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Date of Birth: February 9, 1973
Place of Birth: Buenos Aires, Argentina
Nationality: French, Argentine

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[INSPIRE-00051118](https://inspirehep.net/literature/854118)

EDUCATION

B.S./Master :Physics, University of Buenos Aires, Argentina, 1997. GPA : 9.50 / 10

Ph.D.: Physics, University of California - Santa Barbara, United States, December 2002.
GPA : 4.0 / 4.0
Thesis: "Supersymmetric IIB Solutions with fluxes and their effects on D-branes",
directed by Prof. Joseph Polchinski

HDR: (Habilitation to direct research). Ecole Normale Supérieure, February 2015
Thesis title: "Generalized geometry of flux compactifications"

SCIENTIFIC ACTIVITIES

Research career

- Permanent Researcher
 - Institut de Physique Théorique, CEA/Saclay, from October 2005
- Post-Doctorate
 - Ecole Normale Supérieure, France, Marie Curie Fellowship, January 2004 to October 2005
 - Centre de Physique Théorique, Ecole Polytechnique, France, February to December 2003
- Research Assistant
 - University of California at Santa Barbara, United States, 2000-2002
 - University of Buenos Aires, Argentina, 1997-1998

Selected Publications

1. Bena, J. Blaback, M. Grana and S.Lust, "The Tadpole Problem," JHEP 11 (2021), 223 doi:10.1007/JHEP11(2021)223 [arXiv:2010.10519 [hep-th]].
2. M. Grana and A. Herraez, "The Swampland Conjectures: A bridge from Quantum Gravity to Particle Physics," [arXiv:2107.00087 [hep-th]], Universe, ISSN 2218-1997, IF 1.752
3. I. Bena, E. Dudas, M. Graña and S. Lüst, "Uplifting Runaways," *Fortschr. Phys.* **2018**, 1800100.
4. G. Aldazabal, M. Graña, S. Iguri, M. Mayo, C. Nuñez and J. A. Rosabal, "Enhanced gauge symmetry and winding modes in Double Field Theory », JHEP 1603 (2016) 093
5. I. Bena, M. Graña, S. Kuperstein, P. Ntokos and M. Petrini, "D3-brane model building and the supertrace rule, » Phys.Rev.Lett. 116 (2016) no.14, 141601
6. I. Bena, M. Graña, S. Kuperstein and S. Massai, « Giant Tachyons in the Landscape, » JHEP 1502 (2015) 146
7. M. Grana, D. Marques, « Gauged Double Field Theory, » JHEP 020, 1204 (2012).
8. G. Aldazabal, E. Andres, P. G. Camara and M. Grana, "U-dual fluxes and Generalized Geometry," JHEP 1011, 083 (2010).
9. I. Bena, M. Grana and N. Halmagyi, "On the Existence of Meta-stable Vacua in Klebanov-Strassler," JHEP 1009, 087 (2010).
10. M. Graña, R. Minasian, M. Petrini and D. Waldram, "T-duality, Generalized Geometry and

Non-Geometric Backgrounds”, JHEP 0904:075,2009.

11. M. Graña, J. Louis and D. Waldram, “SU(3) x SU(3) compactifications and mirror duals of magnetic fluxes”, JHEP 0704, 101, 2007.
12. M. Graña, R. Minasian, M. Petrini and A. Tomasiello, “A scan for new N=1 vacua on twisted tori,” JHEP 0705, 031, 2007.
13. M. Graña, “Flux compactifications in string theory : a comprehensive review”, Phys. Rept. 423: 91-158, 2006
14. Butti, M. Graña, R. Minasian, M. Petrini and A. Zaffaroni, “The baryonic branch of Klebanov-Strassler: a supersymmetric family of SU(3) structure manifolds”, JHEP 0503:069 (2005)
15. M. Graña, R. Minasian, M. Petrini and A. Tomasiello, “Supersymmetric backgrounds from generalized Calabi-Yau manifolds,” JHEP 0408:046 (2004) .
16. M. Graña, T. Grimm, H. Jockers and J. Louis, “Soft supersymmetry breaking in Calabi-Yau compactifications with D-branes and fluxes”, Nucl. Phys. B 690, 21 (2004).
17. M. Graña, “MSSM parameters from supergravity backgrounds”, Physics Review D 67,0066006 (2003).
18. M. Graña, “D3-brane action in a supergravity background: the fermionic story”, Physics Review D 66, 045014 (2002).
19. M. Graña and J. Polchinski, “Gauge/Gravity duals with holomorphic dilaton”, Physics Review D 65, 126005 (2002).
20. M. Graña and J. Polchinski, “Supersymmetric three-form flux perturbations on AdS5”, Physics Review D 63, 026001(2001).

