

# CURRICULUM VITAE

## Personal information

**Name:** Alfonso.

**Family name:** García-Parrado Gómez-Lobo.

**Date of birth:** 29<sup>th</sup> January 1976.

**Place of birth:** Madrid (Spain).

**Citizenship:** Spanish

## Current employment

**Position:** “Beatriz Galindo” senior research fellow (since February 2020).

**University:** Universidad de Córdoba (Spain).

**Department:** Departamento de Matemáticas (Maths Department).

**Address:** Departamento de Matemáticas, Edificio Albert Einstein 2<sup>a</sup> planta,  
Campus de Rabanales, Universidad de Córdoba, 14071 Córdoba (Spain).

**E-mail:** agparrado@uco.es

## Past employment

1. PhD. student in “Universidad del País Vasco”, Spain. (1999-2004).
2. Postdoctoral researcher in “Universidad del País Vasco”, Spain (2004-2006).
3. Postdoctoral fellow in Linköping University, Sweden, (2006-2008).
4. Postdoctoral fellow in “Gent Universiteit”, Belgium, 2009.
5. Postdoctoral fellow in “Albert Einstein Institute”, Germany 2010.
6. Research assistant at “Minho University”, Portugal, 2009-2015.
7. Consultant “Wolfram Research Inc.”, 2015.
8. Postdoctoral researcher “Universidad del País Vasco”, Spain, (2015-2017).
9. Postdoctoral researcher “Charles University”, Czech Republic, (2018-2019).

## Education

- (1994-1999). BSc. in Physics by Universidad Complutense de Madrid, Madrid (Spain).
- (1999-2004). PhD. in Physics by Universidad del País Vasco, Bilbao (Spain) under the supervision of José M. M. Senovilla. Title of the thesis: “Causal relationship and its applications to the Lorentzian Geometry and the spacetime symmetries”.

## Main research lines

General Relativity, Lorentzian Geometry, Differential Geometry, Computer Algebra, Mathematical Physics.

## Publications in refereed Journals

1. **Title:** Causal Relationship: a new tool for the causal characterization of Lorentzian manifolds.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal Reference:** *Class. Quantum Grav.* **20**, 625-664 (2003).  
<http://dx.doi.org/10.1088/0264-9381/20/4/305>  
**Remarks:** HIGHLIGHTED BY THE EDITORIAL BOARD FOR THE PERIOD OF 2002-2003.

2. **Title:** Causal Symmetries.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal Reference:** *Class. Quantum Grav.* **20**, L139-L146 (2003).  
<http://dx.doi.org/10.1088/0264-9381/20/9/103>
3. **Title:** General study and basic properties of causal symmetries.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal Reference:** *Class. Quantum Grav.* **21**, 661-696 (2004).  
<http://dx.doi.org/10.1088/0264-9381/21/2/023>
4. **Title:** Bi-conformal vector fields and their applications.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal Reference:** *Class. Quantum Grav.* **21**, 2153-2177 (2004).  
<http://dx.doi.org/10.1088/0264-9381/21/8/017>
5. **Title:** Causal structures and causal boundaries.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal Reference:** *Class. Quantum Grav.* **21**, R1-R84 (2005).  
<http://dx.doi.org/10.1088/0264-9381/22/9/R01>  
**Remarks:** Topical Review invited by the editorial board of Classical and Quantum Gravity.  
HIGHLIGHTED BY THE EDITORIAL BOARD FOR THE PERIOD OF 2004-2005.
6. **Title:** Further properties of causal relationship: causal structure stability, new criteria for isocausality and counterexamples.  
**Authors:** A. García-Parrado and M. Sánchez.  
**Journal Reference:** *Class. Quantum Grav.* **22**, 4589-4619 (2005).  
<http://dx.doi.org/10.1088/0264-9381/22/21/009>
7. **Title:** Bi-conformal vector fields and the local geometric characterization of conformally separable pseudo-Riemannian manifolds I.  
**Authors:** A. García-Parrado.  
**Journal Reference:** *J. Geom. and Phys.* **56**, 1069-1095 (2006).  
<http://dx.doi.org/10.1016/j.geomphys.2005.06.005>
8. **Title:** Bi-conformal vector fields and the local geometric characterization of conformally separable pseudo-Riemannian manifolds II.  
**Authors:** A. García-Parrado.  
**Journal reference:** *J. Geometry and Phys.* **56**, 1600-1622 (2006).  
<http://dx.doi.org/10.1016/j.geomphys.2005.08.005>
9. **Title:** Initial data sets for the Schwarzschild spacetime.  
**Authors:** A. García-Parrado and J. A. Valiente Kroon.  
**Journal reference:** *Phys. Rev. D* **75**, 024027 (2007).  
<http://dx.doi.org/10.1103/PhysRevD.75.024027>
10. **Title:** Dynamical laws of superenergy in General Relativity.  
**Authors:** A. García-Parrado  
**Journal reference:** *Class. Quantum Grav.* **25** 015006 (2008).  
<http://dx.doi.org/10.1088/0264-9381/25/1/015006>

