

JUAN ALEJANDRO VALDIVIA

PERSONAL INFORMATION

Work Address Departamento de Física,
Facultad de Ciencias
Universidad de Chile
Las Palmeras 3425, Ñuñoa, Santiago, Chile

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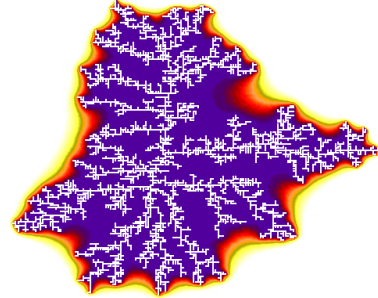
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Nationality Chilean

Birth 03/21/1969



Fractal discharge

Researcher ID: <http://www.researcherid.com/rid/A-3631-2008>
Research Gate: http://www.researchgate.net/profile/J_Valdivia

EDUCATION

NASA, Goddard Space Flight Center, Greenbelt (1997 - 1999)
National Research Council Postdoctoral Fellowship

The University of Maryland, College Park (1991 - 1997)

Ph.D. in Physics (1997)

- **Advisor: K. Papadopoulos**
- **Title: The Physics of High altitude Lightning** (<http://fisica.ciencias.uchile.cl/alejo>)

M.S. in Physics (1996)

The University of Maryland, College Park (1987-1991)

B. S. in Physics (Magna Cum Laude 1991)

B. S. in Mathematics (Magna Cum Laude 1991)

B. S. in Astronomy (Magna Cum Laude 1991)

RELEVANT AWARDS

- **CEIBA, Center of Excellence in Complex-System Research of Colombia** was selected as the “Best Excellence Research Center of 2011” by the Education Ministry of Colombia.
- Member of the group “**Ciencia de Frontera**”, of the Chilean Academy of Science (2007-2009)
- **Given the 1998 F. L. Scarf Award for best Ph.D. Dissertation in Space Physics and Aeronomy** of the American Geophysical Union.
- **Obtained a National Research Council Postdoctoral Fellowship** (1997 – 1999) at NASA's Goddard Space Flight Center in Greenbelt, USA
- **J. A. Valdivia was selected as Outstanding Teacher Assistant of 1992** of the Department of Physics of the University of Maryland at College Park, USA

EXPERIENCE

- 1. Centro para el desarrollo de la Nanociencia y Nanotecnología, Cedenna, Chile**
Principal Investigator (2010 - present)
- 2. Centro de Estudios Interdisciplinarios Básicos y Aplicados en Complejidad (CEIBA), Colombia**
International Research Fellow (2007 - present)
- 3. Departamento de Física, Facultad de Ciencias, Universidad de Chile, Chile**
Full Professor (2006 - present)
- 4. Departamento de Física, Facultad de Ciencias, Universidad de los Andes, Colombia**
Associate Professor (2004 - 2006)
- 5. Departamento de Física, Facultad de Ciencias, Universidad de Chile, Chile**
Associate Professor (2002 - 2006)
- 6. WISER - World Institute for Space Environment Research, University of Adelaide, Australia**
Research Fellow (2002 - 2002)
- 7. Departamento de Física, Facultad de Ciencias, Universidad de Chile, Chile**
Assistant Professor (2000 - 2002)
- 8. NASA, Goddard Space Flight Center, Greenbelt, USA**
University Space Research Association Research Associate (1999 - 1999)
- 9. NASA, Goddard Space Flight Center, Greenbelt, USA**
National Research Council Postdoctoral Fellowship (1997 - 1999)

RESEARCH INTERESTS

Theoretical Plasma physics, Space Physics, Astrophysics, Chaos, Complex systems, Nanoscience, High altitude lightning, Fractal antennas, Ionospheric physics, Magnetospheric physics, Modeling of magnetic storms and substorms, Particle acceleration, Runaway discharges, Wave-particle interaction, Nonlinear wave propagation, Control of chaotic systems, Econophysics, Geophysics, Dynamics of the Earth's interior; Self-organization, Complexity, Fractal growth, Cosmology, City Traffic.

