Curriculum Vitae

Rubiera-Garcia, Diego

Personal data

- Nationality: Spanish
- Born: January 12^{th}, 1980
- Current position: Postdoctoral fellow at Institute of Astrophysics and Space Sciences, Lisbon University (Portugal)
- Mailing address: Instituto de Astrofísica e Ciências do Espaço, Universidade de Lisboa, Faculdade de Ciências (Sala 8.1.44), Campo Grande, PT1749-016 Lisboa (Portugal)
- Email: drgarcia@fc.ul.pt [or rubieradiego@gmail.com]
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- Phone: (+351)919839967.
- Permanent address: Campo Grande 105, 1DTO, PT1700-088, Lisboa (Portugal);
  Phone (+34)985344601

Languages

Spanish (Mother tongue), English (read, written and spoken fluently), Portuguese (fair), French (beginner)

Education and degrees

- **Ph.D. in Theoretical Physics.**
  October 2005 - December 2008.
  University of Oviedo (Spain).
  Thesis title: *"Relativistic lagrangian non-linear field theories supporting non-topological soliton solutions"*
  Thesis Advisor: Joaquin Diaz-Alonso.
- **M.Sc. in Theoretical Physics (2nd year).**
  November 2004 - September 2005.
  University of Oviedo (Spain).
  Thesis title: *"Classical solitons in three space dimensions"*
- **Short term course in Neutrino Physics.**
  July 2004 - October 2004.
  European Centre For Theoretical Studies In Nuclear Physics And Related Studies, ECT, Trento (Italy).
  Marie Curie Scholarship.
- **M.Sc. in Theoretical Physics (1st year).**
  October 2003 - June 2004.
  Madrid University (Autónoma) (Spain).
- **B.S. in Physics.**
  October 1998 - July 2003
  University of Oviedo (Spain).

Membership of scientific societies

- International Society on General Relativity and Gravitation (ISGRG).
- Sociedad Española de Gravitación y Relatividad (SEGRE).
- Sociedade Portuguesa de Relatividade e Gravitação (SPRG).

Research interests

Gravitation, black hole physics, modified theories of gravity, metric-affine gravity, mathematical/geometrical methods, exact solutions, semiclassical quantum gravity, space-time singularities and nonsingular solutions, wormholes, gravitational waves, Cosmology, bouncing solutions, late-time singularities, higher-dimensional gravity, braneworlds, nonlinear models of matter, topological defects.

Professional experience

Postdoctoral positions

- October 2015-Present: Postdoctoral fellow at Institute of Astrophysics and Space Sciences, Lisbon University (Portugal).
- October 2014-September 2015: Postdoctoral fellow at Department of Physics, Fudan University (China).
- May 2013-September 2014: Postdoctoral fellow at Department of Physics, Paraíba Federal University (Brazil).
- January 2011-April 2013: Postdoctoral fellow at Departament of Physics, University of Oviedo (Spain).
- January 2009-December 2010: Postdoctoral fellow at Laboratoire Univers et Theories (LUTH), Observatoire de Paris-Meudon (France).

Visitor appointments

- Visitor at the Chinese University of Hong Kong (China): 2 weeks in November 2017.
  Invited by Tjonnie Li.
- Visitor at Institute of Space Sciences at Barcelona University (Spain): 1 week in January 2017.
  Invited by Diego Sáez-Gómez.
- Visitor at Valencia University (Spain): 25 weeks between October 2011 and December 2017.
  Invited by G. J. Olmo.
- Visitor at LUTH, Observatoire de Paris-Meudon (France): 5 weeks between May 2011 and June 2011.
  Invited by J. Diaz-Alonso.
- Visitor at the Centro de Física do Porto (Portugal): 13 weeks between September 2010 and June 2011.
  Invited by C. Santos.

Association to other research centers

- Permanent visitor at University of Valencia (Spain).
- Permanent visitor at Centro de Física do Porto (Portugal).

Participation in projects and grants

Experience as principal investigator (PI)

- Title: *Theoretical and phenomenological aspects of Palatini gravity*;
  Funding source: Research Fund for International Young Scientists (National Natural Science Foundation of China [NSFC]), grant No. 11450110403;
  Host institution: Fudan University (China);
  Duration: one year (01/01/2015 to 31/12/2015);
  Funding amount: 200.000 RMB ($\sim$ 26.500 euros as of January 1st, 2015).

