# CURRICULUM VITAE

**Name :** *Cardona Guío*
**First name :** *Alexander*
**Date and place of birth :** *January 4 - 1973, at Bogotá (Colombia).*
**Nationality :** *Colombian.*

**Professional address:**
   *Mathematics Department*
   *Universidad de Los Andes*
   *A.A. 4976, Bogotá,*
   *Colombia.*

Phone number : *(+571) 3 32 43 40*
Fax : *(+571) 3 32 43 40*
e-mail : *acardona@uniandes.edu.co*

## DIPLOMAS

**1994 :** *B.A. in Physics (Universidad Pedagogica Nacional, Bogotá)*

**1998 :** *Magister in Mathematics (Universidad de los Andes, Bogotá)*

**2002 :** *Doctorat de troisième cycle –Ph.D. (Université Blaise Pascal, Clermont-Ferrand, France).*

## PROFESSIONAL EXPERIENCE

**1994-1998 :** *Partial-time position as assistant teacher at the Universidad de los Andes, Bogotá. Teaching : Basic courses of physics and mathematics for engineering students.*

**2000-2001 :** *Teaching assistant in mathematics at the IUT (Université d'Auvergne, Clermont-Ferrand).*

**2001-2002 :** *Attaché temporaire d'enseigement et recherche (Université Blaise Pascal, Clermont-Ferrand).*

**2002-2003:** *Postdoc at the Université Libre de Bruxelles, Belgium. Visitor Resercher at the IHES (Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France).*

**2004:** *COE fellow, Mathematics Department, Faculty of Sciences and Technology, Keio University, Yokohama, Japan.*

**January 2005 - June 2005:** *Visitor Professor, Mathematics Department, Universidad de Los Andes, Bogotá, Colombia.*

**August 2005 - December 2011:** *Assistant Professor, Mathematics Department, Universidad de Los Andes, Bogotá, Colombia.*

**From January 2012:** *Associate Professor, Mathematics Department, Universidad de Los Andes, Bogotá, Colombia.*

**Languages :** *Spanish, English, Japanese and French.*

**Research interest :** *Index Theory, Noncommutative Geometry and applications, Poisson and Operator Algebras. Geometric and Topological Methods in Quantum Field Theory, Geometric Quantization, Topological Field Theories.*

**Research Works and Publications :**

1. Geometric Quantization, Magnetic Monopoles and Quantum Hall Effect. *Masters degree thesis in Mathematics (under supervision of Sergio Adarve and Simon Scott). Universidad de los Andes, Bogotá, 1998.*

2. Weighted traces on algebras of pseudo-differential operators and geometry on loop groups, *with C.Ducourtiux, J.P.Magnot and S.Paycha. Infinite Dimensional Analysis, Quantum Probability and Related Topics Vol. 5, No. 4, 503-540 (2002).*

3. Remarks on duality, analytic torsion and gaussian integration in antisymmetric field theories. *In 'Geometric Methods for Quantum Field Theory', H.Ocampo, A.Reyes and S.Paycha eds. World Scientific, 2001.*

5. Geometry of Families of Elliptic Complexes, Duality and Anomalies, *Ph.D. thesis (under supervision of Sylvie Paycha), defended in june 2002.*

4. From tracial anomalies to anomalies in Quantum Field Theory, *with C. Ducourtiux and S.Paycha. Communications in Mathematical Physics, Vol. 242, 31-65 (2003).*

6. Phase Anomalies as Trace Anomalies in Chern-Simons Theory. *In 'Geometric and Topological Methods for Quantum Field Theory', A.Cardona, H.Ocampo and S.Paycha eds. World Scientific, 2003.*

7. Geometric and mataplectic quantization. *The COE Seminar on Mathematical Sciences 2004, Sem. Math. Sci., **31**, Keio University, Yokohama, pp. 1–10, 2004.*

8. $\zeta$-Function Regularization and Index Theory in Noncommutative Geometry, *in 'Noncommutative Geometry and Physics', World Scientific Publ., Hackensack, NJ, pp. 77–93, 2005.*

9. Noncommutative Index Theory for $SU_q(2)$ and Deformation Quantization, *joint work with Y. Maeda. Unpublished Preprint, 2007.*

10. Geometric Quantization of generalized complex manifolds. Preprint, 2007.

11. A Dirac Structure on $\mathsf{Diff}(S^1)$ from a 2-cocycle, *joint work with N. Martínez. Preprint, 2009 (A short version was presented as a poster in the conference Poisson Geometry in Mathematics and Physics).*

12. Regularized traces and the index formula for manifolds with boundary, *joint work with C. Del Corral. In Geometrical and Topological Methods for Quantum Field Theory, Cambridge University Press, 2013.*

13. Extended Symmetries and Poisson Algebras Associated to Twisted Dirac Structures. *In Analysis, Geometry and Quantum Field Theory, volume in honor of Steven Rosenberg's 60th aniversary. Contemporary Mathematics, vol. 584, pp. 117–128, American Mathematical Society, 2012.*

14. Poisson Algebras of Admissible Functions Associated to Twisted Dirac Structures. *Submitted to Letters in Mathematical Physics.*

15. Contact structures as Dirac Structures and their associated Poisson algebras. *To appear in Lobachevskii Journal of Mathematics.*

**Editorial work :**

16. *Co-editor, with H.Ocampo and S.Paycha, of* 'Geometric and Topological Methods for Quantum Field Theory', *World Scientific, 2003.*

17. *Co-editor, with A.Reyes, of* 'Geometric and Topological Methods for Quantum Field Theory', *Cambridge University Press, 2013.*

18. *Co-editor, with A.Reyes, C. Neira and S. Paycha, of* 'Geometric, Algebraic and Topological Methods for Quantum Field Theory', *World Scientific, 2014.*

