
CV
Sergio J. Rojas

PRESENT ADDRESS

Departamento de Física
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EDUCATION

- **Ph.D. Physics.** *The City College of the City University of New York*, New York, NY, USA. **May 1, 1998.**

Performed research on Classically Disordered Systems, Computational Fluid Dynamics, and Fluid Flow in Porous Media. Some work was done on the discretization of the Navier-Stokes equations via Finite Element methodology.

- **M.S. Computational Finance.** *Oregon Graduate Institute of Science and Technology*, Beaverton, OR, USA. **February 21, 2001.**

Interested on the applications of Non-linear Dynamics, Time Series Analysis, Statistical Methods, and Numerical Simulation Methods in Financial Modeling, Quantitative Financial Risk Analysis, and Derivatives pricing.

- **B.Sc. Physics.** *Universidad de Oriente*, Cumaná, Estado Sucre, **April 26, 1991.**

Performed research on General Relativity and its applications to the study of the radiation patterns emitted by spherical symmetric massive bodies.

PROFESSIONAL EXPERIENCE

- **Associate Professor and Researcher.** *Physics Department, Universidad Simón Bolívar*, Valle de Sartenejas, Baruta, Estado Miranda, Venezuela. **April 2004-present.**

Performing teaching and research activities (<http://caos.fs.usb.ve/~srojas/>).

- **Associate Researcher.** *Centro Nacional de Cálculo Científico, Universidad de los Andes*, Mérida, Estado Mérida, Venezuela. **Nov 2002-Feb 2004.**

Worked on activities (research, teaching, helping others, etc.) related on the use of High Performance Computing (Parallel Computing) to solve Scientific and Engineering problems.

- **Assistant Professor and Researcher.** *Physics Department, Núcleo de Sucre, Universidad de Oriente*, Cumaná, Estado Sucre, Venezuela. **Oct 2001-Nov 2002.**

Taught (http://www.geocities.com/rr_sergio/Teaching/Teaching.html) *Electrodynamics* for Physicist. I was involved in several research projects dealing with the application of *Statistical Mechanics* and *Fluid Dynamics* to the analysis of *Fluid Flow in Porous Materials*. I also worked on the development of codes to find numerical solution of Partial Differential Equations. Research on Mimetic Methods was performed.

- **Executive Director.** *Fundación para el Desarrollo de la Ciencia y la Tecnología del Estado Sucre (FUNDACITE-SUCRE)*, Cumaná, Estado Sucre, Venezuela. **Jun 2001 - Oct 2001.**

Performed activities related to Human Resources Management. In addition, much time was devoted in the planning and execution of activities and strategies leading to the advancement of Science and Technology in the region.

- **Teaching Assistant.** *Oregon Graduate Institute of Science and Technology*, Beaverton, Oregon, USA. **Oct 2000 - Dec 2000.**

Course: Principles of Modern Finance.

Graded assignments; assisted in obtaining and preparing lecture materials, homework and solutions; Built and maintained course web site (<http://www.cse.ogi.edu/class/cse570/>).

- **Oil Reservoir Simulation Researcher.** *PDVSA-INTEVEP, S.A. (Research and Technological Support Center of petróleo de Venezuela, S.A.)*, Caracas, Venezuela. **Jan 1998- Dec 1999.**

Researched the Physics of Fluid Flow in Oil Reservoirs, with particular emphasis on the governing equations and their respective discretization according to Finite Element analysis. In addition, field activities related to Reservoir Engineering were performed.

- **Research Assistant.** *The Levich Institute of The City College Of New York*, New York, New York, USA. **Jun 1997- Dec 1997.**

Researched and performed Computer Simulations of Classically Disordered Systems and Fluid Dynamics with applications to Fluid Flow in Porous Media.

- **Teaching Assistant.** *The City College of The City University of New York*, New York, New York, USA. **Sep 1995 - Dec 1997.**

Courses: Conceptual Physics for Teachers (Recitation Lecture), Physics for BIO-MED and Biology (Laboratory Assistant), Physics for Engineering and Computer Science (Recitation Lecture).

- **Seismologist's Assistant.** *Sismica de Venezuela, S.A.*, El Tigre, Estado Anzoátegui, Venezuela. **Feb 1991 - Sep 1991.**

Analyzed seismic data using the software SeisQ.

- **Teaching Assistant.** *Universidad de Oriente*, Cumaná, Estado Sucre, Venezuela. **Jan 1987 - Dec 1990.**

Course: Introductory Physics for Scientist and Engineers (Recitation Lecture).

