CURRICULUM VITAE: JOSÉ FRANCISCO ZURITA

Personal Data

Name: José Francisco Zurita **Birth**: 22/09/1981, Buenos Aires (Argentina).

Prof. Address: Instituto de Física Corpuscular, Catedrático José Beltrán, 2, E-46980, Paterna, Spain.

E-mail: jzurita@ific.uv.es **Mobile**: +49-176-7615-1106

Civil status: Married, 1 child. **Nationalities**: Argentinean, German.

Research focus

- Beyond Standard Model ('New Physics') at Colliders.
- Dark Matter: dark matter models, compressed spectrum, long-lived particles, freeze-in.
- Higgs Physics: New Physics in Higgs properties (pair production, exotic decays).
- Long-Lived Particles: LHC and future experiments (MATHUSLA, FCC, Muon Collider).

Education

4/1/2006 - 09/30/2009: PhD in Physics
University of Buenos Aires, Argentina. Advisor: Prof. Dr. Daniel de Florian.

04/01/2001 - 3/24/2006: MSc in Physics (average grade 9.64/10.00).
University of Buenos Aires, Argentina. Advisor: Prof. Dr. Daniel de Florian.

Academic positions

16/12/2020 - 30/07/2024: Junior Group Leader at IFIC, U. Valencia, in the LHCPHENO Theory group.

1/10/2015 - 30/11/2020: Postdoc at KIT in the Institute for Nuclear Physics (IKP) group.

1/10/2012 - 30/09/2015: Theoretische Hoch-Energie Physik (THEP), JGU Mainz.

1/10/2009 - 30/09/2012: Institut für Theoretische Physik (ITP), University of Zürich .

Career Breaks

11/09/2019 - 10/11/2019: Parental leave (2 months).

Fellowships, Awards, Grants

- 01/07/2024 - 30/06/2026: Renewal of GenT fellowship *Long-Lived Particles at present and future experiments* (Valencian Province Excellence Program). Will cover salary and research funds for my group (myself and 2 PhD students). 170.000 € (Evaluation expected by September 2023).
- 01/01/2023 - 30/12/2024: R&D funding *Dark Showers* international network. PI of a network that includes my 2 PhD students, and Professors Pedro Schwaller (U. of Mainz), R. Gonzalez Suarez (Uppsala University) and Suchita Kulkarni (U. of Graz). 24.000 €
- 01/10/2021 - 30/09/2024: R&D funding *Flavour Physics, Higgs physics and strong interactions at the LHC and at the intensity frontier*, Spanish Research Agency. Research team member (PI: A. Pich). 280.000 €
- 16/12/2020 - 30/06/2024: GenT fellowship *Long-Lived Particles at present and future experiments* (Valencian Province Excellence Program). Covers salary and research funds for my group (myself and 2 PhD students). 340.000 €
- 10/01/2017 - 09/30/2018: HEiKA Grant. 80.000 € (shared with S. Westhoff and M.Blanke).
- 04/01/2006 - 09/30/2009: Ph.D Scholarships *Beca de Postgrado tipo I, tipo II* from CONICET (Argentinean Science Foundation). Covered my PhD salary. 12.000 €

- 04/01/2008 - 09/30/2008: Latin American Scholar Fellow at Fermilab. Drafted in first place.

Supervision of Students

PhD students under direct supervision:

- B. Pattnaik (UV): “The long-lived particle road to new physics”. (PhD expected Fall 2024)
- J. Carrasco (UV): “Dark sectors with long-lived particles at the LHC". (PhD expected Fall 2024).

MSc thesis co-supervised:

- Oriana Schällibaum, "Higgs Physics Beyond the MSSM", MSc student, co-supervision .
  Advisor: Prof. Dr. Thomas Gehrmann. Apr. 2012. University of Zürich.
- Estefania Coluccio Leskow, "The Higgs sector of the Lee-Wick Standard Model", MSc student, co-supervision.
  Advisor: Dr. Ezequiel Alvarez. Apr. 2011, University of Buenos Aires.

Collaborations with doctoral students (name, institution, topic, year):

- E. Weihs (UZH,2011) on Higgs Phenomenology, M. Buschmann (JGU, 2016) on coannihilating Dark Matter, S. Kast (KIT, 2017) on Dark Matter phenomenology, K. Deshpande (U. of Maryland, 2018) on Long-Lived Particles at $e^- p$ colliders (2018) and M. Moscati (KIT, 2019) on SUSY searches at the LHC.

Teaching Experience

2003 - 2008: Teaching assistant, Basic Common Cycle, University of Buenos Aires.

Course: Introductory Mathematics. Total teaching hours: 1152 (12 courses, 96 h/course).

2004 - 2009: Teaching assistant, Physics Department, University of Buenos Aires.