**Participation in International Conferences, etc. :**

1. *Second workshop on pseudo differential operators and applications. Universidad del Norte, Barranquilla (Colombia), March 11–12, 2015.*

2. *Cyclic homology and index theory. Universidad de los Andes, Bogota (Colombia), August 19 to 22, 2014.*

3. *Summer School on Geometric, Algebraic and Topological Methods for Quantum Field Theory (Villa de Leyva, Colombia, July 2013).*

4. *Poisson 2012, Utrecht University (The Netherlands, July 23 to August 3, 2012).*

5. *Escuela de Geometría Diferencial 2012, Universidad del Valle, Cali (Colombia), Junio 4 al 8 de 2012.*

6. *Workshop on pseudo differential operators and applications. Cátedra Europa 2012, Universidad del Norte, Barranquilla (Colombia), Marzo 15 y 16 de 2012.*

7. *Analysis, Geometry and Quantum Field Theory (University of Potsdam, Germany, September 26–30, 2011).*

8. *Summer School on Geometric, Algebraic and Topological Methods for Quantum Field Theory (Villa de Leyva, Colombia, July 2011).*

9. *Poisson Geometry in Mathematics and Physics (IMPA, Rio de Janeiro, July 20–30, 2010).*

10. *II Congreso Latinoamericano de Grupos de Lie en Geometría (La Falda, Argentina, August 25–29, 2008).*

11. *Motives, Quantum Field Theory, and Pseudodifferential Operators (Boston University - June 2-13, 2008).*

12. *$3^{er}$ Encuentro de Geometría Diferencial (La Falda, Argentina, August 6–11, 2007).*

13. *Summer School on Geometric and Topological Methods in Quantum Field Theory (Villa de Leyva, Colombia, July 2007).*

14. *Conférence géométrie non commutative. IHES, Institut Henri Poincaré et Institut Mathématique de Jussieu, Paris, avril 2007.*

15. *International Congress on Mathematical Physics — Young Researchers Symposium (Rio de Janeiro, Brazil, August 5–11, 2006).*

16. *Thematic program on Noncommutative Geometry and Quantum Groups (International School for Advanced Studies -SISSA-, Trieste, Italy, June 20–30, 2006).*

17. *Poisson Geometry in Mathematics and Physics (Tokyo, Japan, June 5 – 9, 2006).*

18. *School on Poisson geometry and related topics (Keio University, Yokohama, Japan, May 31 to June 2, 2006).*

19. *Summer School on Geometric and Topological Methods for Quantum Field Theory (Villa de Leyva, Colombia, July 2005).*

20. *Summer School and Conference on Geometry and Topology of 3-Manifolds (ICTP, Trieste, Italy, June 2005).*

21. *Séminaire Itinérant Géométrie et Physique (Beijing, China, July - August 2004).*

22. *International Conference on Noncommutative Geometry and Physics (Keio University, Yokohama, Japan, February 2004).*

23. *Summer School on Geometric and Topological Methods in Quantum Field Theory (Villa de Leyva, Colombia, July 2003).*

24. *School on Mathematics in String and Field Theory (ICTP, Trieste, Italy, June 2003).*

25. *Summer School and Conference on Poisson Geometry, Deformation Quantization and Group Representations (Université Libre de Bruxelles, Belgium, June 2003).*

26. *Rencontre Géométrie de dimension infinie et applications  la théorie des champs (CIRM, Marseille, France, November 2002).*

27. *Workshop Geometry of Operators (Mathematisches Forschungsinstitut Oberwolfach, Germany, June 2002).*

28. *Summer School on Geometry, Topology and Quantum Field Theory (Villa de Leyva, Colombia, July 2001).*

29. *Rencontre Famille d'opérateurs géométriques – Géométrie des familles d'opérateurs (CIRM, Marseille, France, June 2000).*

30. *Spring School on Superstring Theory and Related Topics (ICTP, Trieste, Italy, March 2000).*

31. *Supercordes, supergravité et théorie M (Institut Henry Poincaré, Paris, France, September 2000 - February 2001).*

32. *Rencontre La méthode des orbites en géométrie et en physique (CIRM, Marseille, France, Decembre 2000).*

33. *Rencontre Quantification par Déformation (CIRM, Marseille, France, December 1999).*

34. *Summer School on Geometry, Topology and Quantum Field Theory (Villa de Leyva, Colombia, July 1999).*

35. *International Conference on Infinite Dimensional Analysis and Quantum Physics (Leipzig, Germany, January 1999).*

Member of the Organization Committee of the Summer School *'Geometric, Algebraic and Topological Methods in Quantum Field Theory'*, Villa de Leyva, Colombia.

**Invited Talks and Seminars :**

*Several talks and seminars given as visitor in the mathematics departments of the Université Blaise Pascal (Clermont-Ferrand), Université de Metz (Metz), Institut Élie Cartan (Nancy), Cardiff University (Wales, UK), Institut Henri Poincaré (Paris), Université Libre de Bruxelles (Bruxelles), International Center for Theoretical Physics (Trieste), Mathematisches Forschungsinstitut (Oberwolfach), Institut für Angewandte Mathematik (Bonn), Max Planck Institut für Mathematik (Bonn), Keio University (Yokohama), Tokyo Metropolitan University (Tokyo), Hokkaido University (Sapporo), Beijing National University (Beijing), International School for Advanced Studies -SISSA-, (Trieste), Instituto de Matemática Pura e Aplicada -IMPA- (Rio de Janeiro), Radboud University Nijmegen (the Netherlands), University of Potsdam (Potsdam), Von Humbolt University (Berlin), Université de Reims (Reims) and the Villa de Leyva summer schools (1999, 2001, 2003, 2005, 2007, 2009, 2011 and 2013).*