As a member of the team (ongoing projects only)

- Title: *Cosmology and Astrophysics Network for Theoretical Advances and Training Actions (CANTATA)*;
  Funding cource: COST Action (European Cooperation in Science and Technology) CA15117;
  PI: Ruth Lazkoz;
  International network between several European countries.
- Title: *Theoretical and observational aspects of the geometrical structure of spacetime.*
  Funding source: Generalitat Valenciana (Spain), project No. SEJI/2017/042
  PI: Gonzalo J. Olmo
  Host institution: IFIC-Valencia University (Spain);
  Duration: three years (01/01/2017 to 31/12/2019). Funding amount: 182.043 euros.
- Title: *Campos Cuánticos y Gravitación*;
  Funding source: Ministerio de Economía y Competitividad (Spain), project No. FIS2017-84440-C2-1-P;
  PI: Gonzalo J. Olmo;
  Host institution: IFIC-Valencia University (Spain) in coordination with Universidad Carlos III e Instituti de Estructura de la Materia-CSIC (Spain);
  Duration: three: (01/01/2018 to 31/12/2020). Funding amount: 60.500 euros.
- Title: *Gravitation and quantum fields*;
  Funding source: Ministerio de Economía y Competitividad (Spain), project No. FIS2014-57387-C3-1-P;

PI: Gonzalo J. Olmo;
Host institution: IFIC-Valencia University (Spain);
Duration: three + one years: (01/01/2015 to 31/12/2018). Funding amount: 60.000 euros.

List of Publications

Papers published in peer-review journals (52)

- *"Mapping Ricci-based Theories of Gravity into General Relativity"*;
  V. I. Afonso, G. J. Olmo, and DRG;
  Phys. Rev. D **97** (2018) 021503 (Rapid Communication) [arXiv:1801.10406 [gr-qc] (cross-list to [hep-th]].
- *"Accelerated observers and the notion of singular spacetime"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  Class. Quant. Grav. **35** (2018) 055010 [arXiv:1710.08712 [gr-qc]].
- *"Born-Infeld inspired modifications of gravity"*;
  J. Beltrán Jiménez, L. Heisenberg, G. J. Olmo and DRG;
  Phys. Rept. **727** (2018) 1-129 [arXiv:1704.03351 [gr-qc] (crosslist to [astro-ph.CO] and [hep-th])];
  Work by invitation. Journal link.
- *"Nonsingular black holes, wormholes, and de Sitter cores from anisotropic fluids"*;
  C. Menchon, G. J. Olmo and DRG;
  Phys. Rev. D **96** (2017) 104028 [arXiv:1709.09592 [gr-qc] (crosslist to [hep-th])].
- *"Palatini wormholes and energy conditions from the prism of General Relativity"*;
  C. Bejarano, F. S. N. Lobo, G. J. Olmo and DRG;
  Eur. Phys. J. C **77** (2017) 776 [arXiv:1607.01259 [gr-qc] (crosslist to [hep-th])].
- *"On gravitational waves in Born-Infeld inspired non-singular cosmologies"*;
  J. Beltran Jimenez, L. Heisenberg, G. J. Olmo and DRG;
  JCAP **1710** (2017) no.10, 029 [arXiv:1707.08953 [hep-th] (crosslist to [gr-qc])].
- *"Scalar geons in Born-Infeld gravity"*;
  V. I. Afonso, G. J. Olmo and DRG;
  JCAP **1708** (2017) no.08, 031 [arXiv:1705.01065 [gr-qc] (crosslist to [hep-th])].
- *"What is a singular black hole beyond General Relativity?"*;
  C. Bejarano, G. J. Olmo and DRG;
  Phys. Rev. D **95** (2017) no.6, 064043 [arXiv:1702.01292 [hep-th] (crosslist to [gr-qc])].
- *"Geodesically complete BTZ-type solutions in* $2+1$ *Born-Infeld gravity"*;
  D. Bazeia, L. Losano, G. J. Olmo, and DRG;
  Class. Quant. Grav. **34** (2017) no.4, 045006 [arXiv:1609.05827 [hep-th]].
- *"Cosmological future singularities in interacting dark energy models"*;
  J. Beltran Jimenez, DRG, D. Sáez-Gómez and V. Salzano;
  Phys. Rev. D **94** (2016) no.12, 123520 [arXiv:1607.06389 [gr-qc]].
- *"Black hole solutions in functional extensions of Born-Infeld gravity"*;
  C. Bambi, DRG, and Y. Wang;
  Phys. Rev. D **94** (2016) no.6, 064002 [arXiv:1608.04873 [gr-qc]].
- *"Unveiling the dynamics of the Universe*;
  P. Avelino, T. Barreiro, C. S. Carvalho, A. da Silva, F. S. N. Lobo, P. Martín-Moruno, J. P. Mimoso, N. J. Nunes, DRG, D. Sáez-Gómez, L. Sousa, I. Tereno, A. Trindade;
  Symmetry **8** (2016) 70 [arXiv:1607.02979 [astro-ph.CO]].
- *"Impact of curvature divergences on physical observers in a wormhole space-time with horizons"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  Class. Quant. Grav. **33** (2016) no.11, 115007 [arXiv:1602.01798 [hep-th] (cross-list to [gr-qc])];
  A companion "insight"piece appeared by invitation in companion journal Class. Quant. Grav.+.
- *"Classical resolution of black hole singularities via wormholes"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  Eur. Phys. J. C **76** (2016) no.3, 143 [arXiv:1504.07015 [hep-th] (cross-list to [gr-qc])].
- *"Wormholes and nonsingular space-times in Palatini* $f(R)$ *gravity"*;
  C. Bambi, A. Cardenas-Avendano, G. J. Olmo, and DRG;
  Phys. Rev. D **93** (2016) no.6, 064016 [arXiv:1511.03755 [gr-qc] (cross-list to [gr-qc])].
- *"Thick brane in* $f(R)$ *gravity with Palatini dynamics"*;
  D. Bazeia, L. Losano, R. Menezes, G. J. Olmo, and DRG;