- 11. Title:** Killing spinor initial data sets.  
**Authors:** A. García-Parrado and J. A. Valiente Kroon.  
**Journal reference:** *J. Geom. Phys.* **58** 1186-1202 (2008).  
<http://dx.doi.org/10.1016/j.geomphys.2008.04.003>
- 12. Title:** Kerr initial data.  
**Authors:** A. García-Parrado and J. A. Valiente Kroon.  
**Journal reference:** *Class. Quantum Grav.* **25** 205018 (2008).  
<http://dx.doi.org/10.1088/0264-9381/25/20/205018>
- 13. Title:** Petrov D vacuum spaces revisited: Identities and Invariant Classification.  
**Authors:** S. Brian Edgar, A. García-Parrado and J. M. Martín-García.  
**Journal reference:** *Class. Quantum Grav.* **26** 105022 (2009).  
<http://dx.doi.org/10.1088/0264-9381/26/10/105022>
- 14. Title:** Spinor calculus on 5-dimensional spacetimes.  
**Authors:** A. García-Parrado and J. M. Martín-García.  
**Journal reference:** *J. Math. Phys.* **50** 122504 (2009).  
<http://dx.doi.org/10.1063/1.3256124>
- 15. Title:** A note on time-symmetric hypersurfaces in the Schwarzschild geometry.  
**Authors:** A. García-Parrado.  
**Journal reference:** *Class. Quantum Grav.* **27** 217001 (2010).  
<http://dx.doi.org/10.1088/0264-9381/27/21/217001>
- 16. Title:** On the global structure of the Pomeransky-Senkov black holes.  
**Authors:** P. T. Chruściel, J. Cortier and A. García-Parrado.  
**Journal reference:** *Adv. Theor. Math. Phys.* **14** 1779-1856 (2010).  
<http://dx.doi.org/10.4310/ATMP.2010.v14.n6.a5>
- 17. Title:** Product posets and causal automorphisms of the plane  
**Authors:** A. García-Parrado and E. Minguzzi.  
**Journal reference:** *Class. Quantum Grav.* **28** 147001 (2011).  
<http://dx.doi.org/10.1088/0264-9381/28/14/147001>
- 18. Title:** Spinors: a Mathematica package for doing spinor calculus in General Relativity  
**Authors:** A. García-Parrado and J. M. Martín-García  
**Journal reference:** *Computer Physics Communications* **183** 2214-2225 (2012).  
<http://dx.doi.org/10.1016/j.cpc.2012.04.024>
- 19. Title:** A set of invariant quality factors measuring the deviation from the Kerr metric  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Journal reference:** *Gen. Rel. Grav.* **45** 1095-1127 (2013).  
<http://dx.doi.org/10.1007/s10714-013-1518-9>
- 20. Title:** On the characterization of non-degenerate foliations of pseudo-Riemannian manifolds with conformally flat leaves  
**Authors:** A. García-Parrado.  
**Journal reference:** *J. Math. Phys.* **54** 063503 (2013).  
<http://dx.doi.org/10.1063/1.4807937>
- 21. Title:** On the conservation of Superenergy and its applications.  
**Authors:** A. García-Parrado.  
**Journal reference:** *Class. Quantum Grav.* **31** 135008 (2014).  
<http://dx.doi.org/10.1088/0264-9381/31/13/135008>