Books

M. Graña and H. Triendl, “String Theory compactifications”, SpringerBriefs in Physics (2017)

Science popularisation articles

- "Geometrie de la theorie des cordes ", article at "Clefs du CEA " , vol 70, pages 35-36, 2020 <http://www.cea.fr/multimedia/Documents/publications/clefs-cea/CLEFS-70-PAP.pdf>
- "La gravité, est-ce dans mes cordes ?", article co-written with Marc Lachièze-Ray for the CEA-IRFU journal "Scintillations", vol 87, pages 4-5, 2012 https://www.iphf.fr/Images/News/430/ScintillationS_N87.pdf

Fellowships and prizes

- ‘Paul Langevin’ Prize of the French Physical Society, 2021
- Marie Curie Intra European Post-Doctoral Fellowship, March 2004 to October 2005
- Dissertation Fellowship, University of California at Santa Barbara, September to December 2002
- Ferrando-Fithian Fellowship, University of California at Santa Barbara, September 1998

Funding ID

- Principal Investigator in the **ERC Consolidator Grant** “Deconstructing the string Landscape”, September 2018 to August 2023.
- Co-investigator in the research grant “Black hole microstates and de Sitter landscapes in string theory,” from the French “*Agence Nationale de la Recherche.*” March 2017 to March 2021
- Principal Investigator in the **ERC Starting Grant** “The Low Energy Limit of String Theory and the Observable World”, February 2011 to October 2016.
- Co-investigator in the research grant “Structure of vacuum, topological strings and black holes,” from the French “*Agence Nationale de la Recherche.*” September 2006 to May 2010.
- Co-investigator in the binational France-Argentina travel and collaboration grant “Generalizing Geometry in String Theory : its phenomenological implications”, from ECOS-Sud 2009-2011.
- Co-investigator in the binational France-England travel and collaboration PICS grant "Aspects of String Theory with fluxes" 2010-2012.

- Co-investigator in the travel and collaboration grant “Generalizing geometry in string theory”, from MIT-France Seed fund for collaborative research 2006-2007.