Eur. Phys. J. C **75** (2015) no.12, 569 [arXiv:1411.0897 [hep-th]].

- *"Robustness of braneworld scenarios against tensorial perturbations"*;
  D. Bazeia, L. Losano, R. Menezes, G. J. Olmo, and DRG;
  Class. Quant. Grav. **32** (2015) no.21, 215011 [arXiv:1509.04895 [hep-th] (cross-list to [gr-qc])].
- *"Geodesic completeness in a wormhole spacetime with horizons"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  Phys. Rev. D **92** (2015) no.4, 044047 [arXiv:1508.03272 [hep-th] (cross-list to [gr-qc])].
- *"Topological vortices in generalized Born-Infeld-Higgs electrodynamics"*;
  R. Casana, E. da Hora, DRG, and C. dos Santos;
  Eur. Phys. J. C **75** (2015) no.8, 380 [arXiv:1507.08793 [hep-th]].
- *"Modified gravity in three dimensional metric-affine scenarios"*;
  C. Bambi, M. Ghasemi-Nodehi, and DRG;
  Phys. Rev. D **92** (2015) no.4, 044016 [arXiv:1507.08453 [gr-qc]].
- *"Nonsingular black holes in $f(R)$ theories"*;
  G. J. Olmo and DRG;
  Universe **1** (2015), no.2, 173-185 (Special issue: Open questions in black hole physics) [arXiv:1509.02430 [hep-th] (cross-list to [gr-qc])].
- *"Classical resolution of black hole singularities in arbitrary dimension"*;
  D. Bazeia, L. Losano, G. J. Olmo, DRG, and A. Sanchez-Puente;
  Phys. Rev. D **92** (2015) no.4, 044018 [arXiv:1507.07763 [hep-th]].
- *"The quantum, the geon, and the crystal"*;
  G. J. Olmo and DRG;
  Int. J. Mod. Phys. D **24** (2015) no.09, 1542013 [arXiv:1507.07777 [hep-th]].
- *"Crystal clear lessons on the microstructure of spacetime and modified gravity"*;
  F. S. N. Lobo, G. J. Olmo, and DRG;
  Phys. Rev. D **91** (2015) no.12, 124001 [arXiv:1412.4499 [hep-th] (cross-list to [gr-qc])].
- *"Melvin universe in Born-Infeld gravity"*;
  C. Bambi, G. J. Olmo, and DRG;
  Phys. Rev. D **91** (2015) no.10, 104010 [arXiv:1504.01827 [gr-qc]].
- *"Gauss-Bonnet black holes supported by a nonlinear electromagnetic field"*;
  DRG;
  Phys. Rev. D **91** (2015) no.6, 064065 [arXiv:1503.04281 [hep-th]].
- *"Brane-world and loop cosmology from a gravity-matter coupling perspective"*;
  G. J. Olmo and DRG;
  Phys. Lett. B **740** (2015) 73-79 [arXiv:1405.7184 [hep-th]].
- *"Black holes in five-dimensional Palatini f(R) gravity and implications for the AdS/CFT correspondence"*;
  D. Bazeia, L. Losano, G. J. Olmo, and DRG;
  Phys. Rev. D **90** (2014) no.4, 044011 [arXiv:1405.0208 [hep-th]].
- *"Born-Infeld gravity and its functional extensions"*;
  S. D. Odintsov, G. J. Olmo, and DRG;
  Phys. Rev. D **90** (2014) 044003 [arXiv:1406.1205 [hep-th] (crosslist to [gr-qc])].
- *"Dynamical generation of wormholes with charged fluids in quadratic Palatini gravity"*;
  F. S. N. Lobo, J. Martinez-Asencio, G. J. Olmo, and DRG;
  Phys. Rev. D **90** (2014) no.2, 024033 [arXiv:1403.0105 [hep-th]].
- *"Microscopic wormholes and the geometry of entanglement"*;
  F. S. N. Lobo, G. J. Olmo, and DRG;
  Eur. Phys. J. C. **74** (2014) no.6, 2924 [arXiv:1402.5099 [hep-th]].
- *"Geonic black holes and remnants in Eddington-inspired Born-Infeld gravity"*;
  G. J. Olmo, DRG, and H. Sanchis-Alepuz;
  Eur. Phys. J. C **74** (2014) 2804 [arXiv: 1311.0815 [hep-th]].
- *"Planck scale physics and topology change through an exactly solvable model"*;
  F. S. N. Lobo, J. Martinez-Asencio, G. J. Olmo, and DRG;
  Phys. Lett. B **731** (2014) 163-167 [arXiv:1311.5712 [hep-th]].
- *"BPS solitons in a Dirac-Born-Infield action"*;
  DRG and C. dos Santos;
  J. Phys. A: Math. Theor. **47** (2014) 105402 [arXiv:1402.0019 [hep-th]].