Courses: Electromagnetism [2], Quantum Mechanics [3], Statististical

Mechanics [1], Optics and Thermodynamics [1], Particle Physics [1].

Number of semesters in square brackets, 96 h/course. Total: 768 hours.

Organisation of Scientific Meetings

- *Searches for Long Lived Particles at the LHC* Workshop, 19-23/6/2023, CERN.
- *Searches for Long Lived Particles at the LHC* Workshop, 31/10-4/11/2022, virtual.
- *Searches for Long Lived Particles at the LHC* Workshop, 30/05-3/06/2022, virtual.
- *Searches for Long Lived Particles at the LHC* Workshop, 09-12/11/2021, virtual.
- *Searches for Long Lived Particles at the LHC* Workshop, 25-28/05/2021, virtual.
- *Searches for Long Lived Particles at the LHC* Workshop, 25-27/05/2020, virtual.
- *Stealth Physics at the LHCb* Workshop, 17-19 Feb 2019, Santiago de Compostela, Spain.
- *Searches for Long Lived Particles at the LHC* Workshop, 27-29/11/2019, Ghent, Belgium.
- *Searches for Long Lived Particles at the LHC* Workshop, 27-29/05/2019, CERN.
- *Searches for Long Lived Particles at the LHC* Workshop, 23-25/10/2018, NIKHEF.
- *The Future of Particle Physics: A Quest for Guiding Principles* Workshop, 01-03/10/2018, Karlsruhe.
- *Flavor and Dark Matter* Workshop, 24-26 Sep 2018, Karlsruhe, Germany.
- *Searches for Long Lived Particles at the LHC* Workshop, 15-18/05/2018, CERN.
- *Flavor and Dark Matter* Workshop, 25-28 Sep 2017, Heidelberg, Germany.
- *Effective Field Theories as Discovery Tools* Scientific Program, 22/08/16- 9/9/16, Mainz, Germany.
- *Higgs Pair Production at Colliders* Workshop, 27-30 April 2015, Mainz, Germany.

Ad-hoc Reviewer

- Referee for Physical Review D (PRD), Journal of High Energy Physics (JHEP), European Physics Journal C (EPJC) and Physics Letters B (PBL).
- Grant reviewer for the Chilean, South African and Swiss National foundations.
- Expert reviewer for the Horizon program, MSCA actions.

Academic duties

- 01/04/2020 - present : Theory convenor of the Long-Lived Particles Working Group (LLP-WG).
- 01/12/2018 - present : Referee for Physical Review D (PRD).
- 01/10/2015 - 30/09/2019 : Organizer of the Institute Seminar and Physics Colloquiu, KIT, Karlsruhe.
- 01/06/2014 - present : Referee for Journal of High Energy Physics (JHEP).
- 01/08/2013 - 30/09/2015 : Organizer of the Theory Seminar in JGU, Mainz.
- 01/12/2011 - 30/09/2012: Postdoc representative in the ITP assembly, Zürich.

Outreach Activities

- 04/12/2022: Contributed chapter " Probing Stealth Dark Sectors with LHCb" to the public science book "Advances in Cosmology", Springer, 2022.
- 10/12/2019: Radio interview (45') on "Life as a scientist", FM 93.1, Carabelas, Argentina.
- 09/17/2019: Kindergarten physics demonstration on "El arco iris" (The Rainbow) at Escuela Rural (Rural School), Pincen, Argentina.
- 09/16/2019: "The challenges of university": Q and A session with High School students, Escuela Rural (Rural School), Pincen, Argentina.
- 09/17/2014: Public Talk "El CERN, el bosón de Higgs, el LHC y la Nueva Física" (CERN, the Higgs boson, the LHC and New Physics) at Escuela Secundaria (High School) Adolfina Valenzuela, Carabelas, Argentina.
- 06/11/2002 - 06/12/2002: Semana de la Física (Physics Week): Table-top demonstrations in Optics and Electromagnetism, targeted at high-school students and general public.

International collaborations and networks

- MATHUSLA, Future Circular Collider (FCC) and Muon Collider collaborations
- Research Network "Dark Showers", funded by the Spanish Research Council. PI: J. Zurita, co-PI: R. Gonzalez Suarez (Uppsala), Suchita Kulkarni (U. of Graz), P. Schwaller (JGU Mainz).
- Ongoing collaborations with M. Blanke (KIT), X. Cid Vidal (University of Compostela), O. Fischer (U. Liverpool), J. Harz (JGU Mainz), Jose Miguel No (IFT, Madrid), A. Papaefstathiou (Kennesaw University), T. Robens (Boskovic Institute, Zagreb), P. Schwaller (JGU Mainz), M. Spinrath (U. of Taiwan), G. Tetlalmatzi-Xocolotzi (U. Siegen).