STUDENTS

1. **Ph.D Thesis: B. Toledo (2005)**, Traffic as a Complex System, Ph.D. in Physics, Universidad de Chile, Chile.
2. **Ph.D Thesis: N Lammoglia (2008)**, Modeling and simulating inequality, Ph.D in Engineering, Universidad de los Andes, Colombia.
3. **Ph.D Thesis: F. Asenjo (2010)**, New Fluid Formalisms for relativistic and quantum relativistic plasmas, Ph.D. in Physics, Universidad de Chile, Chile.
4. **Ph.D Thesis: J. Villalobos (2010)**, Chaos in Transit Systems, Ph.D in Engineering, Universidad de los Andes, Colombia.
5. **Ph.D Thesis: R. Bonilla (2011)**, Proposing a conceptual y quantitative model for the description of social systems with a Pareto behavior, Ph.D in Engineering, Universidad de los Andes, Colombia.
6. **Ph.D Thesis: P. Moya (2011)**, Acceleration and heating of minor ions in solar wind plasma, Ph.D. in Physics, Universidad de Chile, Chile.
7. **Ph.D Thesis: V. Buchelli (2013)**, The rich get richer dynamics of knowledge production: towards a science of science at the meso-level, Ph.D in Engineering, Universidad de los Andes, Colombia.
8. **Ph.D Thesis: R. Lopez (2013)**, Nonlinear waves in electron positron plasmas, Ph.D. in Physics, Universidad de Chile, Chile.
9. **Ph.D Thesis: F. Montes (2014)**, The spread of healthy behaviors in social networks through megatrends: a promising strategy for potentiating public health interventions, Ph.D in Engineering, Universidad de los Andes, Colombia.
10. **Ph.D Thesis: R. Navarro (2014)**, Thermal Fluctuations in solar wind like plasmas, Ph.D. in Physics, Universidad de Chile, Chile.
11. **Ph.D Thesis: P. Lemoine (2015)**, Towards understanding the relation between Transmilenio and walking for transportation, Ph.D in Engineering, Universidad de los Andes, Colombia.
12. **Ph.D Thesis: J. D. Meisel (2015)**, The dynamic of obesity from a systemic approach, Ph.D in Engineering, Universidad de los Andes, Colombia.
13. **Ph.D Thesis: F. Castillo (2017)**, Dynamics of magnetic fields in neutron stars, Ph.D. in Physics, Universidad de Chile, Chile.
14. **Ph.D Thesis: J. Felipe Penagos (2014-Present)**, Métodos para mejorar el modelo de Educación superior en Colombia, Ph.D in Engineering, Universidad de los Andes, Colombia.
15. **Ph.D Thesis: S. Carrasco (2016-Present)**, Analytical description of atomic interactions, Ph.D. in Physics, Universidad de Chile, Chile.
16. **Ph.D Thesis: J. Clark (2016-Present)**, Dynamics and transport over complex networks, Ph.D. in Physics, Universidad de Chile, Chile.
17. **Ph.D Thesis: M. Coello (2018-Present)**, Complexity in the solar wind – magnetosphere interaction, Ph.D. in Physics, Universidad de Chile, Chile.
18. **M.S. Thesis: L. Wastavino (2005)**, Traffic in intersections, M.S. in Physics, Universidad de Chile, Chile.

19. **M.S. Thesis: J. L. Cabal (2007)**, Fractal risk estimation in financial portfolios, M.S. in Engineering, Universidad de los Andes, Colombia.
20. **M.S. Thesis: E. Ramos (2007)**, Stability and Noise on gene regulatory networks, M.S. in Physics, Universidad de los Andes, Colombia.
21. **M.S. Thesis: P. Muñoz (2007)**, Chaos and Nonlinear Schrodinger equation in plasmas, M.S. in Physics, Universidad de Chile, Chile.
22. **M.S. Thesis: A. Gomez (2008)**, Centrality and transport in city dynamics, M.S. in Engineering, Universidad de los Andes, Colombia.
23. **M.S. Thesis: C. Farias (2010)**, Study about the relationship between earthquakes and volcanic eruptions in Chile, in the last 100 years, M.S. in Physics, Universidad de Chile, Chile.
24. **M.S.Thesis: S. Guiller (2010)**, Transport in complex networks, M.S. in Physics, Universidad de Chile, Chile.
25. **M.S. Thesis: V. Pinto (2011)**, Studies of the turbulence in the Earth's magnetosphere using data from THEMIS and SAMBA, M.S. in Physics, Universidad de Chile, Chile.
26. **M.S. Thesis: P. Marchant (2012)**, Evolution of axially symmetric magnetic fields in neutron star crust due to the hall drift, M.S. in Physics, Pontificia Universidad Católica de Chile, Chile.
27. **M.S. Thesis: C. Armaza (2014)**, On magnetic equilibria in barotropic stars, M.S. in Physics, Pontificia Universidad Católica de Chile, Chile.
28. **M.S.Thesis: N Gallo (2017)**, Thermally induced magnetic fluctuations in the solar wind, M.S. in Physics, Universidad de Chile, Chile.

29. **Undegraduate: C. Martinez (2005)**, Modes of energy flux into the magnetosphere, Universidad de los Andes, Colombia
30. **Undegraduate: A. Fritz (2006)**, Simulación de un Horno de plasma, Universidad de los Andes, Colombia