- *"Semiclassical geons at particle accelerators"*;
  G. J. Olmo and DRG;
  JCAP **1402** (2014) 010 [arXiv:1306.6537 [hep-th]].
- *"Importance of torsion and invariant volumes in Palatini theories of gravity"*;
  G. J. Olmo and DRG;
  Phys. Rev. D **88** (2013) 084030 [arXiv:1306.4210 [hep-th]].
- *"Nonsingular electrovacuum solutions with dynamically generated constant"*;
  E. Guendelman, G. J. Olmo, DRG, and M. Vasihoun;
  Phys. Lett. B **726** (2013) 870-875 [arXiv:1306.6769 [hep-th]].
- *"Thermodynamic analysis of black hole solutions in gravitating nonlinear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Gen. Rel. Grav. **45** (2013) 1901-1950 [arXiv:1204.2506 [gr-qc]].
- *"Semiclassical geons as solitonic black hole remnants"*;
  F. S. N. Lobo, G. J. Olmo, and DRG;
  JCAP **1307** (2013) 011 [arXiv:1306.2504 [hep-th] (cross-list to [astro-ph.CO] and [gr-qc])].
- *"Deformation method for generalized Abelian-Higgs-Chern-Simons models"*;
  L. Losano, J. M. C. Malbouisson, DRG, and C. dos Santos;
  Eur. Phys. Lett. **101** (2013) 31001 [arXiv:1305.4251 [hep-th]].
- *"Black hole formation from a null fluid in extended Palatini gravity"*;
  J. Martinez-Asencio, G. J. Olmo, and DRG;
  Phys. Rev. D **86** (2012) 104010 [arXiv:1209.3371 [gr-qc]].
- *"Reissner-Nordström black holes in extended Palatini theories"*;
  G. J. Olmo and DRG;
  Phys. Rev. D **86** (2012) 044014 [arXiv:1207.6004 [gr-qc]].
- *"Nonsingular charged black holes à la Palatini"*;
  G. J. Olmo and DRG;
  Int. J. Mod. Phys. D **21** (2012) 1250067 [arXiv:1207.4303 [gr-qc]].
- *"Nonsingular black holes in quadratic Palatini gravity"*;
  G. J. Olmo and DRG;
  Eur. Phys. J. C **72** (2012) 2098 [arXiv:1112.0475 [gr-qc]].
- *"Palatini $f(R)$ black holes in nonlinear electrodynamics"*;
  G. J. Olmo and DRG;
  Phys. Rev. D **84** (2011) 124059 [arXiv:1110.0850 [gr-qc]].
- *"Generalized sine-Gordon solitons"*;
  C. dos Santos and DRG;
  J. Phys. A: Math. Theor. **44** (2011) 425402 [arXiv:1106.4060 [hep-th]].
- *"Compact vortexlike solutions in a generalized Born-Infeld model"*;
  D. Bazeia, E. da Hora, and DRG;
  Phys. Rev. D **84** (2011) 125005 [arXiv:1103.4940 [hep-th]].
- *"Asymptotically anomalous black hole configurations in gravitating nonlinear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Phys. Rev. D **82** (2010) 085024 [arXiv:1008.2710 [hep-th]].
- *"Electrostatic spherically symmetric configurations in gravitating nonlinear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Phys. Rev. D **81** (2010) 064021 [arXiv:0908.3303 [hep-th]].
- *"A study on relativistic lagrangian field theories with non-topological soliton solutions"*;
  J. Diaz-Alonso and DRG;
  Ann. Phys. **324** (2009) 827-873 [arXiv:0809.0684 [hep-th]].
- *"Generalized gauge field theories with non-topological soliton solutions"*;
  J. Diaz-Alonso and DRG;
  Phys. Lett. B **657** (2007) 257-262 [arXiv:0708.0636 [hep-th]].
- *"Non-topological solitons in field theories with kinetic self-coupling"*;
  J. Diaz-Alonso and DRG;
  Phys. Lett. B **653** (2007) 445-449 [arXiv:0705.0112 [hep-th]].