- 22. Title:** Local non-negative initial data scalar characterization of the Kerr solution.  
**Authors:** A. García-Parrado.  
**Journal reference:** *Phys. Rev. D* **92** 124053 (2015).  
<http://dx.doi.org/10.1103/PhysRevD.92.124053>
- 23. Title:** Vacuum type D initial data.  
**Authors:** A. García-Parrado.  
**Journal reference:** *Class. Quantum Grav.* **33** 175005 (2016).  
<http://dx.doi.org/10.1088/0264-9381/33/17/175005>
- 24. Title:** New conserved currents for vacuum space-times in dimension four with a Killing vector.  
**Authors:** A. García-Parrado.  
**Journal Reference:** *Gen. Rel. Grav.* **48** 126 (2016).  
<http://dx.doi.org/10.1007/s10714-016-2124-4>
- 25. Title:** Conformal geodesics in spherically symmetric vacuum spacetimes with Cosmological constant.  
**Authors:** A. García-Parrado, E. Gasperín and J. A. Valiente Kroon.  
**Journal Reference:** *Class. Quantum Grav.* **35** 045002 (2018).  
<http://iopscience.iop.org/article/10.1088/1361-6382/aa9f59/meta>
- 26. Title:** Pseudo-Finsler spaces modeled on a pseudo-Minkowski space.  
**Authors:** A. García-Parrado and E. Minguzzi.  
**Journal Reference:** *Reports on Mathematical Physics*, 82, 29-42, (2018).  
[https://doi.org/10.1016/S0034-4877\(18\)30069-7](https://doi.org/10.1016/S0034-4877(18)30069-7)
- 27. Title:** Conformal Killing Initial data.  
**Authors:** A. García-Parrado, I. Khavkine.  
**Journal Reference:** *J. Math. Phys.* 60, 122502 (2019).  
<https://doi.org/10.1063/1.5126683>
- 28. Title:** Type D conformal initial data.  
**Authors:** A. García-Parrado.  
**Journal Reference:** *Gen. Rel. and Grav.* 52, 39 (2020).  
<https://doi.org/10.1007/s10714-020-02687-x>
- 29. Title:** Projective and amplified symmetries in metric-affine theories.  
**Authors:** A. García-Parrado, E. Minguzzi.  
**Journal Reference:** *Class. Quantum Grav.* **38** 135001 (2021).  
<https://doi.org/10.1088/1361-6382/abed61>
- 30. Title:** Closed conformal Killing Yano initial data.  
**Authors:** A. García-Parrado, I. Khavkine.  
**Journal Reference:** *Class. Quantum Grav.* **39** 105002 (2022).  
<https://iopscience.iop.org/article/10.1088/1361-6382/ac5f5e/meta>
- 31. Title:** *pp*-wave initial data.  
**Authors:** A. García-Parrado.  
**Journal Reference:** *Gen. Rel. Grav.* **54** 54 (2022).  
<https://doi.org/10.1007/s10714-022-02938-z>

## Preprints

32. **Title:** An anisotropic gravity theory.  
**Authors:** A. García-Parrado and E. Minguzzi.  
<https://arxiv.org/abs/2206.09653>