ACCEPTED PROPOSALS

1. **Principal Investigator** (2016-2018), **Conicyt Anillo 2014 Grant** (ACT1405), Chile: Fundamental processes in space plasma physics, combining instrumentation, observations, theory, and simulations.
2. **Principal Investigator** (2015-2018), **Fondecyt Regular 2015 Grant** (1150718), Chile: City traffic dynamics.
3. **Co-Investigator** (2016-2019), **Fondecyt Regular 2016 Grant** (1161356), Chile: Equilibrium and non-equilibrium processes in space plasmas and the solar-wind-magnetosphere-ionosphere interactions
4. **Principal Investigator** (2015-2019), **Conicyt “Programa de Financiamiento Basal 2015” Grant** (FB0807), Chile, “Centro para el desarrollo de la Nanociencia y Nanotecnología” (CEDENNA)
5. **Researcher** (2013-present), Colombia Grant: **Center of Excellence in Complex-System Research (Centro de Estudios Interdisciplinarios Básicos y Aplicados en Complejidad, CEIBA)**.
6. **Co-coordinator** (2013-2017), **Geospace Environment Modeling (GEM) focus group on “Geospace Systems Science”** with J. Borovsky, Bill Lotko, Vadim Uritsky
7. **Co-investigator** (2015-2016), **Conicyt “Formación de Redes Internacionales entre Centros de Investigación” Grant** (REDES140012), Chile: “Development of Chile/UK Collaboration Network for Fusion Research” with Center for Fusion, Space and Astrophysics, University of Warwick, UK.
8. **Co-investigator** (2014-2017), **US Air Force Office of Scientific Research (AFOSR) Grant** (FA9550-14-1-0139), USA: Using the American-Chilean SAMBA magnetometer network for the study of ionospheric electrodynamics and potential impact on scintillation and radiation belt fluxes.
9. **Co-Investigator** (2016-2017), **US Air Force Office of Scientific Research (AFOSR) Grant** (FA9550-16-1-0384), USA: “Neuromorphic Inspired Science, Surveillance, and Reconnaissance Operations”.
10. **Co-Investigator** (2013-2016), **Fondecyt Regular 2013 Grant** (1130273), Chile: Observation and Modeling of Complex fluxes: Ocean, Ionosphere and Astrophysical plasmas.
11. **Researcher** (2011-2013), **Collaboration Project DFG-CONICYT 2011 Grant** (DFG-06): Magnetic field of massive stars and their compact remnants
12. **Co-Investigator** (2011-2014), **Fondecyt Regular 2011 Grant** (1110729), Chile: Turbulence in Space Plasmas and its impact on the Magnetospheric Dynamics and Space Weather
13. **Principal Investigator** (2011-2014), **Fondecyt Regular 2011 Grant** (1110135), Chile: Complex dynamics in city traffic.
14. **Principal Investigator** (2010-2014), **Conicyt “Programa de Financiamiento Basal 2009” Grant** (FB0807), Chile, Centro para el desarrollo de la Nanociencia y Nanotecnología (CEDENNA)
15. **Researcher** (2007-2011), **Colciencias “Centros de Excelencia 2007” Grant**, Colombia: Center of Excellence in Complex-System Research (Centro de Estudios Interdisciplinarios Básicos y Aplicados

en Complejidad, CEIBA). Selected as the “Best Excellence Research Center of 2011” by the Education Ministry of Colombia.

16. **Principal Investigator** (2007-2010), **Fondecyt regular Grant 2007 (1070854), Chile:** Self-organization processes in plasmas, and its relevance to the earths magnetospheric dynamics
17. **Co-Investigator** (2007-2010), **Fondecyt regular Grant 2007 (1070131), Chile:** The relevance of turbulence in the magnetosphere of the earth and its relationship with geomagnetic storms and substorms
18. **Principal Investigator** (2008-2009), **Programa de cooperación Científica Internacional CNPq/CONICYT 2007 (Folio 2007-162),** Simulación y análisis de turbulencia en plasmas en la conexión Sol-Tierra
19. **Co-Investigator** (2005-2008), **Fondecyt regular Grant 2005 (1050350), Chile:** Effect of finite amplitude waves on linear waves. Ion cyclotron waves in drifting multi-ion species plasmas. Stability of a magnetoplasma with cross field currents.
20. **Principal Investigator** (2003-2006), **Fondecyt regular Grant 2003 (1030727), Chile:** The relevance of global self-organization processes in plasmas and the relationship with the dynamics of the magnetotail.
21. **Co-Investigator** (2002-2004), **Fondecyt regular Grant 2002 (1020152), Chile:** Properties and dynamics of nonlinear electromagnetic beam-plasma waves, and the stability of magnetoplasma with cross-field currents.
22. **Principal Investigator** (2000-2002), **Fondecyt regular Grant 2000 (1000808), Chile:** Modeling self-organized criticality in the turbulent plasma sheet: its relation to the coherence and repeatability of the substorm phenomena.
23. **Co-Investigator** (1998-2000), **NASA Grant 1998, USA:** The role of self-Organized Criticality in the Substorm Phenomena and its relation to Localized reconnection in the Magnetospheric Plasma Sheet.
24. **Co-Investigator** (1998-2000) , **NASA Grant 1998, USA:** Nonlinear modeling of high-latitude electrodynamic and midlatitude currents, and prediction from real-time solar wind data.

OTHER INFORMATION

- **Director Departamento de Física, Facultad de Ciencias, Universidad de Chile** (2003-2004), (2006-2014)
- **Member of “Comite de Evaluación”, Facultad de Ciencias, Universidad de Chile** (2014-Present)
- **Member of “Comite de Calificación”, Facultad de Ciencias, Universidad de Chile** (2014-Present)
- **Directory member of the “Sociedad Chilena de Fisica, Sochifi”** (2008-2010)
- **Panel reviewer in Physics and Astronomy of the “Comisión Nacional de Acreditación”** (Comité de área de Física y Astronomía”), (2012-2014)
- **Panel reviewer in Physics and Astronomy for Fondecyt (the Chilean equivalent of the National Science Foundation)** (Grupo de estudio de Física y Astronomía de Fondecyt), (2001-2003), (2012-2015)
- **Associate Editor of *Annals of Geophysics***, (2013-present)
- **Vicepresident of the “Asociación Latinoamericana de Geophisica Espacial (ALAGE) (2014-Present)”**