Organization of international conferences and workshops

- **"Planck 2022 "**, Paris, May 2022 (co-organized with 8 other organisers, 200 participants) <https://indico.in2p3.fr/event/planck2022/>
- **"Eurostrings 2022 "**, Lyon, April 2022 (co-organized with 8 other organisers, 250 participants) <https://indico.in2p3.fr/event/24284/>
- **"Geometry and swampland "**, Banff (virtual), January 2022 (co-organized with M.Petrini and I. Valenzuela, 250 participants) <https://indico.in2p3.fr/event/24977/>
- **"New developments in Quantum gravity and String Theory"**, Corfu, September 2021 (co-organized with A. Chatzistavarakidis, D. Giataganas, A. Kehagias, D. Lüst, R. Szabo, 110 participants) <http://www.physics.ntua.gr/corfu2021/st.html>
- **« de Sitter constructions in String Theory »**, IPhT, December 2019 (co-organized with I. Bena and A. Retolaza, 50 participants) <https://indico.in2p3.fr/event/19722/>
- **« Colloque de l'IPhT »**, l'Isle sur la Sorgue, October 2018 (co-organized with J.Y. Ollitrault, M. Schiro and S. Zaffanella, 100 participants) <https://indico.in2p3.fr/event/17872/>
- **« 1st Workshop on high energy theory and gender »**, CERN, September 2018 (co-organized with 9 more researchers, 90 participants) <https://indico.cern.ch/event/714346>
- **« String dualities and geometry »**, Centro Atomico Bariloche, Argentina, January 2018 (co-organized with G. Aldazabal, D. Marqués and C. Nuñez, 60 participants) <https://indico.in2p3.fr/event/14620/>
- **« New flows and old black holes : adventures in quantum gravity and holography – A conference in celebration of Nick Warner's 60th birthday »**, CEA/Saclay, June 2017 (co-organised with I. Bena, N. Bobev, M. Guica, N. Halmagyi, W. Lerche and D. Turton, 60 participants) <https://indico.in2p3.fr/event/14442/>
- **« Second workshop on string theory and gender »**, IHP, Paris, June 2016 (co-organized with R. Minasian and M. Petrini, 50 participants) <https://indico.in2p3.fr/event/12356/>
- **Workshop « de Sitter and microstate landscapes in String Theory »**, CEA/Saclay, June 2015 (co-organized with I. Bena, R. Minasian and S. Kuperstein, 70 participants) <https://indico.in2p3.fr/event/11522/>
- **18th Itzykson meeting** “Frontiers of String Theory”, CEA/Saclay, July 2013 (co-organized with I. Bena, R. Minasian and P. Vanhove, 90 participants) <http://ipht.cea.fr/Meetings/Itzykson2013/index.php>
- **Forum de la théorie**, CEA/Saclay, April 2013 (co-organized with M. Barthelemy and R. Pechanski, 100 participants) <http://ipht.cea.fr/Meetings/ForumTheory2013/>
- **Workshop** “The supersymmetric, the extremal and the ugly - solutions in string theory”, Saclay, November 2011 (co-organized with I. Bena, S. Giusto, M. Petrini, R. Russo, 50 participants) <http://www.strings.ph.qmul.ac.uk/theory/pics2011/index.htm>
- **Workshop** “Hierarchies and Symmetries”, Jussieu, Paris, September 2011 (co-organized with K. Benakli and E. Dudas, 30 participants)
- **String Phenomenology 2010**, College de France, Paris, July 2010 (co-organized with K. Benakli and E. Dudas, 150 participants) <http://stringpheno.cpht.polytechnique.fr>
- **14th Itzykson meeting** “Recent Advances in String Theory”, CEA/Saclay, June 2009 (co-organized with I. Bena, R. Minasian and P. Vanhove, 80 participants) <http://ipht.cea.fr/Meetings/Itzykson2009/index.php>

Conference talks

- String Phenomenology 2021, organized by universities in Boston, virtual, June 2021
- **Strings 2021**, organized by ICTP-Saifr, Sao Paulo, virtual, June 2021

- Swampland Seminars, organized by Harvard University, virtual, April 2021
- The String Swampland and Quantum Gravity Constrains on Effective Field Theory, Santa Barbara, February 2020
- Geometry and Duality, Postdam, December 2019
- Challenges in Theoretical High Energy Physics, Stockholm, September 2019
- String Phenomenology 2019, CERN, June 2019
- Effective Theories: from gravity to Cosmology, Itzykson Conference, June 2019
- Holography, Generalized Geometry and Duality, Mainz, May 2019
- Geometric Methods for String Cosmology, Oaxaca, May 2019
- Double Field Theory, Progress and Applications, Cape Town, February 2019
- Iberian Strings, Barcelona, January 2019
- Geometry and duality in string theory, ICAS, University of San Martin, Argentina, October 2018
- Torino workshop in String Theory, Torino, November 2017
- Recent advances in T/U-dualities and Generalized Geometries, Zagreb, June 2017
- Geometry and Physics, Ringberg castle, Germany, November 2016
- Supergravity, what next?, Galileo Galilei Institute, Florence, October 2016
- Generalized geometry and T-duality, Simons Center for Geometry and Physics, May 2016
- Workshop on Double Field Theory, ETH, Zurich, January 2016
- Stringy geometry, Mainz, September 2015
- The string theory Universe, Leuven, September 2015
- **SUSY 2013**, Trieste, August 2013
- String Phenomenology 2013, Hamburg, July 2013
- Forum de la théorie, CEA/Saclay, April 2013
- 41st Ahrensoop Conference, Berlin, August 2012, review talk
- Latinoamerican Workshop on HEP: Particles and strings, Havana, July 2012, review talk
- String Phenomenology 2012, Cambridge, June 2012
- Mathematical Aspects of String and M-theory, Newton Institute, Cambridge, January 2012
- **Strings 2011**, Uppsala, July 2011
- Generalized Geometries and String Theory, University of Texas A&M, March 2011
- D-brane Instantons, Wall-crossing and Microstate counting, ICTP, Trieste, November 2010
- 12th Marcel Grossmann meeting, Paris, July 2009
- New perspectives in String Theory, GGI, Florence, May 2009
- VII Latin American Symposium on High Energy Physics, Bariloche, Argentina, January 2009
- Geometrical aspects of string theory, Nordita, Stockholm, October 2008
- 39th Ahrensoop Conference, Berlin, October 2008
- String Phenomenology 2007, Frascati, June 2007
- Generalized Geometry and Flux compactifications, Hamburg, February 2007
- 38th Ahrensoop Conference, Berlin, September 2006
- Generalized Geometries, Brno, September 2006
- Journées Physique et Mathématiques, IHES, Bures sur Yvette, November 2005
- Colloque du SPhT, La Rochelle, October 2005
- Workshop on N=1 Compactifications, Fields Institute, Toronto, March 2005
- Euro GDR supersymmetry, Frascati, November 2004