## Books

33. **Title:** Progress in Mathematical Relativity, Gravitation and Cosmology. Proceedings of the Spanish Relativity Meeting ERE2012, Eds. A. García-Parrado, F. Mena, F. Moura and E. Vaz. Springer Proceedings in Mathematics & Statistics, Vol 60. ISSN 2194-1009. (2014).  
<http://dx.doi.org/10.1007/978-3-642-40157-2>
34. **Title:** Developments in Lorentzian Geometry. GeLoCor 2021, Córdoba, Spain, February 1-5. Eds. A. Albuje, M. Caballero, A. García-Parrado, J. Herrera and R. Rubio. Springer Proceedings in Mathematics & Statistics, Vol 389. ISSN 2194-1017. (2022).  
<http://dx.doi.org/10.1007/978-3-031-05379-5>

## Conference proceedings

35. **Title:** Causal Transformations.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Proceedings:** Lecture notes in physics, vol 617 (Springer Verlag 2002) pp 315-329 (2002).  
[http://dx.doi.org/10.1007/3-540-36973-2\\_19](http://dx.doi.org/10.1007/3-540-36973-2_19)
36. **Title:** Causal symmetries.  
**Proceedings:** Gravitation and Cosmology Proceedings of the Spanish Relativity Meeting (Publicacions de la Universitat de Barcelona 2003) pp. 293-297, ISBN 84-475-2738-7 (2003).  
<http://www.worldcat.org/isbn/8447527387>
37. **Title:** Causal relations and their applications.  
**Authors:** A. García-Parrado and José M. M. Senovilla.  
**Proceedings:** Publicaciones de la Real Sociedad Matemática Española, vol. 5 pp. 155-169, ISBN 84-923818-9-2 (2003).  
<http://www.worldcat.org/isbn/8492381892>
38. **Title:** Dynamical laws of superenergy in General Relativity.  
**Authors:** A. García-Parrado.  
**Proceedings:** EAS publications series. Vol. 30 pp. 233-236, ISBN 978-2-7598-0062-9 (2008).  
<http://dx.doi.org/10.1051/eas:0830033>
39. **Title:** Kerr initial data.  
**Authors:** A. García-Parrado and J. A. Valiente Kroon.  
**Proceedings:** AIP Conference Proceedings, vol. 1122 pp. 276-279, ISBN 978-0-7354-0658-2, (2009).  
<http://dx.doi.org/10.1063/1.3141291>
40. **Title:** Spinor calculus on 5-dimensional spacetimes.  
**Authors:** A. García-Parrado and J.M. Martín-García.  
**Proceedings:** Proceedings of the 12<sup>th</sup> Marcel Grossmann Meeting on General Relativity.

Edited by T. Damour, R.T. Jantzen, R. Ruffini. Vol. 2 pp. 1941-1943, World Scientific, Singapore ISBN 978-981-4374-53-8 (2012).  
<http://dx.doi.org/10.1088/1742-6596/229/1/012038>