RESEARCH ACCOMPLISHMENTS

- Gandica, Y., Castillo-Mussot, M., Vázquez, G. J., and **Rojas, S.** (2010). Continuous opinion model in small world directed networks. *Physica A*. Accepted for publication. Available at [<http://dx.doi.org/10.1016/j.physa.2010.08.025>]
- **Rojas, S.** (2010). On the teaching and learning of physics problem solving. *Rev. Mex. Fís.*, **56**, 22-28. Available at [http://rmf.fciencias.unam.mx/pdf/rmf-e/56/1/56_1_022.pdf]
- **Rojas, S.** (2010). Comment on ‘The centre of mass of a triangular plate’ by V Slisarenko et al Eur. J. Phys. 29 (2008) 1177-82. *Eur. J. Phys*, **31**, L39 - L39. Available at [<http://dx.doi.org/10.1088/0143-0807/31/2/N02>].
- **Rojas, S.** (2009). Repeated Problem Solving Revisited *Am. J. Phys*, **77**, 487 - 488. Available at [<http://dx.doi.org/10.1119/1.3098259>].
- **Rojas, S.** (2009). An approach to enhance the teaching of undergraduate engineering introductory physics courses. Proceedings of The Seventh Latin American and Caribbean Conference for Engineering and Technology (LACCEI 2009), p. WE1-1. Available at [<http://caos.fs.usb.ve/~srojas/Teaching/InternetLearning.html>].
- Rangel, R. and **Rojas, S.** (2009). Montecarlo DLA-type simulations of wetting effects in fluid displacement in porous media. *Computational Geosciences*, **13**, 215-225. Available at [<http://dx.doi.org/10.1007/s10596-008-9110-1>].
- **Rojas, S.** and Guevara-Jordan, J.M. (2008). On Second Order Mimetic and Conservative Finite Difference Discretization Schemes. *Rev. Mex. Fís. E*, **54**, 141-145. Available at [http://rmf.fciencias.unam.mx/pdf/rmf-e/54/2/54_2_141.pdf]
- **Rojas, S.**, Candanoza, C., and Guevara-Jordan, J.M. (2008). Procesamiento de señales vía Análisis de Componentes Independientes. Memorias del *IX International Congress of Numerical Methods in Engineering and Applied Sciences* (CIMENICS 2008) publicadas en *Desarrollo y Avances en Métodos Numéricos para Ingeniería y Ciencias Aplicadas* [L. Martino, V. Carrera, G. Larrazabal, M. Cerrolaza (Editors)] ISBN: 978-980-7161-00-8. PS-21:26.
- **Rojas, S.** (2008). On the need to enhance physical insight via mathematical reasoning. *Rev. Mex. Fís. E*, **54**, 75-80. Available at [http://rmf.fciencias.unam.mx/pdf/rmf-e/54/1/54_1_075.pdf]
- Valdeblánquez, E., **Rojas, S.** and Martín, P. (2008). On Teaching Neumann Green’s Functions. *CIENCIA*, **16**, 215 - 219.
- **Rojas, S.** and Guevara-Jordan, J.M. (2007). Solving Boundary-Layer like Problems by a New Second Order Conservative Discretization Scheme. To appear in *CIENCIA*.