Book chapters

- *"Geons in Palatini theories of gravity"*;
  G. J. Olmo and DRG;
  Fundam. Theor. Phys. **189** (2017) 161-190;
  Book title: "Wormholes, warp drives and the energy conditions";
  Springer International Publishing. Editor: F. S. N. Lobo.

Contributions to refereed conference proceedings

- *"Wormholes as a cure for black hole singularities"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  To appear in the Proceedings of "The Fourtheenth Marcel Grossmann Meeting on General Relativity", World Scientific, Singapore (2016); arXiv:1601.00161 [gr-qc].
- *"Geons as wormholes of modified gravity"*;
  G. J. Olmo and DRG;
  To appear in the Proceedings of "The Fourtheenth Marcel Grossmann Meeting on General Relativity", World Scientific, Singapore (2016); arXiv::1601.00156 [gr-qc].
- *"Geometric aspects of charged black holes in Palatini theories"*;
  G. J. Olmo, DRG, and A. Sanchez-Puente;
  Proceedings of the Spanish Relativity Meeting ERE 2014,
  J. Phys. Conf. Ser. **600** (2015) 1, 012042 (IOP Publishing); arXiv:1506.02145 [gr-qc].
- *"Non-Riemannian geometry: towards new avenues for the physics of modified gravity"*;
  G. J. Olmo and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2014,
  J. Phys. Conf. Ser. **600** (2015) 1, 012041 (IOP Publishing); arXiv:1506.02139 [gr-qc].
- *"Early-time cosmic dynamics in $f(R)$ and $f(|\hat{\Omega}|)$ extensions of Born-Infeld gravity"*;
  A. N. Makarenko, S. D. Odintsov, G. J. Olmo, DRG;
  TSPU Bulletin **12** (2014) 158-163; arXiv:1411.6193 [gr-qc].
- *"Quadratic Palatini gravity and stable black hole remnants"*;
  F. S. N. Lobo, G. J. Olmo and DRG;
  Proceedings of the 1st Karl Schwarzschild meeting on Gravitational Physics (KSM 2013),
  Springer Proc. Phys. **170** (2016) 283-289; arXiv:1311.6487 [hep-th].
- *"Black holes in extended gravity theories in Palatini formalism"*;
  J. Martinez-Asencio, G. J. Olmo, and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2012,
  Springer Proceedings in Mathematics **60** (2014) 333-337; arXiv:1301.2921 [gr-qc].
- *"Geometric and thermodynamic aspects of charged black holes in nonlinear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2012,
  Springer Proceedings in Mathematics **60** (2014) 249-253.
- *"Nonsingular black holes in Palatini extensions of General Relativity"*;
  G. J. Olmo and DRG;
  Proceedings of the 13th Marcel Grossmann meeting (2015) 1234-1236, World Scientific; arXiv:1301.2430 [gr-qc].
- *"Charged black holes in Palatini $f(R)$ theories"*;
  G. J. Olmo and DRG;
  Proceedings of the 13th Marcel Grossmann meeting (2015) 1170-1172, World Scientific; arXiv:1301.2091 [gr-qc].
- *"Thermodynamic analysis of black holes supported by nonlinear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2011,
  AIP Conf. Proc. **1458** (2012) 375-378.
- *"Black holes with electric charge in Palatini theories of gravity"*;
  G. J. Olmo and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2011,
  AIP Conf. Proc. **1458** (2012) 511-514.
- *"Electrically charged black hole solutions in generalized gauge field theories"*;
  J. Diaz-Alonso and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2010,
  J. Phys.: Conf. Ser. **314** (2011) 012065, IOP Publishing; arXiv:1301.3648 [gr-qc].
- *"Black holes from generalized gauge field theories"*

J. Diaz-Alonso and DRG;
Proceedings of the NEB14,
J. Phys.: Conf. Ser. **283** (2011) 012014, IOP Publishing; arXiv:1301.1009 [gr-qc].

- *"On self-gravitating elementary solutions of non-linear electrodynamics"*;
  J. Diaz-Alonso and DRG;
  Proceedings of the 12th Marcel Grossmann Meeting (2009) 2029-2031, World Scientific; arXiv:1001.2836 [hep-th].
- *"Soliton solutions in relativistic field theories and gravitation"*;
  J. Diaz-Alonso and DRG;
  Proceedings of the Spanish Relativity Meeting ERE 2007,
  EAS Publ. Ser. **30** (2008) 193-196; arXiv:0712.1702 [hep-th].