Publication List

Following the convention used in high-energy physics, the authors are listed alphabetically.

For my up-to-date publication list visit http://inspirehep.net/author/profile/J.Zurita.1

My scientific production comprises 31 journal articles (30 published, 1 in press, 4 TopCite 100+), 13 contributions to anthologies (A), 10 proceedings (P) and 12 technical reports (TR), totalling 5957 citations and **h-index of 35** (18/08/2023, Inspire-Hep database).

a) Journals with peer-review procedures

Published / accepted

1. O. Fischer, B. Pattnaik and J. Zurita, "Testing Heavy Neutral Leptons in Cosmic Ray Beam Dump experiments," JHEP **07** (2023), 193 doi:10.1007/JHEP07(2023)193 [arXiv:2301.07120 [hep-ph]].

2. J. Bernigaud, M. Blanke, I. de Medeiros Varzielas, J. Talbert and J. Zurita, "LHC signatures of τ-flavoured vector leptoquarks,"
JHEP **08** (2022), 127 doi:10.1007/JHEP08(2022)127 [arXiv:2112.12129].
3. G. Belanger, A. Bharucha, B. Fuks, A. Goudelis, J. Heisig, A. Jueid, A. Lessa, K. A. Mohan, G. Polesello, P. Pani, A. Pukhov, D. Sengupta and J. Zurita, "Leptoquark manoeuvres in the dark: a simultaneous solution of the dark matter problem and the $R_{D^{(*)}}$ anomalies,"
JHEP **02** (2022), 042 doi:10.1007/JHEP02(2022)042 [arXiv:2111.08027].
4. V. M. Lozano, R. M. S. Seoane and J. Zurita, "Z'-explorer 2.0: Reconnoitering the dark matter landscape," Comput. Phys. Commun. **288** (2023), 108729 doi:10.1016/j.cpc.2023.108729 [arXiv:2109.13194].
5. R. Capdevilla, F. Meloni, R. Simoniello and J. Zurita, "Hunting wino and higgsino dark matter at the muon collider with disappearing tracks," JHEP **06** (2021), 133
doi:10.1007/JHEP06(2021)133 [arXiv:2102.11292].
6. K. Cheung, O. Fischer, Z. S. Wang and J. Zurita, "Exotic Higgs decays into displaced jets at the LHeC," JHEP **02** (2021), 161 doi:10.1007/JHEP02(2021)161 [arXiv:2008.09614].
7. A. Belyaev, S. Prestel, F. Rojas-Abbate and J. Zurita, "Probing dark matter with disappearing tracks at the LHC," Phys. Rev. D **103** (2021) no.9, 095006
doi:10.1103/PhysRevD.103.095006 [arXiv:2008.08581].
8. D. Barducci, K. Mimasu, J. M. No, C. Vernieri and J. Zurita, "Enlarging the scope of resonant di-Higgs searches: Hunting for Higgs-to-Higgs cascades in $4b$ final states at the LHC and future colliders," JHEP **02** (2020), 002
doi:10.1007/JHEP02(2020)002 [arXiv:1910.08574].
9. X. Cid Vidal, Y. Tsai and J. Zurita, "Exclusive displaced hadronic signatures in the LHC forward region," JHEP **01** (2020), 115
doi:10.1007/JHEP01(2020)115 [arXiv:1910.05225].
10. M. Blanke, S. Kast, J. M. Thompson, S. Westhoff and J. Zurita, "Spotting hidden sectors with Higgs binoculars," JHEP **04** (2019), 160
doi:10.1007/JHEP04(2019)160 [arXiv:1901.07558].
11. D. Curtin, K. Deshpande, O. Fischer and J. Zurita, "Closing the light gluino gap with electron-proton colliders," Phys. Rev. D **99** (2019) no.5, 055011
doi:10.1103/PhysRevD.99.055011 [arXiv:1812.01568].
12. G. Bélanger, N. Desai, A. Goudelis, J. Harz, A. Lessa, J. M. No, A. Pukhov, S. Sekmen, D. Sengupta, B. Zaldivar and J. Zurita "LHC-friendly minimal freeze-in models,"
JHEP **1902** (2019) 186 doi:10.1007/JHEP02(2019)186 [arXiv:1811.05478].
13. R. Mahbubani and J. Zurita, "Probing compressed dark sectors at 100 TeV in the dileptonic mono-Z channel," JHEP **1812** (2018) 092
doi:10.1007/JHEP12(2018)092 [arXiv:1806.08310].
14. D. Curtin, K. Deshpande, O. Fischer and J. Zurita, "New Physics Opportunities for Long-Lived Particles at Electron-Proton Colliders," JHEP **1807** (2018) 024
doi:10.1007/JHEP07(2018)024 [arXiv:1712.07135].
15. R. Mahbubani, P. Schwaller and J. Zurita, "Closing the window for compressed Dark Sectors with disappearing charged tracks,"
JHEP **1706** (2017) 119 Erratum: [JHEP **1710** (2017) 061]
doi:10.1007/JHEP06(2017)119, 10.1007/JHEP10(2017)061 [arXiv:1703.05327].
16. S. El Hedri, A. Kaminska, M. de Vries and J. Zurita, "Simplified Phenomenology for Colored Dark Sectors," JHEP **1704** (2017) 118
doi:10.1007/JHEP04(2017)118 [arXiv:1703.00452].
17. M. Buschmann, S. El Hedri, A. Kaminska, J. Liu, M. de Vries, X. P. Wang, F. Yu and J. Zurita, "Hunting for dark matter coannihilation by mixing dijet resonances and missing transverse energy," JHEP **1609** (2016) 033
doi:10.1007/JHEP09(2016)033 [arXiv:1605.08056].
18. M. J. Baker *et al.*, "The Coannihilation Codex," JHEP **1512** (2015) 120
doi:10.1007/JHEP12(2015)120 [arXiv:1510.03434].
19. F. Goertz, A. Papaefstathiou, L. L. Yang and J. Zurita, "Higgs boson pair production in the D=6 extension of the SM," JHEP **1504** (2015) 167
doi:10.1007/JHEP04(2015)167 [arXiv:1410.3471].
20. P. Schwaller and J. Zurita, "Compressed electroweakino spectra at the LHC,"
JHEP **1403** (2014) 060 doi:10.1007/JHEP03(2014)060 [arXiv:1312.7350].