**41. Title:** Petrov D vacuum spaces revisited: complete tables and invariant classification by GHP analysis.

**Authors:** S. Brian Edgar, A. García-Parrado and J.M. Martín-García.

**Proceedings:** Journal of Physics: Conference Series **229** 012035 (2010).

<http://dx.doi.org/10.1088/1742-6596/229/1/012035>

**42. Title:** A new special class of Petrov type D vacuum space-times in dimension five.

**Authors:** A. García-Parrado and L. Wylleman.

**Proceedings:** Journal of Physics: Conference Series **314** 012024 (2011).

<http://dx.doi.org/10.1088/1742-6596/314/1/012024>

### Invited seminars

1. *Causality, geometry and generalised symmetries*, (Linköpings Universitet, Sweden), February 2004).
2. *A new approach to the causal classification of Lorentzian manifolds*, (Universidad de Granada, Spain), December 2004.
3. *Causal symmetries and causal-preserving vector fields*, (Universidad de Granada, Spain), February 2005.
4. *Nuevas caracterizaciones de variedades semi-Riemannianas conformemente separables*, (Universidad de Málaga, Spain), February 2005.
5. *Bi-conformal vector fields on pseudo-Riemannian manifolds*, (Aberdeen University, United Kingdom), August 2005.
6. *New invariant characterizations of conformally separable pseudo-Riemannian manifolds*, (Queen Mary College, University of London, United Kingdom), January 2006.
7. *Causal structure: a new viewpoint*, (Stockholm University, Sweden), October 2007.
8. *Killing spinor initial data sets*, (Consejo superior de Investigaciones Científicas, Spain), March 2008.
9. *Kerr initial data*, (Institut Mittag-Leffler, Stockholm Sweden), November 2008.
10. *Initial data characterisations in General Relativity*, (Albert Einstein Institute, Germany), March 2010.
11. *On the global structure of the Pomeransky-Senkov black holes*, (Universidad del País Vasco, Spain), February 2012.
12. *Local non-negative initial data scalar characterisation of the Kerr solution*, (Institute of Theoretical Physics, Charles University, Czech Republic), October 2017.

### Conference talks

1. **Talk:** Causal transformations.  
**Conference:** “Encuentros Relativistas Españoles 2001”.  
<http://dcain.etsin.upm.es/ere2001/spanish.htm>
2. **Talk:** Relaciones causales y sus aplicaciones  
**Conference:** “Congreso de Geometría de Lorentz 2001”.  
<http://webdeptos.uma.es/agt/>
3. **Talk:** Causal relationship: a new tool for the causal characterization of Lorentzian

manifolds.

**Conference:** “The Second British Gravity Meeting 2002”.  
<https://arxiv.org/abs/gr-qc/0207087>

4. **Talk:** Causal symmetries.  
**Conference:** “Encuentros Relativistas Españoles 2002”.  
<http://inspirehep.net/record/974483>
5. **Talk:** Isometric embeddings in Schwarzschild Geometry.  
**Conference:** “Sweden GR-Day 2006”.
6. **Talk:** Initial data sets for the Schwarzschild geometry.  
**Conference:** “IV International meeting on Lorentzian Geometry 2007”.  
[http://xtsunxet.usc.es/gelosantiago/files/frame\\_top.htm](http://xtsunxet.usc.es/gelosantiago/files/frame_top.htm)
7. **Talk:** The orthogonal decomposition of the Bel and the Bel-Robinson tensors.  
**Conference:** “Sweden GR-Day 2007”.
8. **Talk:** Dynamical laws of superenergy in General Relativity.  
**Conference:** “Encuentros Relativistas Españoles 2007”.  
<http://www.iac.es/proyecto/ere07/>
9. **Talk:** Killing spinor initial data.  
**Conference:** “Sweden GR-Day 2007”.
10. **Talk:** Kerr initial data.  
**Conference:** “Sweden GR-Day 2008”.
11. **Talk:** Kerr initial data.  
**Conference:** “Encuentros Relativistas Españoles 2008”.  
<http://inspirehep.net/record/979511>
12. **Talk:** Spinor calculus on 5-dimensional spacetimes.  
**Conference:** “12<sup>th</sup> Marcel Grossmann meeting”, Paris 2009.  
<http://www.icra.it/MG/mg12/en/>
13. **Talk:** A special class of Petrov type D vacuum space-times in dimension five.  
**Conference:** “Encuentros Relativistas Españoles 2010”.  
<http://inspirehep.net/record/981564>
14. **Talk:** On the global structure of the Pomeransky Senkov black holes.  
**Conference:** “Third black hole workshop”, Braga (Portugal) 2010.  
<http://bhw3.wikidot.com/>
15. **Talk:** A new class of five dimensional Petrov type D spacetimes.  
**Conference:** “GR Sweden meeting 2011”.  
<http://conferences.mai.liu.se/GRS2011/>
16. **Talk:** A five dimensional Newman-Penrose and Geroch-Held-Penrose formalism.  
**Conference:** “Fourth Black holes workshop”, Aveiro (Portugal) 2011.  
<http://gravitation.web.ua.pt/?q=node/27>
17. **Talk:** The scalar Kerr-ness.  
**Conference:** Spanish Relativity Meeting in Portugal ERE2012, Guimarães (Portugal).