Communications in international conferences and workshops

As invited/plenary speaker

- *"Metric-affine f(R,T) theories"*;
  1st Valencia Winter Workshop on Theoretical Physics, December 2017, University of Valencia, Spain;
  Invited speaker.
- *"Compact objects in Ricci-based metric-affine theories of gravity"*;
  2nd CANTATA Meeting, November 2017, FIAS, Frankfort, Germany;
  Invited speaker.
- *"Regular black holes, wormholes and de Sitter cores from anisotropic fluids"*;
  IV Cosmology and the Quantum Vacuum, September 2017, Segovia, Spain;
  Plenary speaker.
- *"Geons, black holes, wormholes and singularities in metric-affine gravity"*;
  International workshop in Gravitation and Cosmology, July 2017, Rhodes Island, Greece;
  Invited speaker.
- *"Born-Infeld gravity as a cure to spacetime singularities"*;
  Ibericos 2017, April 2017, University of Valencia, Spain;
  Plenary speaker.
- *"Geons as wormholes of modified gravity"*;
  14th Marcel Grossmann meeting, July 2015, Rome, Italy;
  Invited parallel session speaker.

As (contributed talk) presenting author

- *"Black holes in Born-Infeld inspired of gravity and resolution of space-time singularities"*;
  IX Black Holes Workshop, December 2016, University of Minho, Guimaraes, Portugal.
- *"Latest results on metric-affine theories"*;
  Spanish Relativity Meeting in Portugal 2016, September 2016, Lisbon University, Lisbon, Portugal.
- *"Are curvature singularities so bad? some counterexamples"*;
  Iberian Cosmology Meeting (IberiCos 2016), March 2016, Porto University, Vila do Conde, Portugal.
- *"Resolution of black hole singularities in Palatini gravity"*;
  VIII Black Holes Workshop, December 2015 Instituto Superior Técnico, Lisbon, Portugal.
- *"Classical effective geometries without space-time singularities"*;
  Spanish Relativity Meeting 2015 (ERE15), September 2015, Palma de Mallorca, Spain.
- *"The quantum, the crystal, and the geon: new insights from non-Riemannian geometry on modified gravity"*;
  VII Black Holes Workshop, December 2014, University of Aveiro, Portugal.
- *"Non-Riemannian geometry: towards new avenues for the physics of modified gravities"*;
  Spanish Relativity Meeting 2014 (ERE14), September 2014, University of Valencia, Spain.
- *"Semiclassical Palatini geons"*;
  VI Black Holes Workshop, December 2013, University of Minho, Braga, Portugal.
- *"The deformation method applied to Abelian-Higgs-Chern-Simons models"*;
  XXXI Encontro de Físicos do Norte e Nordeste (EFNN), November 2013, Campina Grande, Brazil.
- *"Torsion in the field equations of Palatini gravities"*;
  Modified gravity workshop, September 2013, LIP, Lisbon, Portugal.

- *"Quadratic Palatini gravity and stable black hole remnants"*;
  Karl Schwarzschild meeting (KSM 2013), July 2013, FIAS, Frankfurt, Germany.
- *"Energy-density effects on the formation of Schwarzschild black holes in extended Palatini gravity"*;
  V Black Holes Workshop, December 2012, IST, Lisbon, Portugal.
- *"Geometric and thermodynamic aspects of charged black holes in nonlinear electrodynamics"*;
  Spanish Relativity Meeting in Portugal (ERE12), September 2012, Guimaraes, Portugal.
- *"Black holes in modified gravity theories in Palatini formalism"*;
  Spanish Relativity Meeting in Portugal (ERE12), September 2012, Guimaraes, Portugal.
- *"Charged black holes in Palatini $f(R)$ theories"*
  13th Marcel Grossmann meeting, July 2012, Stockholm, Sweden.
- *"Palatini $f(R)$ and $f(R,Q)$ black holes with electromagnetic charge"*;
  IV Black Holes Workshop, December 2011, University of Aveiro, Portugal.
- *"Thermodynamic analysis of black holes supported by non-linear electrodynamics"*;
  Spanish Relativity Meeting 2011 (ERE11), August 2011, Complutense University of Madrid, Spain.
- *"Electrically charged black hole solutions in generalized gauge field theories"*;
  Spanish Relativity Meeting 2010 (ERE10), September 2010, Instituto de Astrofísica de Granada, Spain.
- *"Black holes from generalized gauge field theories"*;
  NEB14: Recent Developments in Gravity, June 2010, Ioannina, Greece.
- *"On self-gravitating elementary solutions of non-linear electrodynamics"*;
  12th Marcel Grossmann meeting, July 2009, Paris, France.
- *"Soliton solutions in relativistic field theories and gravitation"*;
  Spanish Relativity Meeting 2007 (ERE07), September 2007, Instituto de Astrofísica de Canarias (IAC), Spain.

In posters' session

- *"From the sine-Gordon to k-solitons"*;
  IV Workshop on Modern Trends in Field Theory, September 2011, Salamanca, Spain.