21. F. Goertz, A. Papaefstathiou, L. L. Yang and J. Zurita, "Higgs Boson self-coupling measurements using ratios of cross sections," JHEP **1306** (2013) 016 doi:10.1007/JHEP06(2013)016 [arXiv:1301.3492].
22. A. Papaefstathiou, L. L. Yang and J. Zurita, "Higgs boson pair production at the LHC in the $b\bar{b}W^+W^-$ channel," Phys. Rev. D **87** (2013) no.1, 011301 doi:10.1103/PhysRevD.87.011301 [arXiv:1209.1489].
23. M. Carena, E. Ponton and J. Zurita, "BMSSM Higgs Bosons at the 7 TeV LHC," Phys. Rev. D **85** (2012) 035007 doi:10.1103/PhysRevD.85.035007 [arXiv:1111.2049].
24. E. Weihs and J. Zurita, "Dark Higgs Models at the 7 TeV LHC," JHEP **1202** (2012) 041 doi:10.1007/JHEP02(2012)041 [arXiv:1110.5909].
25. E. Alvarez, E. Coluccio Leskow and J. Zurita, "Collider Bounds on Lee-Wick Higgs Bosons," Phys. Rev. D **83** (2011) 115024 doi:10.1103/PhysRevD.83.115024 [arXiv:1104.3496].
26. M. Carena, E. Ponton and J. Zurita, "BMSSM Higgs Bosons at the Tevatron and the LHC," Phys. Rev. D **82** (2010) 055025 doi:10.1103/PhysRevD.82.055025 [arXiv:1005.4887].
27. M. Carena, K. Kong, E. Ponton and J. Zurita, "Supersymmetric Higgs Bosons and Beyond," Phys. Rev. D **81** (2010) 015001 doi:10.1103/PhysRevD.81.015001 [arXiv:0909.5434].
28. D. de Florian and J. Zurita, "Soft-gluon resummation for pseudoscalar Higgs boson production at hadron colliders," Phys. Lett. B **659** (2008), 813-820 doi:10.1016/j.physletb.2007.11.018 [arXiv:0711.1916].
29. D. de Florian and J. Zurita, "The Last of the seven-parton tree amplitudes," JHEP **11** (2006), 080 doi:10.1088/1126-6708/2006/11/080 [arXiv:hep-ph/0609099].
30. D. de Florian and J. Zurita, "Seven parton amplitudes from recursion relations," JHEP **05** (2006), 073 doi:10.1088/1126-6708/2006/05/073 [arXiv:hep-ph/0605291].