<http://inspirehep.net/record/1209056>

- 18. Talk:** On the characterization of non-degenerate foliations of pseudo-Riemannian manifolds with conformally flat leaves.  
**Conference:** 20th International Conference on General Relativity and Gravitation, Warsaw (Poland) 2013.  
<http://gr20-amaldi10.edu.pl/>
- 19. Talk:** On the conservation of superenergy and its applications.  
**Conference:** Spanish Relativity Meeting ERE2014, Valencia (Spain) 2014.  
<http://www.uv.es/ere2014/>
- 20. Talk:** Local non-negative initial data characterization of the Kerr solution.  
**Conference:** VIII Black Hole Workshop, Lisbon (Portugal) 2015.  
<https://centra.tecnico.ulisboa.pt/network/grit/bhw8/>
- 21. Talk:** New conserved currents for vacuum space-times in dimension four with a Killing vector.  
**Conference:** 21<sup>st</sup> International Conference on General Relativity and Gravitation, New York (USA), 2016.  
<http://www.gr21.org/>
- 22. Talk:** New conserved currents for vacuum space-times in dimension four with a Killing vector.  
**Conference:** IX Black Hole Workshop, Guimarães, (Portugal) 2016.  
<http://w3.math.uminho.pt/bhw9/>
- 23. Talk:** Conformal geodesics in spherically symmetric vacuum spacetimes with cosmological constant.  
**Conference:** XXVI International Fall Workshop on Geometry and Physics, Braga, (Portugal) 2017.  
<http://w3.math.uminho.pt/IFWGP>
- 24. Talk:** Initial data characterizations in general relativity.  
**Conference:** Encuentro Iberoamericano de Geometría en Granada, Granada (Spain) 2019.  
<https://sites.google.com/view/iberogeogranada/home>
- 25. Talk:** Type D conformal initial data  
**Conference:** 22<sup>nd</sup> International Conference on General Relativity and Gravitation, Valencia (Spain), 2019.  
<https://www.gr22amaldi13.com/>
- 26. Talk:** Gravitational radiation and the evolution of gravitational collapse in cylindrical symmetry.  
**Conference:** 22<sup>nd</sup> International Conference on General Relativity and Gravitation, Valencia (Spain), 2019.  
<https://www.gr22amaldi13.com/>
- 27. Talk:** Conformal Killing Initial Data.  
**Conference:** Singularity theorems, causality, and all that. A tribute to Roger Penrose (SCRI21), on-line (2021).  
<https://sites.google.com/unifi.it/scri21>



1. **Conference:** 17<sup>th</sup> International conference on General Relativity and Gravitation, Dublin (Ireland) 2004.  
<http://inspirehep.net/record/975420>  
**Poster title:** Bi-conformal transformations.
2. **Conference:** Hyperbolic models in Astrophysics and Cosmology, Cambridge (England) 2003.  
<http://www.newton.ac.uk/event/npaw03>  
**Poster title:** Causal structures, generalized symmetries and their applications to General Relativity.
3. **Conference:** PDEs, relativity & nonlinear waves, Granada (Spain) 2010.  
<http://www.ugr.es/~kinetic/rel/>  
**Poster title:** Initial data characterizations in General Relativity.
4. **Conference:** 21<sup>st</sup> International Conference on General Relativity and Gravitation, New York, (USA), 2016.  
<http://www.gr21.org/>  
**Poster title:** Vacuum type D initial data.
5. **Conference:** XXVII International Fall Workshop on Geometry and Physics, Seville, (Spain), 2018.  
<http://congreso.us.es/ifwgp/>  
**Poster title:** Type D conformal initial data.