Proposal reviewer for

- NASA, USA
- National Science Foundation, USA
- Natural Environment Research Council, USA
- Comisión Nacional de Investigación Científica y Tecnológica, Conicyt/Fondecyt Chile
- Comisión Chilena de Energía Nuclear, Chile
- Consejo Nacional de Investigaciones Científicas y Técnicas, Conicet, Argentina
- Agencia Nacional de Promoción Científica y Tecnológica, ANPyCT, Argentina
- Instituto de Geofísica, Universidad Autónoma de México
- Netherlands Organisation for Scientific Research, NWO, Netherlands
- Mecesup (Ministerio de Educación, Chile)
- Universidad de Santiago de Chile

Paper reviewer for

- Geophysical Research Letters
- Journal of Geophysical Research
- Radio Science
- Journal of Atmospheric and Solar-Terrestrial Physics
- Geophysical Monograph
- Space Science Reviews
- Advances of Space Research
- Journal of Physics D: Applied Physics
- Nonlinear Processes in Geophysics
- New Journal of Physics
- Physica A
- Earth, Planets and Space
- International Journal of Bifurcation and Chaos
- Physics of Plasmas
- Space Weather
- Mathematical Problems in Engineering

- The Lancet
- Kybernetes
- Monthly Notices of the Royal Astronomical Society
- Entropy

Societies

- American Geophysical Union (AGU)
- American Physical Society (APS)
- Asociación Latinoamericana de Geofísica Espacial (ALAGE)
- Sociedad Chilena de Física (Sochifi)

Organizing and Scientific Committees

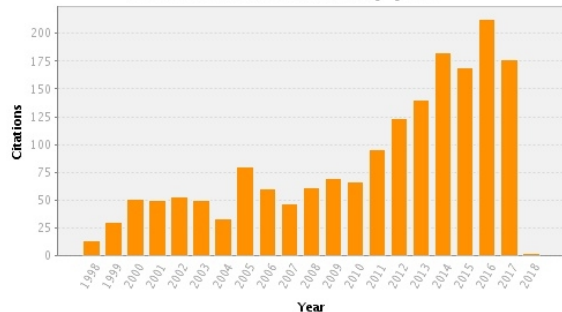
- VI Conferencia Latinoamericana de Geofísica , Tome, Chile, October 2001
- The XIII Simposio Chileno de Física , Concepción, Chile, November 2002
- The 2005 World Space Environment Forum , Schloss Seggau, Austria, May 2005
- The Physics of Solar-wind/Magnetosphere coupling , Puerto Vallarta, Mexico, November 2006
- The Nonlinear Magnetosphere, Vina del Mar, Chile, January 2009
- IX Colage, Punta Leona, Costa Rica, April 2011
- Nonlinear Wave and Chaos Workshop (NWCW9), La Jolla-California, USA, March 2013
- The Mechanics of the Magnetosphere, Torres del Paine, Chile, 2013
- III Dynamics Days South America, Viña del Mar, Chile, November, 2014
- Unsolved Problems in Magnetospheric Physics Workshop, Scarborough, UK, September, 2015
- Nonlinear Wave and Chaos Workshop (NWCW10), La Jolla-California, USA, 2017
- The Magnetosphere: New Thinking, New Tools, New results, Puerto Varas, Chile, 2017
- “Exploring Systems-Science Techniques for the Magnetosphere-Ionosphere-Thermosphere”, Los Alamos, USA, July 2018

Book participation

- Co-editor, Advances in Space Environment Research Vol. I, Kluwer.

PUBLICATIONS

Citation Distribution by year



**Juan Alejandro
Valdivia Hepp**
(January 1st 2018)

Papers: 126
Number of Citations: 1803
Citations per paper: 15
H-Index: 23
 (Researcher ID: only core collection)

