Curriculum Vitae

2017

A. Personal Data

Name:	Jorge Stephany.
Date of Birth:	August 3th, 1960
Place of Birth:	Caracas, Venezuela
Nationality:	Venezuelan and German
Address:	Universidad Simón Bolívar Departamento de Física, Apartado Postal 89000, Caracas 1080-A VENEZUELA
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Fields of interest	Relativistic Physics, Quantum Field Theory Solitons, Statistical Mechanics Quantum Optics, Disordered systems

B. University Studies

- B.1) Bachelor in Physics, Universidad Simón Bolívar, Caracas, 1978-1983, Final work: Formulación triádica de teorías con espín 5/2. (Advisor: Prof. C.Aragone).
- B.2) Master in Physics, Universidad Simón Bolívar, Caracas, 1983-1986, Final work: Términos de naturaleza topológica en teorías de campo. (Advisor: Prof. C.Aragone).
- B.3) Doctor in Sciences, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro 1986-1989, Thesis: Operadores de desordem e cuantização de sólitons em D$\geq$3. (Advisor: Prof.E.C.Marino).

C. Positions

- C.1) 1989-1990 Postdoctoral Fellow, Physics Department, Pontificia Universidad Católica de Rio de Janeiro, Brazil.
- C.2) 1990-1993 Adjoint Professor, Physics Department, Universidad Simón Bolívar, Caracas, Venezuela.
- C.3) 1993-1998 Associate Professor, Physics Department, Universidad Simón Bolívar, Caracas, Venezuela.

- C.4) 1995-1996 Invited Researcher, Centro Brasileiro de Pesquisas Físicas, Department of Particles and Fields, Brazil.
- C.5) 1998- Professor of Physics, Physics Department, Universidad Simón Bolívar, Caracas, Venezuela.
- C.6) 2003-2004 Visiting Professor , Centre for Scientific Computing, University of Warwick, Coventry, UK.
- C.6) 2010-2011 Visiting Researcher , Max Planck Institut for Gravitation Physics (Albert Einstein Institut), Potsdam, Germany.

D. Fellowships, Prizes and Distinctions

- D.1) Doctoral Fellowship, Cnpq (Brazil)(1986-1989).
- D.2) Venezuelan System of Research (SPI)
  Level I (1991-1997), Level II (1997-2003), Level III (2004-2010).
- D.3) Regular Associate of the Abdus Salam International Centre of Theoretical Physics, Trieste, Italia, (1997-2004).
- D.4) Venezuelan System of Research (PEI)
  Level A (2011-2015), Level B (2015-2016).
- D.5) Simón Rodríguez prize to teaching career achievments
  APUSB, Simón Bolivar University, 2013

E. Thesis supervision

Final works supervised (Bachelor level):

- E.1) 1992 Pedro Silva Briceño, Teoría de deformaciones, grupos cuánticos y mecánica cuántica de sistemas vinculados. Bachelor project, USB. Co-advisor: A.Restuccia.
- E.2) 1995 J.López, Análisis canónico de partículas con espín. Bachelor project, USB. Co-advisor: M.Caicedo
- E.3) 2001 F. Febres Cordero, Solitones y objetos extendidos. Bachelor project, USB.
- E.4) 2005 M.Vollman, Corrientes y solitones en la equivalencia del modelo σ $O(3)$ y el modelo CP1 en 3-D. Bachelor project, USB.
- E.5) 2008 K.Titimbo, Transferencia de entrelazamiento en un sistema de tres partículas. Bachelor project, USB.

- E.6) 2012 D.Abbate, Medidas de localización en 2D. Bachelor project, USB.
- E.7) 2012 M.Cohen, Caracterización espectral de ondas de superficie generadas en presencia de un obstáculo hidrodinámico. Bachelor project, USB.