- RTN Workshop The quantum structure of spacetime and the geometric nature of fundamental interactions, Crete, September 2004
- **Strings 2004**, Paris, July 2004
- DESY Theory Workshop on GUTs and Branes, Hamburg, September 2003

Invited Seminars

Edinburg, February 2021 (virtual), Liverpool University, April 2019, Cambridge University, April 2018, Queen Mary, London, March 2018; King's college, London, February 2014; University Tor Vergata, Rome, May 2013; University of Milano-Bicocca, January 2013; University of Bonn, November 2012; University of Lyon, March 2012, University of Amsterdam, October 2015, February 2011; University of Heidelberg, May 2010; Centro Atomico Bariloche, Argentina, October 2013, February 2012, January 2011 and February 2010; MIT, Boston, September 2007, Max Planck Institute, Postdam, November 2021 (virtual) and February 2007, Institut Henri Poincaré, Paris, September 2010, November 2008, October 2007, December 2006 and December 2003; Oxford University, January 2013 and November 2006, University of Durham, June 2006; University of Wales, Swansea, May 2006; Cern Theory Division, Geneva, April 2006 and January 2004; Utrecht University, December 2005; SISSA, Trieste, november 2005; Université Libre de Bruxelles, June 2005; Max-Planck Institute, Munich, May 2022 (virtual) and May 2005; Hebrew University, Jerusalem, November 2004; Universidad de Santiago de Compostela, November 2004; Humboldt University, Berlin, April 2004; CEA, Service de Physique Théorique, Saclay, January 2005 and April 2004; Universidad de Buenos Aires, October 2013, February 2012, December 2010, November 2009, December 2008, February 2007, 2005 and 2004; Universidad Autónoma, Madrid, April 2005 and January 2004; Imperial College, London, January 2004; Universität Hamburg, May 2022 (virtual) and July 2003; Ecole Polytechnique, Palaiseau, November 2002; University of California at Santa Barbara, April 2002; Caltech-USC Theoretical Physics Center, Los Angeles, March 2002

Invited Colloquia

- “de Sitter vacua in string theory: from the landscape to the swampland” Institute for Theoretical Physics, Utrecht (virtual), March 2021
- de Sitter vacua in string theory: where do we stand?” Max Planck Institute for Gravitations Physics, Postdam (virtual), December 2021
- “de Sitter vacua in string theory: from the landscape to the swampland” Physics Department, Mc Gill (virtual), January 2022

Science popularisation talks

- "La physique Théorique", presentation at several high schools, 2019, 2020, 2021
- "[La teoría de cuerdas y la física en mas de tres dimensiones](#)", presentation at the "Cafe de las Ciencias", at the Ministry of Science, Buenos Aires, October 2019
- “La théorie des cordes”, IPhT, CEA/Saclay, February 2016