#### **Funded visits to research institutions and universities**

1. **Institution:** Department of Applied Mathematics, Linköpings Universitet, Sweden (2004).  
**Dates of the visit:** 19<sup>th</sup> January -26<sup>th</sup> March 2004.  
**Funding body:** Swedish Research Council.
2. **Institution:** Departamento de Geometría y Topología, Universidad de Granada, Spain (2005).  
**Dates of the visit:** 1<sup>st</sup> December 2004-28<sup>th</sup> February 2005.  
**Funding body:** Universidad de Granada, Spain.
3. **Institution:** Department of Mathematics, Aberdeen University (UK).  
**Dates of the visit:** 29<sup>th</sup> July-5<sup>th</sup> September 2005.  
**Funding body:** Edinburgh Mathematical Society and Department of Mathematics of Aberdeen University.
4. **Institution:** School of Mathematical Sciences, Queen Mary College, University of London (UK).  
**Dates of the visit:** 27<sup>th</sup> November 2005- 31<sup>th</sup> January 2006 and 15<sup>th</sup> June 2006-15<sup>th</sup> August 2006.  
**Funding body:** Universidad del País Vasco (Spain) and Ministerio de Educación y Ciencia (Spain).
5. **Institution:** Consejo Superior de Investigaciones Científicas, Madrid (Spain).  
**Dates of the visit:** 3<sup>rd</sup> March 2008-31<sup>st</sup> March 2008.  
**Funding body:** Ministerio de Educación y Ciencia (Spain).
6. **Institution:** Institut Mittag-Leffler, Stockholm (Sweden).

**Dates of the visit:** 1<sup>st</sup> November 2008- 15<sup>rd</sup> December 2008.

**Funding body:** Royal Swedish Academy of Sciences.

7. **Institution:** Max Planck Institut für Gravitationphysik (Albert Einstein Institute, Germany)  
**Dates of the visit:** 1<sup>st</sup> October 2009-31<sup>st</sup> October 2009 and 1<sup>st</sup> February 2010-30<sup>th</sup> June 2010.  
**Funding body:** Max Planck Gesellschaft.
8. **Institution:** The Erwin Schrödinger International Institute for Mathematical Physics (Vienna Austria).  
**Dates of the Visit:** 1<sup>st</sup> June 2011-31<sup>st</sup> August 2011.  
**Funding Body:** The Erwin Schrödinger International Institute for Mathematical Physics.
9. **Institution:** School of Mathematical Sciences, Queen Mary College, University of London (UK).  
**Dates of the visit:** 5<sup>th</sup> October 2012-31<sup>st</sup> October 2012.
10. **Institution:** School of Mathematical Sciences, Queen Mary College, University of London (UK).  
**Dates of the visit:** 29<sup>th</sup> January 2017-23<sup>rd</sup> March 2017.

### Teaching Experience.

Term	Subject	Level	Year	Hours
First term	Differential Equations	Undergraduate	2001 and 2002	48
Second term	Physics	Undergraduate	2003	5
First term	Differential Geometry	Graduate	2011	22.5
Second term	Probability & Statistics	Undergraduate	2017	20
Second term	Society, Science & Technology	Undergraduate	2016 and 2017	24
First & Second	Tensor computer algebra	Graduate	2018	60
First	Calculus	Undergraduate	2020 and 2021	110
Second	Linear Algebra	Undergraduate	2020 and 2021	140
Second	Discrete Maths	Undergraduate	2020 and 2021	126

Lectures delivered on-line about general relativity and differential geometry

<http://w3.math.uminho.pt/~agarciaparrado/onlinelectures.html>

<http://tp.ehu.es/alfonso/onlinelectures.html>

### Computer skills

- MATHEMATICA, Linux/Unix, C/C++ programming language.

- HTML, Apache web server, PHP.
- Co-developer of the Mathematica packages *Spinors* and *xTerior* see:  
<http://www.xact.es/Spinors>  
<http://www.xact.es/xTerior>

### Language skills

- English: read, written and spoken.
- Portuguese: read, written and spoken.
- German: read, written.
- Swedish: read.

### Other information

- Reviewer of the American Mathematical Society.
- Refereeing for the international journals: “Classical and Quantum Gravity”, “General Relativity and Gravitation”, “Computer Physics Communications”, “Proceedings of the Royal Society A”, “Journal of Mathematical Physics”.

### References

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