Final works supervised (Master level):

- E.8) 1994 J.P.Lupi, Interacciones de partículas, cuerdas y membranas con teorías topológicas BF. Master Thesis, USB. Co-advisor A.Restuccia
- E.9) 1999 J.López, Estudio de interacciones en la integral funcional de partículas con espín Master Thesis, USB
- E.10) 2000 D.E.Díaz, Efecto Unruh y radiación clásica. Master Thesis, USB.
- E.11) 2009 M.Vollman, Superpartículas, supercampos y el método de la proyección cuántica. Master Thesis, USB.
- E.12) 2012 K.Titimbo, Destilación de entrelazamiento con reservorios locales comunes de estados. Master Thesis, USB.

G. Talks and Conferences

- G.1) Masa ingenua y espín 3/2 y 5/2 en 3-D. XIII Meeting of Asovac, Caracas, October,1983,(Abstract) *Act.Cien.Ven.* **34** Supl. 1, (1983), Pag 196 . With C.Aragone.
- G.2) Free Field Realization of the WZW Sigma Model. XI Simposio Latinamericano de Física del Estado Sólido, Caracas, Venezuela, Marzo, 1990, (Abstract), Pag 9-16. With R.G.P.Amaral.
- G.3) Soliton Operators in Two and Three Dimensions, SILARG VII, Mexico,1991.
- G.4) Cuantización de teorías de campos con vínculos de segunda clase, XLI Meeting of Asovac, Maracaibo, Noviembre 1991. (Abstract),*Act.Cien.Ven.* **42** Supl. 1, (1991), Pag 95. With R.Gianvittorio and A.Restuccia.
- G.5) Gauge invariant formulation of systems with second class constraints. XIX International Colloquium on Group Theoretical Methods in Physics, Salamanca, Spain, July, 1992. With A.Restuccia.
- G.6) On the Covariant Quantization of Green-Schwarz Superstring and Brink-Schwarz Superparticle, XIX International Colloquium on Group Theoretical Methods in Physics, Salamanca, Spain, July, 1992. With M. LLedó , M. Caicedo and A. Restuccia.
- G.7) Covariant Quantization of the Green-Schwarz Superstring, XIV National Meeting of Particles and Fields, Brazil.(1993). With A.Restuccia.

- G.8) Formulación canónica covariante de la cuerda de Green-Schwarz, VII Reunión Anual de la División de Partículas y Campos de la Sociedad mexicana de Fisica, UAM-Iztapalapa, Junio 1994. With A.Restuccia.
- G.9) Topological selection of world manifolds for a p-brane in a BF-Field, II Latinoamerican School of Strings and Fundamentals, Universidad Simón Bolívar, October 1995. With J.P.Lupi and A.Restuccia, (hep-th/9405046).
- G.10) Supersimetría y topología en Teoría Cuántica de Campos. XLV Meeting of Asovac, Caracas, 1995, (Abstract), *Act.Cien.Ven.* **46** Supl. 1, (1995), Pag 300 . With M.Caicedo et al.
- G.11) Una nueva acción para la teoría topológica de Witten. XLV Meeting of Asovac, Caracas, 1995, (Abstract),*Act.Cien.Ven.* **46** Supl. 1, (1995), Pag 300. With R.Gianvittorio and A.Restuccia.
- G.12) Cuantización de teorías topológicas BF en variedades de cualquier dimensión. XLV Meeting of Asovac, Caracas, 1995, (Abstract), *Act.Cien.Ven.* **46** Supl. 1, (1995), Pag 300 . With M.Caicedo, R.Gianvittorio and A.Restuccia.
- G.13) Spin observables and path integrals. VI Wigner Symposium, Istambul, 1999. With J.Lopez.
- G.14) Observables de espín e integrales funcionales. II Congreso Venezolano de Física. Cumaná, 2000. With J.López.
- G.15) Generación de luz comprimida por un espejo en movimiento. II Congreso Venezolano de Física. Cumaná, (2000). With D.F.Mundarain.
- G.16) Radiative Processes of the DeWitt-Takagi Detector. III Congreso Venezolano de Física. Caracas (2001). With D.E.Díaz.
- G.17) Non Abelian Born-Infeld Action. IV Congreso Venezolano de Física. Margarita, November (2003). With R.Gianvittorio and A.Restuccia.
- G.18) The local density of states for a 2D disordered electron system, (Poster). IOP Theory of the Condensed Matter Group. Scientific meeting and Annual general meeting, University of Warwick. December (2003). With M.Morgernstern and R.A.Roemer.
- G.19) Husimi's function and phase space interference, (Poster). QMQC04, Quantum Mechanics and Computing in Physics,Mathematics and Biology, University of Warwick. February(2004). With D.F.Mundarain.
- G.20) Computation of the local density of states for a 2D disordered electron system. (Poster). Deutsche Physikalische Gesellschaft, Regensburg, Alemania, March (2004). With M.Morgernstern and R.A.Römer.

