

Curriculum Vitae

Andrew Clarke

Date of Birth: 10/01/1980

Nationality: Australian

Current Position: Professor Adjunto at the Federal University of Rio de Janeiro (Brazil). Since February 2013.

Address:

Universidade Federal do Rio de Janeiro,
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Education

2008 – Ph.D. in Mathematics – State University of New York at Stony Brook (NY, USA).

Thesis: Rigidity of Rank-One Factors of Compact Symmetric Spaces,

Supervisor: H. Blaine Lawson Jr.

2002 – Bachelor of Science (Maths. and Comp. Sci.) – University of Adelaide (Australia).

Degree with first class honours.

Monograph: The Geometry and Topology of Four-Manifolds

Supervisor: Nicholas Buchdahl

Employment

- Since 2013** - **Professor adjunto (permanent position)** - Universidade Federal do Rio de Janeiro (Brazil)
- 2011-2013** - **Post-doctorate** – Universidade de São Paulo (Brazil). Financed by FAPESP, supervised by Claudio Gorodski.
- 2009-2011** - **Post-doctorate** – Université de Nantes (France). Financed by ANR grant GETOGA, supervised by Yann Rollin.
- 2008-2009** - **Post-doctorate** – Ecole Polytechnique (France). Financed by EGIDE, supervised by Paul Gauduchon.

Research Interests

Differential geometry, complex algebraic geometry, special Riemannian holonomy, G2 geometry, gauge theory in higher dimensions.

Key words: stability of vector bundles, extremal metrics, G2 instantons, Strominger system

Publications

- **Equivariant stable sheaves and toric GIT**, with Carl Tipler, *arxiv:2001.01500*
- **Spin(7)-Instantons from evolution equations**, with Gonçalo Oliveira, *arXiv:1903.05526*
- **Moduli of G2 structures and the Strominger system in dimension 7**, with Mario García Fernández and Carl Tipler, *arXiv:1607.01219*
- **Lower bounds on the modified K-energy and complex deformations**, with Carl Tipler, *Advances in Mathematics*, Vol. 252, (2014) p 449-470

- **Instantons on the exceptional holonomy manifolds of Bryant and Salamon**, Journal of Geometry and Physics, Vol. 82 (2014) p 84–97
- **The Perron method and the non-linear plateau problem**, with Graham Smith, Geometrica Dedicata v. 163, iss. 1, (2013) 159–164.
- **Holonomy Groups in Riemannian Geometry**, with Bianca Santoro, Publicações Matemáticas do IMPA, PM-39 (2012).
- **Rigidity of rank-one factors of compact symmetric spaces**, Annales de l’Institut Fourier v. 61, no. 2 (2011) 491–509.