Submitted and accepted for review

31. J. Carrasco and J. Zurita, "Emerging jet probes of strongly interacting dark sectors," [arXiv:2307.04847]. Submitted to JHEP

b) Contributions to anthologies, peer-reviewed (#) or editor reviewed (# #)

1. M. Borsato, X. Cid Vidal, Y. Tsai, C. Vázquez Sierra, J. Zurita (eds), *et al.* "Unleashing the full power of LHCb to probe Stealth New Physics," Rept. Prog. Phys. **85** (2022) no.2, 024201 doi:10.1088/1361-6633/ac4649 [arXiv:2105.12668] (#)
2. P. Agostini *et al.* [LHeC and FCC-he Study Group], "The Large Hadron–Electron Collider at the HL-LHC," J. Phys. G **48** (2021) no.11, 110501 doi:10.1088/1361-6471/abf3ba [arXiv:2007.14491]. (#)
3. W. Abdallah *et al.* [LHC Reinterpretation Forum], "Reinterpretation of LHC Results for New Physics: Status and Recommendations after Run 2," SciPost Phys. **9** (2020) no.2, 022 doi:10.21468/SciPostPhys.9.2.022 [arXiv:2003.07868]. (#)
4. B. Di Micco *et al.*, "Higgs boson pair production at colliders: status and perspectives," Rev. Phys 5 (2020) 100045 doi: 10.1016/j.revip.2020.100045 [arXiv:1910.00012.] (#)
5. A. Blondel *et al.*, "Theory for the FCC-ee: Report on the 11th FCC-ee Workshop Theory and Experiments," CERN, 2020, ISBN 978-92-9083-560-8, 978-92-9083-559-2 doi:10.23731/CYRM-2020-003 [arXiv:1905.05078]. (##)
6. J. Alimena, J. Beacham, M. Borsato, Y. Cheng, X. Cid Vidal, G. Cottin, A. De Roeck, N. Desai, D. Curtin and J. A. Evans, ..., J. Zurita (eds) *et al.* "Searching for long-lived particles beyond the Standard Model at the Large Hadron Collider," J. Phys. G **47** (2020) no.9, 090501 doi:10.1088/1361-6471/ab4574 [arXiv:1903.04497]. (#)
7. H. Lubatti *et al.* [MATHUSLA], "Explore the lifetime frontier with MATHUSLA," JINST **15** (2020) no.06, C06026 doi:10.1088/1748-0221/15/06/C06026 [arXiv:1901.04040]. (#)

8. A. Abada *et al.* [FCC], "HE-LHC: The High-Energy Large Hadron Collider: Future Circular Collider Conceptual Design Report Volume 4," Eur. Phys. J. ST **228** (2019) no.5, 1109-1382 doi:10.1140/epjst/e2019-900088-6, CDS/2651305 (#)
9. A. Abada *et al.* [FCC], "FCC-hh: The Hadron Collider: Future Circular Collider Conceptual Design Report Volume 3," Eur. Phys. J. ST **228** (2019) no.4, 755-1107 doi:10.1140/epjst/e2019-900087-0 CDS/2651300 (#)
10. A. Abada *et al.* [FCC], "FCC-ee: The Lepton Collider: Future Circular Collider Conceptual Design Report Volume 2," Eur. Phys. J. ST **228** (2019) no.2, 261-623 doi:10.1140/epjst/e2019-900045-4 CDS/2651299 (#)
11. A. Abada *et al.* [FCC], "FCC Physics Opportunities: Future Circular Collider Conceptual Design Report Volume 1," Eur. Phys. J. C **79** (2019) no.6, 474 doi:10.1140/epjc/s10052-019-6904-3 CDS/2651294 (#)
12. X. Cid Vidal, M. D'Onofrio, P. J. Fox, R. Torre, *et al.* "Report from Working Group 3: Beyond the Standard Model physics at the HL-LHC and HE-LHC," CERN Yellow Rep. Monogr. **7** (2019), 585-865 doi:10.23731/CYRM-2019-007.585 [arXiv:1812.07831]. (##)
13. D. Curtin *et al.*, "Long-Lived Particles at the Energy Frontier: The MATHUSLA Physics Case," Rept. Prog. Phys. **82** (2019) no.11, 116201 doi:10.1088/1361-6633/ab28d6 [arXiv:1806.07396]. (#)

c) Technical reports (non peer-reviewed)