- G.21) Computation of the local density of states for a 2D disordered electron system. CMP04, Condensed Matter and Materials Physics Conference organized by the Institute of Physics, Coventry, UK, April (2004). With M.Morgernstern and R.A.Römer.

- G.22) Estadística de fotones en mediciones tipo von Neumann no ideales. V Reunión iberoamericana de óptica y VIII encuentro latinoamericano de óptica, láseres y sus aplicaciones, Porlamar, Venezuela, October (2004). With D.F. Mundarain.

- G.23) On the quantization of massive superparticles. International Conference on Mathematical Methods in Physics (IC2006). Rio de Janeiro, April, 2006. With N.Hatcher and A.Restuccia.

- G.24) Quantum algebra of superspace. Trends in Theoretical Physics and Mathematics. Buenos Aires, May, 2006). With N.Hatcher and A.Restuccia.

- G.25) Quantum algebra and Superprojectors in superspace. XV International Congress on Mathematical Physics, Icmp2006. Rio de Janeiro, August, 2006. With N.Hatcher and A.Restuccia.

- G.26) Total quantum Zeno effect for a two-level system in a squeezed bath . Quantum Optics III International Conference. Pacón, Chile, November, 2006. With D.F.Mundarain and M.Orzag.

- G.27) D2 branas interactivas en diez dimensiones y la teoría de Born-Infeld no abeliana . Reunión de Física de Altas Energías, Caracas, December, 2006. With R.Gianvittorio and A.Restuccia.

- G.28) Álgebra de operadores en un modelo sigma no lineal. Reunión de Física de Altas Energías, FAE09, Barquisimeto, October, 2009. With M.Vollmann.

- G.29) Álgebra de operadores en los modelos sigma con simetría $O(3)$ y CP_1 en $3-D$ modelo sigma no lineal. VII Congreso Venezolano de Física, UCV, Caracas, December, 2009. With M.Vollmann.

- G.30) Álgebra de Dirac y proyección al espacio de Hilbert físico en la cuantización de una partícula confinada a una curva. VII Congreso Venezolano de Física, UCV, Caracas, December, 2009. With M.Vollmann.

- G.31) Dynamics of maximum extractable entanglement for open systems. II Quantum Information School and Workshop, Paraty, Brasil. September 2009. With E.Isasi and D.Mundarain.

- G.32) Destilación de entrelazamiento con reservorios comunes locales de estados de vacio comprimidos. VII Congreso Venezolano de Física, UCV, Caracas, December, 2009. With K.Titimbo.

- G.33) Entanglement Distillation with Local Common Reservoirs in Squeezed Vacuum States. 13th International Workshop on Quantum Information Processing. Zürich, Switzerland, January 2010. With K.Titimbo.

- G.34) Violación del teorema del movimiento del centro de masas en sistemas con interacción electromagnética VIII Congreso Venezolano de Física, Tucacas, December, 2014. With R.Medina

- G.35) Spin and momentum in 3D field theories. Latin American Workshop in Condensed Matter: Low Dimensional Topological Quantum Matter, Natal, Brazil, August 2015. With R.Medina.

H. Publications
(Authors in alphabetical order)

- H.1) Dreibein Massive Spin 5/2. *Class and Quantum Gravity* **1** (1984) 265-274. With C.Aragone.

- H.2) Vierbein Gauge Invariant Massive Spin 5/2 theory. *Nuov Cim* **91A** (1985) 1-14. With C.Aragone.

- H.3) Higher Dimensional Topological-Conformal Gravitinos. *Phys Rev* **D34** (1986) 1210-1213. With C.Aragone.