1. **P. N. Reyes, F. J. Valencia, H. Vega, C. Ruestes, J. Rogan, J. A. Valdivia, M. Kiwi**, On the stability of hollow nanoparticles and the simulation temperature ramp, To be Published in Inorganic Chemistry Frontiers, 2018
2. **J. D. Meisel, O. L. Sarmiento, C. Olaya, P. D. Lemoine, J. A. Valdivia, R. Zarama**, Towards a novel model for studying the nutritional stage dynamics of the Colombian population by age and socioeconomic status, PlosOne, 13, e0191929, 2018 (<https://doi.org/10.1371/journal.pone.0191929>)
3. **R. I. González, F. J. Valencia, J. Rogan, J. A. Valdivia, J. Sofo, M. Kiwi, F. Munoz**, Bending Energy of 2D Materials: Graphene, MoS₂ and Imogolite, RSC Advances, 8, 4577-4583, 2018 (doi: 10.1039/C7RA10983K)
4. **V. Muñoz, M. Domínguez, J. A. Valdivia, S. Good, G. Nigro, V. Carbone**, Evolution of fractality in space plasmas of interest to geomagnetic activity, To be Published in Nonlin. Proc. Geophys, 2018
5. **D. Pasten, F. Torres, B. Toledo, V. Munoz, J. Rogan, J. A. Valdivia**, Non-universal critical exponents in earthquake complex networks. Physica A, 491, 445-452, 2018 (<https://doi.org/10.1016/j.physa.2017.09.064>)
6. **S. Carrasco, J. Rogan, J. A. Valdivia**, Controlling the Quantum State with a time varying potential, Scientific Reports 7, 13217, 2017 (doi:10.1038/s41598-017-13313-3)
7. **F. Valencia R. I. Gonzalez, J. A. Valdivia, M. Kiwi, E. Bringa, J. Rogan**, Inducing Porosity on Hollow Nanoparticles by Hypervelocity Impacts, The Journal of Physical Chemistry C, 121, 17856-17861, 2017 (DOI:10.1021/acs.jpcc.7b03126)
8. **F. Castillo, A. Reisenegger, J. A. Valdivia**. Magnetic field evolution and equilibrium configurations in neutron star cores: the effect of ambipolar diffusion, Mon. Not. R. Astron. Soc., 1, 507-522, 2017 (<https://doi.org/10.1093/mnras/stx1604>)
9. **J. Wanliss, V. Munoz, D. Pastten, B. Toledo, J. A. Valdivia**, Behavior in Earthquake Energy Dissipation, European Physical Journal B, 90, 167, 2017 (<https://doi.org/10.1140/epjb/e2017-70657-y>)
10. **S. Guillier. V. Mu noz, J. Rogan, R. Zarama, J. A. Valdivia**, Optimization of Spatial Complex Networks, Physica A, 467, 465-473, 2017 (Doi: 10.1016/j.physa.2016.09.011)
11. **M. H. Denton, J. E. Borovsky, M. Stepanova, J. A. Valdivia**, Unsolved Problems of Magnetospheric Physics, Journal of Geophysical Research, 121, 10783-10785, 2016 (doi:10.1002/ 2016JA023362.)
12. **F. J. Valencia, R. I. Gonz alez, D. Tramontina, J. Rogan, J. A. Valdivia, M. Kiwi, E. M. Bringa**, Hydrogen Storage in Palladium Hollow Nanoparticles, Journal of Physical Chemistry C, 120, 23836-23841, 2016 (DOI:10.1021/acs.jpcc.6b07895)

13. **R. A. Lopez, P. S. Moya, R. E. Navarro, J. A. Araneda, V. Munoz, A. F. Vinas, J. A. Valdivia**, Relativistic cyclotron instability in anisotropic plasmas, *Astrophys. J.*, 832, 36, 2016. (doi:10.3847/0004-637X/832/1/36)
14. **S. Carrasco, A. Varas, J. Rogan, M. Kiwi, J. A. Valdivia**, Multibody expansion of particle interactions: How many-body is a particular element in a cluster? *Phys. Rev. B*, **94**, 075435, 2016 (doi:http://dx.doi.org/10.1103/PhysRevB.94.075435)
15. **R. Gonzalez, J. Rogan, E. Bringa, J. A. Valdivia**, Mechanical Response of Aluminosilicate Nanotubes under Compression, *Journal of Physical Chemistry C*, 120, 14428-14434, 2016. (doi: 10.1021/acs.jpcc.6b04564)
16. **D. Pasten, F. Torres, B. Toledo, V. Munoz, J. Rogan, J. A. Valdivia**, Time-based analysis before and after the Mw8.3 Illapel earthquake 2015 Chile, *Pure and Applied Geophysics*, 173, 2267–2275, 2016.
17. **M.A. Diaz, J.C. Zagal, C. Falcon, M. Stepanova, J.A. Valdivia, M. Martinez-Ledesma, J Diaz a, F.R. Jaramillo, N. Romanova. E. Pacheco, M. Milla, M Orchard, J Silva, F.P. Mena**, New opportunities offered by Cubesats for space research in Latin America: the SUCHAI project case, *Adv. Space. Res*, 58, 2134-2147, 2016 (Doi: 10.1016/j.asr.2016.06.012)
18. **J. A. Valdivia, B. A. Toledo, N. Gallo, V. Munoz, J. Rogan, M. Stepanova, P. S. Moya, R. E. Navarro, A. Vinas, J. Araneda, R. A. Lopez, M. Diaz**, Magnetic Fluctuations in Anisotropic Space Plasmas: the effect of the plasma environment, *Adv. Space. Res*, 58, 2126-2133, 2016. (doi:10.1016/j.asr.2016.04.017).
19. **P. D. Lemoine, J. M. Cordovez, J. M. Zambrano, O. L. Sarmiento, J. D. Meisel, J. A. Valdivia, R. Zarama**, Using Agent Based Modelling to assess the Effect of Increased Bus Rapid Transit System Infrastructure on Walking for Transportation, *Preventive Medicine*, 88, 39-45, 2016 (doi: 10.1016/j.ypmed.2016.03.015).
20. **M. Stepanova, J. A. Valdivia**, Contribution of Latin-American scientists to the study of the magnetosphere of the Earth. A Review, *Adv. Space. Res*, 58, 1968-1985, 2016 (doi: 10.1016/j.asr.2016.03.023)
21. **J. D. Meisel, O. Sarmiento, C. Olaya, J. A. Valdivia, R. Zarama**, A system dynamics model of the nutritional stages of the Colombian population, Published in *Kybernetes*, 45. 554-570, 2016 (doi: https://doi.org/10.1108/K-01-2015-0010)
22. **M. Ramírez, J. Rogan, J. A. Valdivia, A. Varas, M. Kiwi**, Diversity characterization of binary clusters by means of a generalized distance, *Z. Phys. Chem.*, 230, 977-989, 2016
23. **F. Castillo, B. A. Toledo, V. Munoz, J. Rogan, R. Zarama, M. Kiwi, J. A. Valdivia**, Temporal and spatial disorder during jamming in a city traffic model, *Journal of Cellular Automata*, 11, 381-398, 2016
24. **F. Torres, J. Rogan, M. Kiwi, Juan A. Valdivia**, Topological Phase Transition of a Fractal Spin System: the relevance of the network complexity, *AIP Advances*, 6, 055703, 2016 (doi: 10.1063/1.49428262016)
25. **F. Munoz, A. Varas, J. Rogan, J. A. Valdivia, M. Kiwi**, Au₁₃-n Ag_n Clusters: A Remarkable Simple Trend, *Physical Chemistry Chemical Physics*, 17, 30492-30498, 2015
26. **R. A. Lopez, V. Munoz, A. F. Vinas, J. A. Valdivia**, Propagation of localized structures in relativistic magnetized electron-positron plasmas using particle-in-cell simulations, *Phys. of Plasmas*, 22, 092115, 2015 (doi: <http://dx.doi.org/10.1063/1.4930266>)
27. **R. A. Lopez, R. E. Navarro, P. S. Moya, A. F. Vinas, J. A. Araneda, V. Munoz, J. A. Valdivia**, Spontaneous Electromagnetic Fluctuations in a Relativistic Magnetized Electron-Positron Plasma, *Astrophys. J.*, 810, 103, 2015 (doi:doi:10.1088/0004-637X/810/2/103)