1. C. Accettura, D. Adams, R. Agarwal, C. Ahdida, C. Aimè, N. Amapane, D. Amorim, P. Andreetto, F. Anulli and R. Appleby, *et al.* "Towards a Muon Collider," [arXiv:2303.08533].
2. T. Bose, A. Boveia, C. Doglioni, S. P. Griso, J. Hirschauer, E. Lipeles, Z. Liu, N. R. Shah, L. T. Wang and K. Agashe, *et al.* "Report of the Topical Group on Physics Beyond the Standard Model at Energy Frontier for Snowmass 2021," [arXiv:2209.13128].
3. K. M. Black, S. Jindariani, D. Li, F. Maltoni, P. Meade, D. Stratakis, D. Acosta, R. Agarwal, K. Agashe and C. Aimè, *et al.* "Muon Collider Forum Report," [arXiv:2209.01318].
4. C. Alpigiani *et al.* [MATHUSLA], "Recent Progress and Next Steps for the MATHUSLA LLP Detector," [arXiv:2203.08126].
5. D. Stratakis *et al.* [Muon Collider], "A Muon Collider Facility for Physics Discovery," [arXiv:2203.08033].
6. N. Bartosik *et al.* [Muon Collider], "Simulated Detector Performance at the Muon Collider," [arXiv:2203.07964].
7. J. de Blas *et al.* [Muon Collider], "The physics case of a 3 TeV muon collider stage," [arXiv:2203.07261].
8. C. Aime, A. Apyan, M. A. Mahmoud Mohammed, N. Bartosik, F. Batsch, A. Bertolin, M. Bonesini, S. Bottaro, D. Buttazzo and R. M. Capdevilla Roldan, *et al.* "Muon Collider Physics Summary," [arXiv:2203.07256].
9. S. Jindariani *et al.* [Muon Collider], "Promising Technologies and R&D Directions for the Future Muon Collider Detectors," [arXiv:2203.07224].
10. J. Alimena, *et al.* "Review of opportunities for new long-lived particle triggers in Run 3 of the Large Hadron Collider," [arXiv:2110.14675].
11. C. Alpigiani *et al.* [MATHUSLA], "An Update to the Letter of Intent for MATHUSLA: Search for Long-Lived Particles at the HL-LHC," [arXiv:2009.01693].
12. C. Alpigiani *et al.* [MATHUSLA Collaboration], "A Letter of Intent for MATHUSLA: A Dedicated Displaced Vertex Detector above ATLAS or CMS," arXiv:1811.00927.

d) Conference and workshop proceedings

1. G. Brooijmans *et al.*, "Les Houches 2019 Physics at TeV Colliders: New Physics Working Group Report," [arXiv:2002.12220].
2. G. Belanger, A. Bharucha, B. Fuks, A. Goudelis, J. Heisig, A. Jueid, A. Lessa, K. A. Mohan, G. Polesello, P. Pani, A. Pukhov, D. Sengupta and J. Zurita, "Confronting minimal freeze-in models with the LHC," Proceedings, 54rd Rencontres de Moriond on Electroweak Interactions and Unified Theories (Moriond EW 2019) : La Thuile, Italy, March 16-23, 2019 ISBN: 9791096879120 [arXiv:1910.00117].
3. G. Azuelos, M. D'Onofrio, O. Fischer and J. Zurita, "BSM physics at the LHeC and the FCC-eh," PoS DIS **2018** (2018) 190 doi:10.22323/1.316.0190 [arXiv:1807.01618].

4. D. Curtin, K. Deshpande, O. Fischer and J. Zurita, "Probing BSM physics with electron-proton colliders," PoS DIS **2018** (2018) 090 doi:10.22323/1.316.0090 [arXiv:1805.12533].
5. G. Brooijmans *et al.*, "Les Houches 2017: Physics at TeV Colliders New Physics Working Group Report," [arXiv:1803.10379].
6. J. Zurita, "Di-Higgs production at the LHC and beyond," [arXiv:1708.00892].
7. F. Goertz, A. Papaefstathiou, L. L. Yang and J. Zurita, "Measuring the Higgs boson self-coupling at the LHC using ratios of cross sections," [arXiv:1309.3805].
8. J. Zurita, "SUSY confronts LHC data," [arXiv:1212.1662]
9. M. Carena, E. Ponton and J. Zurita, "SUSY Higgs Bosons and Beyond," PoS DIS **2010** (2010) 212 doi:10.22323/1.106.0212 [arXiv:1006.5014].
10. A. Bolanos Carrera, C. Eggel, D. Evans, A. Flores Castillo, M. Jimenez, S. Meola, P. Urrejola Pereira, G. Zarnauskas and J. Zurita, "Minimal spontaneously broken hidden sector and its impact on Higgs boson physics at the Large Hadron Collider," CERN-2008-004. [CDS/972193]

Invited talks (Conferences, Workshops and Seminars)