Talks at invited seminars (last three years only)

- *"Compact objects and gravitational waves in Ricci-based theories of gravity"*;
  The Chinese University of Hong Kong, China, November 2017.
- *"How I run into a black hole but found a way out"*;
  Institute of Space Sciences, Barcelona, Spain, January 2017.
- *"Extending General Relativity with metric-affine geometries"*;
  Fundación Universitaria Konrad Lorenz, Bogotá, Colombia, November 2016.
- *"Maybe black holes aren't so monstrous as we thought"*;
  CENTRA, Instituto Superior Tćnico, Lisbon, Portugal, November 2016.
- *"Stepping into a black hole and living to tell it"*;
  University of Lisbon, Portugal, November 2016.
- *"Exploring new avenues for the resolution of space-time singularities"*;
  University of Cape Town, South Africa, October 2016.
- *"Black holes might not be dead-ends after all"*;
  Porto University, internal meeting IAON3, October 2016.
- *"Learning to live with space-time singularities with the help of non-Riemannian geometry"*;
  CSIC, Madrid, Spain, September 2016.
- *"Black holes with internal structure and avoidance of singularities"*;
  Vienna Technological University, Austria, June 2016.
- *"Resolving black hole singularities"*;
  University of Aveiro, Portugal, March 2016.
- *"Non-Riemannian geometries for gravitational physics"*;
  Lisbon University, Portugal, February 2016.
- *"Regular black holes and cosmic bounces in Palatini theories of gravity"*;
  Centro de Física do Porto, Portugal, February 2016.
- *"The Palatini approach in gravitation"*;

Universidade de Beira Interior, Covilha, Portugal, February 2016.

- *"Palatini approach for modified cosmology"*;
  Institute of Astrophysics and Space Sciences, internal meeting IAON2, Lisbon, Portugal, November 2015.
- *"Meaning, implications and resolution of space-time singularities in Palatini gravity"*;
  Lisbon University, Portugal, October 2015.
- *"A bridge between the microscopic structure of space-time and effective geometries: the crystal lessons"*;
  Complutense Madrid University, Spain, February 2015.
- *"The quantum, the geon and the crystal: new insights from non-Riemannian geometry for modified gravity"*;
  Fudan University, China, October 2014.
- *"The metric-affine approach for modified gravity"*;
  University of Lisbon, Portugal, July 2014.
- *"Recent results in Palatini gravity [an insider's view]"*;
  University of Valencia, Spain, March 2014.
- *"Beyond Einstein's General Theory of Relativity: the Palatini approach"*;
  Universidade Federal da Paraíba, Brazil, November 2013.
- *"Modified gravity in the Palatini formalism and semiclassical geons"*;
  Universidade Federal da Paraíba, Brazil, October 2013.
- *"Planck-scale effects on black hole structure by (Palatini) modified gravity theories"*;
  University of Braga, Portugal, December 2012.
- *"Black holes in Palatini theories of gravity: $f(R)$ and beyond"*;
  Centro de Fisica do Porto, Portugal, June 2012.
- *"Palatini theories of gravity and applications to black holes"*;
  University of Aveiro, Portugal, March 2012.
- *"Palatini $f(R)$ and extended Palatini $f(R,Q)$ black holes with electric charge"*;
  University of Valencia, Spain, October 2011.
- *"Electrically charged black holes supported by non-linear electrodynamics"*;
  University of Aveiro, Portugal, September 2011.
- *"Non-linear electrodynamics in gravity: Basics and some applications"*;
  University of Valencia, Spain, April 2011.
- *"Gravitating general non-linear electrodynamics and their electrically charged black hole solutions"*;
  Centro de Fisica do Porto, Portugal, September 2010.
- *"Electrostatic spherically symmetric configurations from generalized gauge field theories minimally coupled to gravity"*;
  University of the Basque Country, Spain, June 2010.
- *"Gravitating non-linear electrodynamics and solitons"*;
  LUTH, Observatoire de Paris-Meudon, France, November 2009.
- 14 additional seminars in the period 2009-2014.

Teaching experience

Official courses

- *"Black holes in General Relativity and beyond"* (Ph.D. course of the Official Doctorate Program in Physics);
  Lecturer of the full course;
  25 hours (2,5 ECTS credits), April 14th - April 22th 2016, Valencia University, Spain.
- *"Gauge theories"* (Regular academic course);
  Lecturer of some of the topics of the course;
  15 hours, Second semester of academic year 2014-2015, Ms.C. level, Fudan University, China.
- *"Introduction to Particle Physics"* (Regular academic course);
  Lecturer of some of the topics of the course;
  6 hours, Second semester of academic year 2014-2015, Ms.C. level, Fudan University, China.

Other courses

- *"The mathematics of space-time singularities"* (in Spanish);
  10 hours, November 28th - December 2th 2016, Fundación Universitaria Konrad Lorenz, Bogotá, Colombia.

- *"Black holes in General Relativity and beyond"*;
  6 hours, October 24th - 28th 2016, University of Cape Town, South Africa;
  Lectures available online at Lesson 1, Lesson 2, Lesson 3, Lesson 4.