28. **A. F. Viñas, P. S. Moya, R. E. Navarro, J. A. Valdivia, J. A. Araneda, V. Muñoz**, Electromagnetic Fluctuations of the Whistler Cyclotron and Firehose Instabilities in a Maxwellian and Tsallis-kappa-like Plasma, *J. Geophys. Res.*, 120, 3307-3317, 2015 (doi: 10.1002/2014JA020554)
29. **J. Villalobos, V. Muñoz, J. Rogan, R. Zarama, J. F. Penagos, B. Toledo, J. A. Valdivia**, Modeling a bus through a sequence of traffic lights, *Chaos*, 25, 073117, 2015. (doi: <http://dx.doi.org/10.1063/1.4926669>)
30. **R. E. Navarro, V. Muñoz, J. Araneda, A. F. Vinas, P. S. Moya, J. A. Valdivia**, Magnetic Alfvén-Cyclotron Fluctuations of Anisotropic Non-Thermal Plasmas, *J. Geophys. Res.*, 120, 2382-2396, 2015
31. **C. Armaza, A. Reisenegger, J. A. Valdivia**, On Magnetic Equilibria in Barotropic Stars, *Astrophys. J.*, 802, 121, 2015
32. **J. Clark, M. Kiwi, F. Torres, J. Rogan, J. A. Valdivia**, Generalization of the urn of Ehrenfest over a complex network, *Phys. Rev. E*, 92, 012103, 2015 (doi: <http://dx.doi.org/10.1103/PhysRevE.92.012103>)
33. **J.P. Mitchell, J. Braithwaite, A. Reisenegger, H. Spruit, J.A. Valdivia, N. Langer**, Instability of Magnetic Equilibria in Barotropic Stars, *Mon. Not. R. Astron. Soc.*, 447, 1213, 2015
34. **R. Gonzalez, R. Ramirez, J. Rogan, J.A. Valdivia, F. Muñoz, F. Valencia, M. Ramirez, M. Kiwi**, A Model for Self-Rolling of an Aluminosilicate Sheet into a Single Walled Imogolite Nanotube, *Journal of Physical Chemistry*, 118, 28227-28233, 2014
35. **P. Marchant, A. Reisenegger, J. A. Valdivia, J. Hoyos**, Stability of Hall Equilibria in Neutron Star Crusts, *Astrophys. J.*, 796, 94, 2014
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150. **G. Milikh, K. Papadopoulos, J. A. Valdivia**, On the Structure of the Red Sprites: Lightning as a Fractal Antenna, Proceedings of Air Force Office of Scientific Research and Phillips Laboratory, Workshop on Sprites and Blue Jets, p. 317, 1995
151. **S. Sharma, J. A. Valdivia**, Low Dimensional Dynamics and Prediction of Substorms, *Proceedings of the 2nd International conference on Substorms*, p. 467, 1994

CONFERENCES

2018 (July) 22nd World Multi-Conference on Systemics, Cybernetics and Informatics, Orlando, USA
2018 (June) International School and Conference on Network Sciences (NetSci 2018), Paris, France
2018 (July) 42nd COSPAR Scientific Assembly, Pasadena, USA
2018 (March) Chapman Conference on Particle Dynamics in the Earth's Radiation Belts, Cascais, Portugal