- H.4) Non Abelian Chern-Simons Topological Coupling from Self-Interaction. *Rev Bras Fis* **16** (1986) 287-294. With C.Aragone.

- H.5) Quantum Theory of Non-Local Magnetic Monopole Fields. *Phys Rev* **D39** (1989) 3690-3702. With E.C.Marino.

- H.6) Abelian and Non-Abelian Bosonization: The Operator Solution of the WZW Sigma Model. *Phys Rev* **D43** (1991) 1943-1948. With R.P.G.Amaral.

- H.7) Soliton Operators in Two and Three Dimensions. Proceedings of the SILARG VII, pags. 522-528, World Scientific 1991 ed. J.C.D'Olivo, E.Nahmad, M.Rosenbaum, M.Ryan, L.Urrutia and F.Zertuche.

- H.8) On the Quantization of Field Theories with Second Class Constraints. *Mod Phys Lett* **A6** (1991) 2121-2128. With R.Gianvittorio and A.Restuccia.

- H.9) Dual Variables for Fermions in 2+1 Dimensions. *Int Jour Mod Phys* **A7** (1992) 171-176. With E.C.Marino.

- H.10) Mass Spectrum and Correlation Functions of Quantum Vortices in the Abelian Higgs Model. *Phys Rev* **D45** (1992) 3690-3700. With E.C.Marino, G.C.Marques and R.O.Ramos.

- H.11) Gauge Fixing in Extended Phase Space and Path Integral Quantization of Systems with Second Class Constraints. *Phys Lett* **B305** (1993) 348-352. With A.Restuccia.

- H.12) Gauge invariant formulation of systems with second class constraints. XIX International Colloquium on Group Theoretical Methods in Physics, Salamanca, Spain, July, 1992. *Anales de Física, Monografías* **1** , Vol II, 289-293, CIEMAT/RSEF, Madrid (1993). With A.Restuccia.

- H.13) On the Covariant Quantization of Green-Schwarz Superstring and Brink-Schwarz Superparticle. XIX International Colloquium on Group Theoretical Methods in Physics, Salamanca, Spain, July, 1992. *Anales de Física, Monografías* **1**, Vol II, 273-277, CIEMAT/RSEF, Madrid (1993). With M. LLedó , M. Caicedo and A.Restuccia.

- H.14) Canonical Covariant Quantization of the Brink-Schwarz Superparticle. *Phys Rev* **D47** (1993) 3437-3442. With A.Restuccia.

- H.15) Covariant Quantization of the Green-Schwarz Superstring. XIV National Meeting of Particles and Fields, Brasil. Ed. Adilson J. Da Silva et al, Sociedade Brasileira de Física, (1994) p. 1-23. With A.Restuccia. (hep-th/9311071).

- H.16) Canonical Covariant Formulation of the Green-Schwarz Superstring without second class constraints. *Phys Lett* **B343**(1995) 147-152 With A.Restuccia. (hep-th/9405047).

- H.17) Gauge Invariance and second class constraints in 3-D linearized gravity. *J Math Phys* **36** (1995) 1868-1876. With P.J.Arias. (hep-th/9406092).

- H.18) A new Action Principle for Witten's Topological Field Theory. *Phys Lett* **B347** (1995) 279-283 With R.Gianvittorio and A.Restuccia. (hep-th/9410123).

- H.19) BRST Quantization of Non-Abelian Topological BF theories. *Phys Lett* **B354** (1995) 292-299. With M.Caicedo, R.Gianvittorio and A.Restuccia. (hep-th/9502137).

- H.20) Topological BF theories and 2-D gravity *Phys Rev* **D54** 3861-3868 (1996). With J.P.Lupi and A.Restuccia. (hep-th/9603013).

- H.21 Topological field theories and Duality *Phys Lett* **B390** (1997) 128-132. (hep-th/9605074).

- H.22) BF models, duality, and bosonization on higher genus surfaces *Phys Rev* **D61** 085010-1,8 (2000). With A.Restuccia. (hep-th/9805075).

