conference on Differential Equations and Dynamical Systems, 26-30 June 2000, Instituto Superior Técnico, co-organizer
- Smooth Ergodic Theory Workshop, 29-31 March 1999, Instituto Superior Técnico, co-organizer
- Ω^{99} - Conference on Symplectic Geometry, June 21-26, 1999, Instituto Superior Técnico, co-organizer
- Founder of the "Geometry in Lisbon Seminar" and co-organizer 2001-2003
- Founder of the "Mathematical Physics Seminar" and co-organizer 1995-2000

GRADUATE AND POSTDOC ADVISING

Students:

- Daan Michiels, PhD student at UIUC
- Joel Villatoro, PhD student at UIUC
- Hassan Najafi, PhD 2012. Postdoc at University of Lisbon

- Juan Pablo Roggiero, PhD 2011. Assistant Professor at Universidade da Baía
- Pedro Frejlich, PhD 2011. Postdoc at Utrecht University
- Ivan Struichner, PhD 2009. Assistant Professor at Universidade S. Paulo.
- Luís Alexandre Pereira, MSc 2008 (moved on to PhD at MIT)
- Ricardo Joel Andrade, Licenciatura 2006 (moved on to PhD at MIT)
- João P. Boavida, Licenciatura 2001 (moved on to PhD at University of Minnesota)
- António Serra, Licenciatura 1997 (moved on to PhD at University of California at Berkeley)
- João P. Santos, MSc 1996 (moved on to PhD at Stanford University)

PostDocs:

- Ioan Marcut, 2012-2013 (J.L. Doob Postdoc), Assistant Professor, Universiteit Nijmegen
- Matias del Hoyo, 2011 - 2012 (FCT Postdoc, IST), Postdoc, IMPA.
- Florian Schaetz, 2009-2011 (FCT Postdoc, IST), Post-doc, Aarhus University
- Olivier Brahic, 2006-2011 (FCT Postdoc, IST), Assistant Professor, Universidade Federal do Paraná
- Oana Dragulette, 2007-2008 (FCT Postdoc, IST)
- Bart Van Steirteghem, 2004-2008 (FCT Postdoc, IST), Assistant Professor, Medgar Evers College, CUNY
- Iakovos Androulidakis, 2001-2002 (FCT Postdoc, IST), Assistant Professor, University of Athens
- Phillipe Monnier, 2002-2004 (FCT Postdoc, IST), Professor, Université Paul Sabatier, Toulouse