Seminars and Conference Talks

- 21/08/2017 *Infinitesimal Moduli of the G2-Strominger System*, Fields Institute Workshop on G2 Manifolds, Toronto (Canada)
- 26/07/2017 *Infinitesimal Moduli of the G2-Strominger System*, Mathematical Congress of the Americas, Montréal (Canada)
- 15/02/2016 *Positive Forms and Geodesics in G2 geometry*, Université de Bretagne Occidentale, geometry seminar, Brest (France)
- 29/04/2016 *Positive Forms and Geodesics in G2 geometry*, Seminário simplético conjunto, PUC-Rio, Rio de Janeiro (Brazil)
- 02/9/2016 *Boundedness of the modified K-energy and complex deformations*, Joint Meeting Brazil-Italy in Mathematics, Rio de Janeiro (Brazil)
- 16/12/2016 *Instantons on the manifolds of Bryant and Salamon*, String Geometries and Dualities conference, IMPA, Rio de Janeiro (Brazil)
- 13/04/2016 *Formas positivas e geodésicas em geometria G2*, UFRJ geometry seminar, Rio de Janeiro (Brazil)
- 22/02/2016 *Positive Forms and Geodesics in G2 geometry*, Workshop ANR (EMARKS), Toulouse (France)
- 25/04/2014 *Boundedness of the modified K-energy and complex deformations*, IMPA geometry seminar, Rio de Janeiro (Brazil)
- 23/01/2014 *Instantons on the manifolds of Bryant and Salamon*, 34th Winter School, Srní (Czech Republic)
- 29/05/2012 *Instantons on the manifolds of Bryant and Salamon*, CMLJ geometry seminar, Nantes (France)
- 15/04/2014 *Boundedness of the modified K-energy and complex deformations*, USP geometry seminar, São Paulo (Brazil)
- 12/09/2012 *Varietades a holonomia G2*, Physics Colloquium, USP São Paulo (Brazil)
- 15/10/2012 *Instantons on the manifolds of Bryant and Salamon*, USP geometry seminar, São Paulo (Brazil)
- 09/12/2012 *Instantons on the manifolds of Bryant and Salamon*, Coimbra geometry seminar, Coimbra (Portugal)
- 06/05/2012 *Instantons on the manifolds of Bryant and Salamon*, UFRJ geometry seminar, Rio de Janeiro (Brazil)
- 08/08/2011 *Surfaces in G2 manifolds*, 3o. Encontro de Geometria, São Paulo (Brazil)
- 06/07/2010 *Rigidity of Rank-One Factors of Compact Symmetric Spaces*, IMPA geometry seminar, Rio de Janeiro (Brazil)

20/04/2010	<i>QALE metrics with G2 holonomy</i> , Workshop ANR (GéomEinstein)
09/11/2009	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , CRM geometry seminar, Barcelona (Spain)
08/03/2009	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , Institut Jussieu, Paris (France)
04/02/2009	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , Journée Nancéienne de Géométrie, Nancy (France)
22/11/2008	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , Aix-Marseille 1 geometry seminar, Marseille (France)
05/11/2008	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , Seminar Besse, Paris (France)
20/06/2008	<i>Rigidity of Rank-One Factors of Compact Symmetric Spaces</i> , University of Adelaide geometry seminar, Adelaide (Australia)

Mathematical Activities

Referee for Bulletin of the Portugues Mathematical Society, Mathematische Zeitschrift, Geometry and Topology, American Mathematical Society (MathSciNet).

Organiser of UFRJ geometry seminar (with Michael Deutsch), organiser of UFRJ K3 working group. Organiser of conferences “Quinzena de geometria” (UFRJ, 2017, with Maria Fernanda Elbert), and “Trends in Geometry and Topology” (Unicamp, 2016, with Henrique Sá Earp and Simon Chiossi).

Short Visits

- August 2018 (one week) : Université de Bretagne Occidentale, Brest (France)
- February 2016 (one month) : Université de Bretagne Occidentale, Brest (France)
- January 2014 (one week) : Université de Bretagne Occidentale, Brest (France)
- October 2012 (one week) : UQAM, Montréal (Canada)
- July-August 2010 (two months) : IMPA, Rio de Janeiro (Brazil)
- November 2009 (one week) : Centro de Recerche Matemàtica, Barcelona (Spain)

Teaching and Supervision

Since 2013	(at UFRJ) Have taught undergraduate classes in Calculus 1,3,4, Analysis of one real variable, Introductory algebraic topology
	(at UFRJ) Have taught post-graduate classes in Riemannian geometry, Riemann surfaces, complex manifolds, Curves and surfaces,
	Supervision of masters student Alex Youn Aro Huanacuni (Dissertation title : Symplectic reduction and the Kempf Ness theorem). Dissertation defended 09/04/2016.
	Have supervised Scientific Initiation of three students at UFRJ in various topics in differential geometry and complex analysis
	Have participated on several masters and one doctoral committee.
July 2012	Minicourse on Riemannian holonomy groups (with Bianca Santoro) in Escola de Geometria Diferencial, Manaus (Brazil)
2000-2008	Various teaching responsibilities at the University of Adelaide and SUNY Stony Brook