- H.23) Spin observables and path integrals. Proceedings of the VI International Wigner Symposium, Ed. Engin Arik, Bogaziçi Universitesi Vakfi,Istambul (2002) 781-789. With J.Lopez. (hep-th/0000120)

- H.24) Rindler Particles and Classical Radiation.*Class Quan Grav*, **19**, 3753-3759, (2002). With D.E. Díaz. [gr-qc 0111041]

- H.25) On the squeezed number states and their phase space representations. *J.Opt.B:Quantum Semiclass Opt.*, **4**, 352-357, (2002). With L.Albano and D.F. Mundarain. [quant-ph 0108024]

- H.26) Radiative Processes of the DeWitt-Takagi Detector. *Rev.Mex.Fis* **49**, *S***3**, 120-122, (2003). With D.E.Díaz. [gr-qc 0201096].

- H.27) Phase space interference and the WKB approximation for squeezed number states. *Phys Lett A*, **316**, 357-362, (2003). With D.F.Mundarain. [quant-ph 0305151]

- H.28) Husimi's Q(α) function and quantum interference in phase space . *J.Phys A:Math Gen* **37** 3869-3879 (2004). With D.F.Mundarain. [quant-ph 0311151]

- H.29) A non Abelian Born-Infeld Action. *Rev.Mex.Fis* **52**, *S***3**, 137-139, (2006). With R.Gianvittorio and A.Restuccia.

- H.30) The quantum algebra of superspace. *Phys Rev* **D73** 046008-1,11,(2006). With N.Hatcher and A.Restuccia. [hep-th/0511066]

- H.31) Zeno and Anti Zeno effect for a two level system in a squeezed bath. *Phys Rev* **A73** 042113-1,8, (2006). With D.Mundarain.[quant-ph/0510214]

- H.32) On the Quantization of Massive Superparticles. *Proceedings of Science*, **PoS(IC2006)069** (2006).
  http://pos.sissa.it//archive/conferences/031/069/IC2006_069.pdf.
  With N.Hatcher and A.Restuccia. [hep-th/0506042]

- H.33) Total quantum Zeno effect and intelligent states for a two-level system in a squeezed bath. *Phys Rev* **A74** 052107-1,5, (2006). With D.Mundarain and M.Orzag.[quant-ph/0610179]

- H.34) Interacting D2-branes in 10 dimensions and non abelian Born-Infeld theory. *Class Quan Grav* **23** 7471-7478, (2006). With R.Gianvittorio and A.Restuccia. [hep-th/0606063]

- H.35) The quantum algebra of N superspace. *Phys Rev* **D76** 046005-1,7, (2007). With N.Hatcher and A.Restuccia. [hep-th/0604009]

- H.36) Total Quantum Zeno effect beyond Zeno time. *J. Phys.: Conf Series* **84** 012015, (2007). With D.Mundarain and M.Orzag. [quant-ph->arXiv:0704.1605]
- H.37) On the dynamics of maximum extractable entanglement for open systems. *J. Phys. B: At. Mol. Opt. Phys* **41** 235504,1-7, (2008). With E.Isasi y D.Mundarain.[quant-ph->arXiv:0809.1912]
- H.38) Optimizacion of the transmission of observable expectation values and observables statistics in continuous-variable teleportation. *Phys. Rev. A* **82** 062322,1-13, (2010). With L.Albano.[quant-ph->arXiv:1009.5497]
- H.39) A non local unitary vector model in 3-D. *Int.Jour.Mod.Phys* **A26**, 4603-4615, (2011). With A.Khoudeir [hep-th->arXiv:1109.2947]
- H.40) Path integral approach to the full Dicke model with dipole-dipole interaction. *Jour Phys A:Math. Theor.* **44**, 505301, 1-10, (2011). With M. Aparicio Alcalde and N. F. Svaiter [quant-ph->arXiv:1107.2945]
- H.41)Master actions for linearized massive gravity models in 3-D . *Int.Jour.Mod.Phys* **A27**, 1250015,1-15, (2012). With P.J.Arias and A.Khoudeir [hep-th->arXiv:1201.2927]
- H.42) Violation of the center of mass theorem for systems with electromagnetic interaction. *Acta Cien.Ven.* **66**, 50-55, (2015). With R.Medina [ph->arXiv:1404.5251]
- H.43) The force density and the kinetic energy-momentum tensor of electromagnetic fields in matter. *Acta Cien.Ven.* **66**, 1-8, (2015). With R.Medina [ph->arXiv:1404.5250]
- H.44) An elementary approach to electromagnetic momentum in matter. *Eur. J. Phys.* **38**, 015208 (8pp), (2017). With R.Medina [ph->arXiv:1608.01001]
- H.45)Soliton operators and the quantum equivalence of the the $O(3)-\sigma$ and CP_1 models. *Rev.Mex.Fis.* , (8pp), (2017) *to appear*. With M.Vollmann [hep-th->arXiv:1710.09920]