Institutional responsibilities

- Member of the CNRS commission, theory section, 2021-2026
- Member of IPhT Institute council 2014-2017
- IPhT representative to the council of the “Direction de Sciences de la Matière” at CEA, 2012-2017
- Leader of the Mathematical Physics group at IPhT, 2016-present
- Member of the working group to establish the founding rules and regulations of the Mathematics Graduate School at University Paris-Saclay, 2019-2020
- Member of the scientific council of the Physics Department of Paris University, 2018-2021
- Co-organizer of String Theory in Greater Paris’ seminars, 2005 to present

Commissions of trust

- Member of Editorial Board of European Physics Journal C, 2016 to 2020.
- Member of the Committee for the 5-year evaluation of the Astroparticle and Cosmology laboratory at Paris Diderot University, November 2017.
- Reviewer for grant proposals from ERC, ESF, NSF, Royal Society, FWO (Belgium), PICT (Argentina), VQR (Italy), Conicyt (Chile), HRZZ (Croatia)
- Member of the jury for a teaching junior position at Ecole Normale Supérieure, June 2017.
- Member of the jury for a professor position at the Astroparticle and Cosmology laboratory at Paris Diderot University, May 2018.
- Member of the jury for a professor position at the Physics Department University of Paris, June 2020.
- Member of jury for post-doctoral positions from La Caixa foundation, 2023
- Member of the jury for the attribution of CEA PhD fellowships, 2020, 2021 and 2023
- Member of the jury for attribution of Ph.D. fellowships for the “Ecole Doctorale de Physique d’Île de France”, 2018
- Referee for JHEP, Nuclear Physics B, Classical and Quantum Gravity, Communications in Mathematical Physics, Physics Letters B, Europhysics Letters.
- Reviewer for Mathematical Reviews
- Jury of twenty Ph.D. theses in string theory
- Mentor in the program by Université Paris-Saclay for female PhD students, 2020-present

Other

- Founding member of [GENHET](#) (Gender in High energy theory), working group to promote gender equality
- Founder and main organiser (together with M. Petrini and I. Valenzuela) of a [mentoring program](#) in the string community
- Realisation of [video portraits](#) of members of IPHT
- Visiting professor under Severo Ochoa scheme, Institute of Theoretical Physics, Madrid, 2021-2026

TEACHING EXPERIENCE

Discussion Sessions

- Physics Department, University of California at Santa Barbara, United States, 1998-2002
 - Introductory Physics for undergraduate students, mostly Biology majors (4 quarters)
 - General Relativity for graduate students in Physics (6 quarters)
- Physics Department, University of Buenos Aires, Argentina, 1995-1998
 - Wave Mechanics for Physics undergraduate students (1 semester)
 - Advanced Electromagnetism for Physics undergraduate students (4 semesters)

Lectures

- High Energy Physics Master, Ecole Polytechnique, 2016-date
String Theory
- Mathematics Department, University of Buenos Aires, Argentina, 1995-1998
Linear Algebra for first year students in Science and Engineering (6 semesters)

Short Lecture courses

- "String compactifications and fluxes", School on Geometric and Algebraic Methods for String Theory, University of San Martín, Argentina, October 2019

- “String Theory, dimensional reduction and effective actions”, University of Buenos Aires, November 2016
- “Effective actions”, GGI school String-Pheno-Cosmo 2015, Florence, October 2015
- “String Compactifications”, IPhT, CEA/Saclay, March-April 2013
- “Generalized Geometries and String Compactifications”, University of Buenos Aires, November 2012
- “Topics in compactifications, dualities and phenomenology in String Theory”, University of Buenos Aires, October 2011
- “Compactifications of string theory and generalized geometry “, School on Geometric, Algebraic and Topological Methods for Quantum Field Theory, Villa de Leyva, Colombia, July 2011
- “Flux compactifications”, University of Michigan, Ann Arbor, February 2006
- “Flux compactifications and generalized geometries”, RTN Winter School, CERN, Geneva, January 2006

Ph.D. Students

- 7 PhD students since 2008, who found post-doctoral positions at Harvard, CERN, U. of Chicago, U. of Padova and U. of Bern, and a permanent teaching position at an engineering school

Master and Internship students

- 3 master students, 2 internship students

Post-doctoral fellows on personal grants

- 11 post-doctoral fellows