1. "Exploring the Lifetime Frontier", Mainz Theorie-Palaver. Mainz, Germany, 02/05/2023
2. "Exploring the Lifetime Frontier: an overview of LLP searches", HEP/Astro Results Forum, 01/12/2022
3. "Exploring the Lifetime Frontier", Webinar for the Latin American Webinars on Physics (LAWPHYSICS), 09/11/2022
4. "Dark Showers (AKA: novel collider signatures of strongly interacting dark sectors)", Theory Seminar at International Center for Advanced Studies (ICAS), University of San Martin (UNSAM), Argentina, 15/09/2022
5. "Leptoquark manoeuvres in the dark: a simultaneous solution of the dark matter problem and the RD(*) anomalies", 27th International Symposium on Particles, Strings and Cosmology, Heidelberg, 27/05/2022
6. "When Leptoquarks meet Dark Matter", 6th RED LHC Workshop, IFT Madrid, 10/05/2022
7. "When Leptoquarks meet Dark Matter", Internal Meeting ATLAS Collaboration (Zoom), 20.01.2022
8. "Disappearing Tracks at a Muon Collider", Energy Frontier Workshop - Restart (Onlline Workshop), 02/09/2021
9. "Long-Lived and Feebly Interacting Particles", Muon Collider Physics and Detector Workshop (Online Workshop), 02/06/2021
10. "Dark Matter and Long-Lived Particles Working Group and Community", Initiative fro Dark Matter in Europe and beyond (iDMEu) kickoff (Online), 10/05/2021
11. "Charged Long-Lived Parrticles Signatures: an overview", 3rd Muon Collider Physics Potential Metting (Online Workshop), 16/11/2020
12. "Exotic Higgs decays into Long-Lived Particles", 4th FCC Physics and Experiments Workshop (Online Workshop), 12/11/2020
13. "Non-resonant/EFT Higgs pair phenomenology", Higgs 2020 (Online Conference), 27/10/2020
14. "Disappearing Tracks at the High-Luminosity LHC and future hadron colliders", Snowmass EF-10 Meeting, 21/10/2020
15. "Exploring the Lifetime Frontier", HECA Seminar (University of Warsaw and National Research Centre for Nuclear Research), 20/10/2020
16. "Feedback on LLP Reinterpretations", ATLAS SUSY/Exotics workshop on LLP Reinterpretation Material, 24/09/2020
17. "Disappearing track constraints on dark sectors", Snowmass EF-10 Meeting, 04/06/2020.
18. "Long-Lived Particles: the Theoretical Perspective", 1st LLP Working Group Meeting, 27/05/2020.
19. "Long-Lived Particles (LLP) Working Group", Da rk Matter Working Group Meeting, 28/04/2020.
20. "Identifying Exclusive Displaced Hadronic Signatures in the Forward region of the LHC", STEALTH@LHCb, Compostela, Spain, 19/02/2020.
21. "Identifying Exclusive Displaced Hadronic Signatures in the Forward Region of the LHC", QCD, Electroweak and Exotica Seminar Meeting, LHCb, 09/12/2019.
22. "LLP Theory Overview", Long-Lived Particles and the Third Generation Workshop, Edinbourgh, 20/11/2019.