- **Rojas, S.** and Guevara-Jordan, J.M. (2007). A new second order mimetic finite difference scheme to tackle boundary layers-like problems. Proceedings of The Fifth International Conference on Fluid Mechanics, Shanghai, China, “*New Trends in Fluid Mechanics Research*. Editors F. G. Zhuang and J. C. Li (Springer and Tsinghua University Press)”. Vol. . pp. 730 - 733.
- Guevara-Jordan, J.M., **Rojas, S.**, Freites-Villegas, M. and Castillo, J. E. (2007). Convergence of a Mimetic Finite Difference Method for Static Diffusion Equation. *ADVANCES IN DIFFERENCE EQUATIONS*, **2007**, 12303:1-12. Available at [<http://www.hindawi.com/GetArticle.aspx?doi=10.1155/2007/12303>].
- Rangel, R. and **Rojas, S.** (2007). Montecarlo DLA type simulation of non-wetting (drainage) stable displacement in porous media. *CIENCIA*, **15**, 242 - 247.
- Rangel, R. and **Rojas, S.** (2007). Efectos de la mojabilidad o adherencia en el desplazamiento inestable entre dos fluidos miscibles en un medio poroso vía simulación Monte Carlo DLA. *CIENCIA*, **15**, 77 - 84.
- **Rojas, S.** (2006). Trinomial (finite Bethe) trees and the numerican pricing of American-style options. “*Simulación y Modelado en Ingeniería y Ciencias*. Editores: B. Gámez, D. Ojeda, G. Larrazábal, M. Cerrolaza, ISBN: 980-00-2315-1”, pp. VA-27:33.
- **Rojas, S.** and Guevara-Jordan, J.M. (2006). Solving Diffusion problems on non-uniform grids via a Second Order Mimetic Discretization Scheme. “*Simulación y Modelado en Ingeniería y Ciencias*. Editores: B. Gámez, D. Ojeda, G. Larrazábal, M. Cerrolaza, ISBN: 980-00-2315-1”, pp. TM-17:23.
- Guevara-Jordan, J. M. and **Rojas, S.** (2006). On a Second Order Mimetic Discretization Scheme for Boundary-Layer Problems. “*Simulación y Modelado en Ingeniería y Ciencias*. Editores: B. Gámez, D. Ojeda, G. Larrazábal, M. Cerrolaza, ISBN: 980-00-2315-1”, pp. TM-33:39.
- Escalante, E., Echeverria, C., Guillén, P., **Rojas, S.**, and Colmenares, P. J. (2006). Estudio del rendimiento de la técnica DPD utilizando estrategias en arquitecturas paralelas. *Rev. Mex. Fís*, S **52** (3) 45 - 47. Available at [http://rmf.fciencias.unam.mx/pdf/rmf-s/52/3/52_3_045.pdf]
- Guevara-Jordan, J.M., **Rojas, S.**, Freites-Villegas, M. and Castillo, J.E. (2005). A New Second Order Finite Difference Conservative Scheme. “*Divulgaciones Matemáticas*”, **13** (2), 107 - 122.
- **Rojas, S.**, Castillo, J., Guevara, J., and Castillo, S. (2004). A Comparative Numerical Study of Two Mimetic Finite Differences Methods for Solving the Steady Diffusion Equation with Rough Coefficients on Non-Uniform Grids. In “*Simulación Numérica y Modelaje Computacional*”. Edited by Rojo, J., Torres, M.J., and Cerrolaza, M. (ISBN:980-6745-00-0). TM1.

- Freites-Villegas, M., Guevara-Jordan, J.M., Rojas, O.R., Castillo, J.E., and **Rojas, S.** (2004). A Mimetic Finite Difference Scheme for Solving the Steady State Diffusion Equation with Singular Functions. In “*Simulación Numérica y Modelaje Computacional*”. Edited by Rojo, J., Torres, M.J., and Cerrolaza, M. (ISBN:980-6745-00-0). TM25.
- **Rojas, S.** and Guevara-Jordan, J.M. (2004). Modeling Porous Media Flow Using The Method of Fundamental Solution. In “*Proceedings of THE SIXTH CARIBBEAN CONFERENCE ON FLUID DYNAMICS*”, St Augustine, Trinidad & Tobago, West Indies, January 21-23, 2004.
- Guevara-Jordan, J.M., and **Rojas, S.** (2003). A Method of Fundamental Solution for Modeling Porous Media Advective Fluid Flow. *Applied Numerical Mathematics*, **47**, 449-465.
- **Rojas, S.** and Moody, J. (2001). Cross-sectional analysis of the returns of iShares MSCI Index Funds using Independent Component Analysis. *OGI CSE610 internal report*, Oregon Graduate Institute of Science and Technology.
- **Rojas, S.** and Koplik, J. (1998). Non-linear Flow in Porous Media. *Phys. Rev. E.*, **58**(4), 4776.
- **Rojas, S.** (1998). Non-linear Flow in Porous Media, **Physics Ph.D. Dissertation**, The City University of New York, USA.
- Barreto, W. and **Rojas, S.** (1992), An Equation of State for Radiating Dissipative Spheres in General Relativity. *Astrophys. and Space Sci.*, **193**(2), 201.
- **Rojas, S.** (1991). Distribuciones de Materia Esféricas, Disipativas y Radiantes en Relatividad General, **Physics B.Sc. Dissertation**, Universidad de Oriente, Venezuela.