2017 (November) The Magnetosphere: New tools, New Thinking, New results, Puerto Varas, Chile
2017 (November) XV Latin American Workshop on Nonlinear Phenomena (LAWNP), La Serena, Chile
2017 (October) Imogolite 2017, Puerto Varas, Chile
2017 (September) *Space Weather: A Multi-Disciplinary Approach*, Leiden, Netherlands
2017 (June) International School and Conference on Network Science, Indiana, USA
2017 (May) Advancing Plasma Physics from the Sun to the Earth, Breckinridge, USA
2017 (April) 8th International Conf. on Frontiers of Plasma Physics and Technology, Valparaiso, Chile
2017 (March) Nonlinear wave and chaos workshop (NWCW-10), La Jolla, USA

2016 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2016 (November) IX Seminario Intensivo de materia condensada y Física estadística, Pucon, Chile
2015 (November) XX Simposio Chileno de Física, Santiago, Chile
2016 (October) Global modelling of the space weather chain, Espoo, Finland
2016 (October) XV Latin American Regional IAU Meeting 2016, Cartagena, Colombia
2016 (August) Symposium: Molecular dynamics of materials from assembly to fracture, Philadelphia, USA
2016 (July) 41st COSPAR Scientific Assembly, Istanbul, Turkey,
2016 (Julio) Summer School: Conectando a los mejores para la Educación, Bogota, Colombia
2016 (June) 18th International Congress on Plasma Physics (ICPP 2016), Kaohsiung, Taiwan

2015, (December) XIV Instabilities and Nonequilibrium Structures, Viña del Mar, Chile
2015 (November) 22nd Latin American Symposium on Solid State Physics, Puerto Varas, Chile
2015 (September) Mechanics of the Magnetosphere, Scarborough, United Kingdom
2015 (September) VII Chile-Mexico Workshop on Magnetism, Nanoscience and Applications, Arica, Chile
2015 (September) Graphita 2015, Bologna, Italy
2015 (August) LAMMPS Users' Workshop and Symposium, Albuquerque, New Mexico, USA.
2015 (August) 12th Annual Asia Oceania Geosciences Society Meeting, Singapore
2015 (June) GEM 2015 Summer Workshop, Snowmass, USA
2015 (June) Peace Construction from Interdisciplinary Focus, Bogota, Colombia
2015 (May) Joint Assembly of the American Geophysical Union, Montreal, Canada
2015 (March) XII annual meeting of the Chilean Astronomical Society (SOCHIAS), Puerto Varas, Chile

2014 (November) XIX Simposio Chileno de Física 2014, Concepcion, Chile
2014 (November) III Dynamics Days South America, Vina del mar, Chile
2014 (September) 17th International Congress on Plasma Physics (ICPP 2014), Lisbon, Portugal,
2014 (September) SCOSTEP/ISWI International Space Science School (ISSS), Lima, Peru
2014 (September) 10th Latin American Conference on Space Geophysics, Cuzco, Peru
2014 (July) Pan American Materials Conference 2014, Sao Paulo, Brasil
2014 (January) 15th Latin-American Workshop on Plasma Physics (LAWPP), San José, Costa Rica

2013 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2013 (December) 14th Workshop on instabilities and nonequilibrium structures, Vina del mar, Chile
2013 (November) Santa Fe institute Complex System Summer School Chile, Zapallar, Chile
2013 (October) Mechanics of the Magnetosphere, Torres del Paine, Chile
2013 (September) 6th International conference on fractals and dynamic system in geoscience, Perugia, Italy
2013 (August) Magnetic Fields Through Stellar Evolution, Biarritz, France
2013 (July) 14th International Society of Scientometrics and Infometrics Conference, Viena, Austria
2013 (June) Nanoscience Conference, Easter Island, Chile
2013 (March) Nonlinear wave and chaos workshop (NWCW-9), La Jolla, USA
2013 (February) Magnetic Fields in the Universe IV, Playa del Carmen, Mexico

2012 (December) 26th Texas Symposium on Relativistic Astrophysics, Sao Paulo, Brazil