I. Other Activities

Referee

- I.1a) Revista Técnica de Ingeniería (Venezuela).
- I.1b) Physics Letters B.
- I.1c) Nuclear Physics B.
- I.1d) Ciencia (Venezuela).

- I.1e) Acta Científica Venezolana.
- I.1f) Revista Mexicana de Física.
- I.1g) Chinese Journal of Physics.
- I.1h) International Journal of Modern Physics.
- I.1i) Journal of Low Temperature Physics.
- I.1j) Publicaciones en Ciencia y Tecnología (Venezuela).

Scientific Societies

- I.2a) Sociedad Venezolana de Física, Caracas, Venezuela.
  2013-2014 President, 2014-2015 Tresurer, 2016-2018 President.
- I.2b) Sociedad Galileana (USB), Caracas, Venezuela
  1993-1994 Tresurer.
- I.2c) Asociación Venezolana para el Avance de la Ciencia, Caracas, Venezuela

Conference Organization

- I.3a) 1992 Member of the Organizing Committee. School in squeezed states and Bell's theorem. Caracas, September 1992 (Director: Prof. C.Aragone)
- I.3b) 1995 Member of the Organizing Committee. II Latin-american School on strings, superstrings and fundamentals (II Lassf). Caracas, September 1992 (Director: Prof. A.Restuccia)
- I.3c) 1999-2002 Member of the Organizing Committee. Escuela de relatividad y campos, Mérida.
- I.3d) 2004 Member of the Organizing Committee. I Reunión de física de altas energías, FAE04, Caracas, December 2004.
- I.3e) 2006 Member of the Organizing Committee. II Reunión de física de altas energías, FAE06, Caracas, December 2006.
- I.3f) 2009 Member of the Organizing Committee. III Reunión de física de altas energías, FAE09, Barquisimeto, October 2009.
- I.3g) 2011 Member of the Organizing Committee. IV Reunión de física de altas energías, FAE11, Caracas, December 2011.
- I.3h) 2014 Member of the Organizing Committee. VIII Congreso Nacional de Física cnf2014, Tucacas, December 2014.

Administrative Positions

- I.4a) (1998-2002) Adjoint to the Dean of Research for the Area of Basic Sciences, Universidad Simón Bolívar
- I.4b) (2002-2006) Member of the Venezuelan representation to the Latinoamerican Center of Physics (CLAF)
- I.4c (2002-2003) Representative of the Ministry of Superior Education to the Directive Council of the Simón Bolívar University
- I.4d (2009-2010) Representative of the Ministry of Superior Education to the Superior Council of the Simón Bolívar University
- I.4e (2013-2017) Representative of the Ministry of Superior Education and Science to the Directive Council of the Instituto Venezolano de Estudios Avanzados, IDEA.

J. Teaching Experience 1983-

- J.1) Elementary Physics(Theoretical and Experimental)
- J.2) Electromagnetism and Electrodynamics (Undergraduate and graduate levels)
- J.3) Classical Mechanics (Introductory, undergraduate and graduate levels)
- J.4) Quantum Mechanics (Undergraduate and graduate levels)
- J.5) Relativistic Quantum Mechanics
- J.6) Relativistic Physics
- J.7) Quantum Field Theory
- J.8) Quantum Optics and Laser Physics
- J.9) Statistical Mechanics