CONFERENCE PRESENTATIONS

- **Rojas, S.** (2009) “*Physics problem-solving revisited*”. Presentado en *VII Congreso de la Sociedad Venezolana de Física, 7-11 Diciembre, 2009, Caracas, Venezuela* [<http://amazona.ciens.ucv.ve/svf/>].
- **Rojas, S.** (2009) “*An approach to enhance the teaching of undergraduate engineering introductory physics courses*”. Presentado en *The Seventh Latin American and Caribbean Conference for Engineering and Technology (LACCEI 2009)*, 2-5 Junio, 2009, San Cristóbal, Venezuela [http://www.laccei.org/LACCEI_SanCristobalVE2009.htm].
- **Rojas, S.** (2009) “*Time Series Processing via Independent Component Analysis and Financial Asset Allocation*”. Presentado en *IV Meeting on Dynamics of Social and Economic Systems (DYSES 2009)*, 14-18 Abril, 2009, Pinamar, Argentina [<http://www.dyses.org.ar/dyses-2009.htm>].

- **Rojas, S.** (2009) “*Consideraciones sobre el Proceso Enseñanza-Aprendizaje vía Internet*”. Presentado en **I Jornada Tecnológica Reflexiva Sobre E-Learning y su Aplicabilidad en Gerenciar el Aprendizaje**, 30-31 de Marzo, Tucupita, Estado Delta Amacuro, Venezuela.
- **Rojas, S.**, Candanoza, C., and Guevara-Jordan, J.M. (2008): “*Procesamiento de señales vía Análisis de Componentes Independientes*”, presentado en el **IX International Congress of Numerical Methods in Engineering and Applied Sciences (CIMENICS 2008)**, Isla Margarita, Venezuela, (Marzo 31 - Abril 4) [<http://www.cimenics.org.ve/>].
- Rangel, R. and **Rojas, S.** (2008): “*Stochastic Modeling of fluid displacement in porous media*”. Ponencia invitada presentada en el **VI Congreso de la Sociedad Venezolana de Física**, Universidad de Los Andes, Mérida, Edo. Mérida, Venezuela, (Marzo 2-9).
- **Rojas, S.** and Guevara-Jordan, J.M. (2007): Oral presentation “*A new second order mimetic finite difference scheme to tackle boundary layers-like problems*”, presented at the **The Fifth International Conference on Fluid Mechanics** Shanghai, China, August 15-19, 2007 [<http://icfm5.sjtu.edu.cn/>].
- **Rojas, S.** (2007): Invited presentation “*Análisis de Componentes Independientes en Finanzas*”, presented at the **Foro Venezuela 2007: Aportes de la ciencia de la complejidad en las ciencias sociales y la economía**. Universidad Central de Venezuela, Facultad de Ciencias Económicas y Sociales, Caracas, Venezuela. 3-4 Julio 2007.
- **Rojas, S.** (2006): Invited presentation “*Financial Engineering via Methods of Statistical Mechanics*”, presented at the **VI Jornadas de Investigación UNEXPO 2006: Universidad Ciencia y Tecnología**, Puerto Ordaz, Venezuela (Dic 7-8).
- Candanoza, C. **Rojas, S.** (2006): “*Signal processing via Independent Component Analysis*”. Presented at the **LVI Convención Anual de AsoVAC**, Cumaná, Edo. Sucre, Venezuela (Nov 19-24).
- **Rojas, S.** (2006): Invited presentation “*Multinomial (finite Bethe) trees and the numerical pricing of American-style options*”, presented at the **International Congress on the Applications of Mathematics (ICAM 2006)**, Universidad de Chile, Santiago de Chile, Chile, (Mar 13-17).
- **Rojas, S.** and Guevara-Jordan, J.(2005): “*Solving Boundary-Layer like Problems by a New Second Order Conservative Discretization Scheme*”. Presented at the **V Congreso de la Sociedad Venezolana de Física**, Universidad del Zulia, Núcleo de Punto Fijo, Edo. Falcón, Venezuela, (Nov 28- Dic 2).
- Rangel, R. and **Rojas, S.** (2005): “*Statistical pore modeling of wetting effects in immiscible fluid-fluid unstable displacement in porous media using Montecarlo DLA-like simulations of fluid dynamics*”. Presented at the **V Congreso de la Sociedad Venezolana de Física**, Universidad del Zulia, Núcleo de Punto Fijo, Edo. Falcón, Venezuela, (Nov 28- Dic 2).