- 2012 (December) XVIII Conference on Non Equil. Stat. Mech. and Non. Physics, Santiago, Chile
2012 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2012 (November) XVIII Simposio Chileno de Física, La Serena, Chile
2012 (November) Dynamic Days South America 2012, Cartagena, Colombia
2012 (October) Sochias 2012, Vina del Mar, Chile
2012 (July) 39th COSPAR Scientific Assembly, Mysore, India
2012 (July) International Congress on Plasma Physics, Stockholm, Sweden,
2012 (July) Compstar: The physics and astrophysics of compact objects, Papeete, French Polynesia
2012 (May) Magnetic fields in Massive Stars and their Compact remnants, Santiago, Chile
2012 (January) Workshop on Stellar Magnetism and Neutron Stars, Santiago, Chile
- 2011 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2011 (November) XIV Latin-American Workshop on Plasma Physics (LAWPP), Mar del Plata, Argentina
2011 (November) Solidos 2011, San Miguel de Tucumán, Argentina
2011 (June) International Astrophysics Forum Alpbach, IAFA 2011, Tirol, Austria
2011 (April) Advanced School of Space Environment, Punta Leona, Puntarenas, Costa Rica
2011 (April) IX COLAGE, Punta Leona, Puntarenas, Costa Rica
- 2010 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2010 (November) XVII Simposio Chileno de Física, Pucon, Chile
2010 (September) XXX Dynamics Days Europe, Bristol, United Kingdom
2010 (August) The Meeting of the Americas, American Geophysical Union, Foz de Iguacu, Brasil
2010 (August) International Congress on Plasma Physics, Santiago, Chile
2010 (August) Latinoamerican Workshop in Plasmas LAWP, Santiago, Chile
2010 (July) Dynamics Days South America 2010, Sao Jose dos Campos, Brasil
2010 (June) 6th International Conference on Theory and Molecular Clusters, Mexico City, Mexico
2010 (May) II Congreso Int. de Formacion y Modelacion en Ciencias Basicas, Medellin, Colombia
- 2009 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
2009 (December) 12th workshop on instabilities and non equilibrium structures., Vina del Mar, Chile
2009 (November) Solidos 2009, Valparaiso, Chile
2009 (October) International Living With a Star 2009, Ubatuba, Sao Paulo, Brasil
2009 (July) The 9th International School for Space Simulations, Paris. France.
2009 (June) Modern Challenges in Nonlinear Plasma Physics, Halkidiki, Greece
2009 (January) The Nonlinear Magnetosphere, Viña del Mar, Chile
2009 (January) Latin American School on Computational Materials Science, Santiago Chile.
- 2008 (November) XVI Simposio Chileno de Física de la Sociedad Chilena de Física, Valparaíso, Chile.
2008 (October) Informs Annual Meeting. Washington D.C, USA
- 2007 (November) 50a Reunión Anual de la Soc. de Biología. de Chile, Pucon, Chile
2007 (October) The World Space Environment Forum 2007, Bibliotheca Alexandrina, Egypt
2007 (August) 40 Years of Pulsars, McGill, Montreal, Canada
2007 (July) 4th annual meeting of the Asia Oceania Geoscience Society, Bangkok, Thailand
2007 (July) Dynamics Days Europe 2007, Loughborough University, England
2007 (June) PASI 2007 Electronic Structure and Excitations on Nanostructures, Zacatecas, Mexico
2007 (March) 51st Annual Meeting of the Biological Society, Baltimore, USA
2007 (March) American Physical Society, March Meeting, Denver, USA
- 2006 (December) XXIII Texas Symposium on Relativistic Astrophysics, Melbourne, Australia
2006 (November) 5ta Reunion Anual de la Sociedad Chile de Astronomia, La Serena, Chile
2006 (November) XV Reunion de la Sociedad Chilena de Física, Santiago, Chile
2006 (August) V Jornada de Mecánica Computacional, Concepcion, Chile
- 2005 (September) 2005 Complexity, Science & Society Conference, Liverpool, England
2005 (June) Workshop on Economic Heterogeneous Interacting Agents, WEHIA 2005, Essex, England
2005 (May) World Space Environment Forum - WSEF2005, Schloss Seggau, Austria

- 2004 (March) First Latin American Advanced School on Space Environment, Brasil
- 2003 (December), Fall Meeting American Geophysical Union, San Francisco, CA, USA
- 2002 (July), International Conference on Plasma Physics 2002, Sydney Australia
2002 (July) World Space Environment Forum - WSEF2002 Adelaide, Australia
2002 (July) Workshop on High Performance Computing in Space Environment Research - Adelaide, Australia
- 2001 (December), Fall Meeting American Geophysical Union, San Francisco, CA, USA
2001 (October) VI Conferencia Latinoamericana de Geofísica Espacial, Tome, Chile
2001 (May) Spring American Geophysical Union Meeting, USA
- 2000 December, Fall Meeting American Geophysical Union, San Francisco, CA, USA
2000 (November) XII Simposio Chileno de Física, Santiago, Chile
- 1999 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1999 (July) International Union of Geodesy and Geophysics (IUGG), Birmingham, England
1999 (May) Spring Meeting American Geophysical Union, USA
1999 (March) ISTP Science Workshop, Greenbelt, MD, USA
1999, (January) The National Radio Science Meeting, Boulder, CO, USA
- 1998 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1998 (June) Cambridge Symposium Workshop on Physics of Space Plasmas, Cascais, Portugal
1998 (May) Spring Meeting American Geophysical Union, USA
1998 (March) ICS-4 Substorm conference, Hamamatsu, Japan
- 1997 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1997 (November) ISTP Science Workshop, Greenbelt, MD, USA
1997 (May) Spring Meeting American Geophysical Union, USA
1997 (April) GEM Workshops, Snowmass, CO, USA
- 1996 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1996 (May) Spring Meeting American Geophysical Union, USA
1996 (April) Ionospheric modification Workshop, Santa Fe, NM, USA
1996 (January) Dynamic Days, USA
- 1995 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1995 (June) International Workshop on Measures of Spatio-Temporal Dynamics, Bryn Mawr, PA, USA
1995 (May) Spring Meeting American Geophysical Union, USA
- 1994 (May) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1994 (November) American Physical Society, Division of Plasma Physics, USA
1994 (December) Spring Meeting American Geophysical Union, USA
- 1993 (December) Fall Meeting American Geophysical Union, San Francisco, CA, USA
1993 (November) American Physical Society, Division of Plasma Physics, USA