Supervision of students

Ph.D./Ms.C. students

- Ph.D. student: *Francisco Cabral* (ongoing);
  Co-supervisor: F. S. N. Lobo;
  University of Lisbon;
  Thesis topic: *"Late-time cosmic acceleration and modified theories of gravity"*;
  Grant: FCT (Portugal) PD/BD/128017/2016 (four years);
  Starting date: October 1st, 2016.
- Ph.D student: *Cintia Menchón* (ongoing);
  Co-supervisor: Gonzalo J. Olmo (Valencia University);
  University of Valencia;
  Thesis topic: *"Rotating solutions in Eddington-inspired Born-Infeld gravity"*;
  Grant FPI (Spain): BES-2015-072941 "Gravity and Quantum Fields.ºf MEC (four years);
  Starting date: December 1st, 2015.

Other students

- Bs.C. student: *Ana Rita Lopes Ribeiro*;
  Topic Title: *Extending General Relativity using black holes*;
  Scientific Initiation Studentship, Institute of Astrophysics and Space Sciences, funded by FCT and FEDER COMPETE Ref. POCI-01-0145-FEDER-007672); March 1st-May 31st 2017.
- Bs.C. student: *Nuno Goncalves*;
  Topic Title: *How old id the universe?*;
  Scientific Initiation Studentship, Institute of Astrophysics and Space Sciences, funded by FCT and FEDER COMPETE Ref. POCI-01-0145-FEDER-007672); March 1st-May 31st 2017.

Participation in evaluation committees

- "National Center of Science and Technology Evaluation"(Republic of Kazakhstan).
  Evaluation of research projects. 11 projects evaluated in 2017.
- Local evaluator at Institute of Astrophysics and Space Sciences, Portugal:
  - PhD space program (Evaluation of 4-years grants for PhD students), 2017;
  - BIC program (BsC grants), 2018 (chair), 2017.

Editorial activity

- Editor of the Open Access journal: *Universe*;
  Topical Collection "Open Questions in Black Hole Physics" ;
  Special Issue "Wormholes in Space-Time: Theory and Facts" .
- Editor of the Open Access journal: *Entropy*;
  Special Issue "Modified Gravity: From Black Holes Entropy to Current Cosmology II" .

Referee in journals

- Physical Review D; Classical and Quantum Gravity; Physics Letters B; European Physical Journal C; General Relativity and Gravitation; Physics Letters A; International Journal of Modern Physics D; Canadian Journal of Physics; Central European Journal of Physics; Physica Scripta; Revista Mexicana de Física; Europhysics Letters; International Journal of Geometrical Methods in Mathematical Physics; Universe; Galaxies;
- Over 80 papers refereed (25 papers in 2017). Full details can be found in Publons.
- Publons Peer Review Awards 2017: Top 1 % of peer reviewers in *Multidisciplinary*.
- Europhysics Letters (European Physical Society) - Distinguished Referee 2017.

Organization of scientific conferences/workshops

- CANTATA meeting in Valencia; Valencia (Spain), October 1st-3rd 2018;
  Local organizing committee member.
- 13th Iberian Cosmology Meeting *IberiCOS 2018*. Lisbon (Portugal), March 26th-28th 2018;
  Local organizing committee member.
- XXVIIIth Spanish Relativity Meeting (ERE2005), September 6th-10th 2005;
  Local organizing committee member.

Outreach activities

- Regular contributor to the outreach blog: *La Física del GREL* (in Spanish);
- Public talk: *"Cosmología: La Historia de nuestro Universo"* (in Spanish);
  Colegio Mayor Rector Peset, Valencia, Spain, April 2017.
- Public talk: *"Black holes, wormholes and gravitational waves"* (in Spanish);
  Instituto de Cultura Antiguo Instituto, Gijón, Spain, December 2016.
- High School public talk: *"Method and status of scientific research: Einstein and the Big Bang"* (in Spanish);
  Instituto de Educación Secundaria Universidad Laboral, Gijón, Spain, March 2016.
- Public talk: *"The Einstein's legacy: the theory of Relativity, the Big Bang, and black holes"* (in Spanish);
  Instituto de Cultura Antiguo Instituto, Gijón, Spain, December 2015.

References (reference letters may be submitted upon request)

- Prof. Dionisio Bazeia
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  58051-900 João Pessoa, Paraíba, Brazil
  bazeia@fisica.ufpb.br
- Prof. Francisco S. N. Lobo
  Instituto de Astrofísica e Ciências do Espaço, Universidade de Lisboa
  Faculdade de Ciências, Campo Grande, PT1749-016 Lisboa, Portugal
  flobo@cii.fc.ul.pt
- Prof. Gonzalo J. Olmo
  Departamento de Física Teórica and IFIC
  Centro Mixto Universidad de Valencia CSIC, Universidad de Valencia
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