23. “Dark Sectors at Colliders", CRC Meeting on DM, Aachen, 15/05/2019.
24. “Dark Sectors at Colliders", 11th FCC-ee Workshop, CERN, 10/01/2019.
25. “Exotics Higgs decays at future colliders", 11th FCC-ee Workshop, CERN, 10/01/2019.
26. “Theory ideas for ATLAS and CMS", LLP Physics Workshop, NIKHEF, 23/10/18.
27. “LLPS: Theory overview", LLP Physics Workshop, NIKHEF, 23/10/18.
28. “Random thoughts on LLPS", New ideas in detecting long lived particles at the LHC, LBNL,12/07/18.
29. “Long-lived particle signatures at present and future colliders", 30th Rencontres de Blois, 06/06/18.
30. “LLP Experimental Coverage group: Summary Report", LLP Physics Workshop, CERN, 17/05/2018.
31. “Long Lived Dark Sectors at Colliders", Physics Seminar, University of Southampton, UK, 11/05/2018.
32. “Long Lived Dark Sectors at Colliders", Physics Seminar, University of Sussex, UK 08/05/2018.
33. “BSM physics at the LHeC and the FCC-he", DIS 2018, Kobe, Japan 19/04/2018.
34. “Probing BSM physics with electron-proton colliders", DIS 2018, Kobe, Japan 19/04/2018.
35. “Disappearing charged tracks for compressed Dark Sectors", DM@LHC, Heidelberg, 05/04/2018.
36. “Dark matter at colliders", Argentine Phenomenology Institute, ICAS UNSAM, 21/10/2017.
37. “Searches for Electroweak SUSY particles", LHeC and FCC-eh Workshop, CERN, 11/09/2017.
38. “Closing the window for compressed electroweakinos at a 100 TeV collider", PLANCK 2017, 25/05/2017.
39. “Di-Higgs production at the LHC and beyond", LHCP 2017, Shanghai, China, 17/05/2017.
40. “Disappearing charged tracks for electroweak doublets", LLP Physics Workshop, CERN, 26/04/2017.
41. “Disappearing tracks / Mono-Z at the FCC-hh", 1st FCC Physics Workshop, CERN, 20/01/2017.
42. “Closing the window on neutralino dark matter with a 100 TeV hadron collider", EFTs for Collider Physics, Flavor and Electroweak Symmetry Breaking Workshop, Eltville am Rhein, 13/09/2016.
43. “Simplified Models for Dark Matter coannihilation at the LHC", PLANCK 2016, 26/05/2016.
44. “A tale of Two Higges", Physics Seminar, Bern University, 26/02/2016.
45. "Simplified Models of coannihilating dark matter and their LHC phenomenology", Fermilab Theory Seminar. Batavia, USA, 17/09/2015.
46. “Simplified Models of coannihilating dark matter",
New Directions to shed light on dark matter, Aspen, CO, USA, 09/09/2015.
47. “Compressed electroweakino at the LHC and future colliders",
Seminar Institut für Theoretische Physik, Heidelberg, Germany, 16/07/2015.
48. “Bino/Higgsino at a 100 TeV collider", PLANCK 2015, Ioannina, Greece, 29/05/2015.
49. “Biggsinos at 100 TeV collider", Higgs and BSM at 100 TeV, CERN, Switzerland, 12/03/2015.
50. “Higgs boson pair production in the EFT extension of the Standard Model",
Seminar Universität Tübingen, Tübingen, Germany. 23/10/2014.
51. “Scalar boson self-coupling", Rencontres du Vietnam 2014, Quy Nhon, Vietnam, 11/08/2014.
52. “Compressed electroweakino spectra at the LHC", Planck 2014, Paris, France, 28/05/2014.
53. “Compressed electroweakino spectra at the LHC", HEP seminar, Cambridge, UK, 07/03/2014.
54. “Higgs boson self-coupling measurement using ratios of cross sections" , Seminar, Université Catholique de Louvain, Louvaine, Belgium, 29/01/2014.
55. “Compressed electroweakino spectra at the LHC", VUB Seminar, Brussels, Belgium, 28/01/2014.
56. “Higgs boson self-coupling measurement using ratios of cross sections" ,
Seminar über Teilchenphysik, Karlsruhe, Germany, 14/06/2013.
57. “Higgs boson self-coupling measurement using ratios of cross sections" ,
25th Rencontres de Blois, Blois, France, 29/05/2-13.
58. “Higgs boson self-coupling measurement using ratios of cross sections" ,
High Energy Physics and Riken Theory Seminar, Upton, NY, USA, 24/04/2013.
59. “Higgs boson self-coupling measurement using ratios of cross sections",
University of Oregon Theoretical Seminar, Eugene, OR, USA, 16/04/2013.
60. “Higgs pair production in the bbWW channel", LHC PhenoNet Meeting, Ravello, Italy, 17/09/2012.

61. “Higgs pair production in the bbWW channel", CERN BSM Institute. CERN, Switzerland, 26/06/2012.
62. “SUSY confronts LHC data", PLHC 2012. Vancouver, BC, Canada, 06/08/2012.
63. “Extended Higgs sectors at the LHC", Mainz Theorie-Palaver. Mainz, Germany, 24/04/2012.
64. “Non SM Higgs phenomenology at the LHC, LHC PhenoNet Annual Meeting. Durham, UK, 21/03/2012.
65. “BMSSM Higgs bosons at the LHC Run-I", CERN EP-Seminar. CERN, Switzerland, 29/11/2011.
66. “Extended Higgs sectors at the LHC Run-I", THLPCC11. CERN, Switzerland, 19/08/2011.
67. “Lee-Wick Higgs sector at colliders", Pheno 2011. Madison, Wisconsin, 10/05/2011.
68. “BMSSM Higgs bosons", SUSY 2010. Bonn, Germany, 26/08/2010.
69. "Beyond MSSM Higgs Sectors", Pheno 2010. Madison, Wisconsin, 10/05/2010.
70. "Supersymmetric Higgs bosons and beyond", DIS 2010. Florence, Italy, 20/04/2010.
71. “Supersymmetric Higgs bosons and beyond", PSI Theory Seminar. Vilingen, Switzerland, 03/04/2010.
72. “CP-odd Higgs production at NNLL", High Precision for Hard Processes at the LHC. Buenos Aires, Argentina, 08/10/2008.
73. “Soft-gluon Resummation for Pseudoscalar Higgs Boson Production at Hadron Colliders", Fermilab Theory Seminar. Batavia, USA, 12/06/2008.
74. “QCD, resummation and new calculation tools", XXIX Strings@AR meeting. 13/03/2008.

Computing Skills

- Programming Languages: Fortran, C++, Python, HTML.
- Scientific software: Mathematica, LaTeX, ROOT, Scikit-learn, TensorFlow, KERAS.
- Tools: FeynArts, FormCalc, LoopTools, MadGraph, Herwig++, Sherpa, Pythia.

Language Skills

- Spanish: native language.
- English: full professional proficiency (C2).
- German: intermediate (B1), Zertifikat Deutsch (ZD).
- French: upper-intermediate (B2).