- Rangel, R. and **Rojas, S.** (2005): “*Montecarlo Simulation of non-wetting stable displacement in porous media*”. Presented at the **V Congreso de la Sociedad Venezolana de Física**, Universidad del Zulia, Núcleo de Punto Fijo, Edo. Falcón, Venezuela, (Nov 28- Dic 2).
- Valdeblánquez, E., **Rojas, S.** and Martín, P. (2005): “*On Teaching Neumann Green’s Functions*”. Presented at the **V Congreso de la Sociedad Venezolana de Física**, Universidad del Zulia, Núcleo de Punto Fijo, Edo. Falcón, Venezuela, (Nov 28- Dic 2).
- **Rojas, S.**, Guevara, J-M., Castillo, J. E. (2005): “*Effect of a Non-Uniform Grid on the Convergence and Accuracy of a Second Order Mimetic Finite Difference Scheme*”. Presented at the **I Jornada Internacional de Simulación Numérico Computacional**, Universidad Centroccidental Lisandro Alvarado (UCLA), Barquisimeto, Venezuela, (Apr 4-6).
- Gandica, Y.; Guerrero, L. E; Reyes, L.; **Rojas, S** (2005): “*Diagnóstico de determinismo y aleatoriedad en series temporales*”. Presentado en **Escuela y Taller Interdisciplinario de Sistemas Complejos**, Isla de Margarita, Venezuela, (Apr 3-6).
- **Rojas, S.** (2004): Invited presentation “*Flow Through Porous Media and Applications to Reservoir Fluids*”, presented at the **Centro de Física del Instituto Venezolano de Investigaciones Científicas (IVIC)**, Venezuela, (Nov 11).
- **Rojas, S.**, Guevara, J-M., Castillo, J. E. (2004): “*Numerical Results Comparing Mimetic Finite Difference Methods on Problems Involving the Solutions of the Steady Diffusion Equation with Rough Coefficients on Non-uniform Grids*”. Presented at the **V PanAmerican Workshop in Applied & Computational Mathematics**, Universidad Autónoma de Honduras, Tegucigalpa, Honduras, (Jun 21-25).
- **Rojas, S.** and Castillo, S. (2004): “*A numerical study comparing two second order mimetic discretization schemes*”. Presented at the **Second Venezuelan Workshop on Mimetic Discretizations**, Universidad de Carabobo, Valencia, Venezuela. (Apr 12-15).
- Escalante, E., Echeverria, C., Guillén, P., **Rojas, S.**, and Colmenares, P.J. (2003): “*Estudio del rendimiento de la técnica DPD utilizando estrategias en arquitecturas paralelas*”. Presented at the **IV Congreso de la Sociedad Venezolana de Física**, Isla de Margarita, Nueva Esparta, Venezuela, (Nov 24-28).
- **Rojas, S.** (2003): Invited presentation “*One Dimensional Mimetic Finite Difference Computations*”, presented at the **Mimetic Discretizations of Continuum Mechanics Conference**, San Diego State University, San Diego, CA, USA. (Julio 9-11).
- **Rojas, S.** (2003): Invited Seminar “*Mimetic Finite Difference Method for the Steady Diffusion Equation with Rough Coefficients*”, carried out at the **Postgrado de Matemática**

- Aplicada a la Ingeniería**, Universidad de Los Andes, Estado Mérida, Venezuela. (Mayo 19).
- **Rojas, S.** (2003): “*Mimetic Finite Difference Method for the Steady Diffusion Equation with Rough Coefficients*”. Minisymposia presented at the **2003 SIAM Conference on Computational Science and Engineering**, San Diego, CA, USA. (Feb 10-13).
 - **Rojas, S.** (2002): Invited presentation “*A Pot-Pourri of 1D Mimetic Computations*”. presented at the **Primeras Jornadas Venezolanas de Métodos de Discretización Miméticas en Mecánica de Medios Continuos**, Escuela de Matemáticas de la Facultad de Ciencias de la Universidad Central de Venezuela (UCV), Venezuela, (Sep 20-22).
 - **Rojas, S.** (2002): “*Mimetic Method: An example*”. Presented at the **IV Pan-American Workshop in Applied and Computational Mathematics**, Facultad de Matemática, Astronomía y Física (**FaMAF**), Universidad Nacional de Córdoba, Córdoba, Argentina, (Jul 1-5).
 - **Rojas, S.** (2002): Invited Seminar “**Applications of Principal Component Analysis (PCI) in Finance**”, carried out at the **Mathematics Department**, Universidad Central de Venezuela (UCV), Venezuela, (May).
 - **Rojas, S.** (1998): Invited Seminar “**Fundamentals of Fluid Flow in Porous Media**”, carried out at the “**II Jornadas de Investigación Básica Orientada en Exploración y Producción**”, held at PDVSA-INTEVEP, Venezuela, (Oct 1-2).
 - **Rojas, S.** (1998): Invited presentation “**Asymptotics in Porous Media Flow**”, presented at the “**School on Physical and Mathematical problems of Fluid Dynamics**”, held at the Universidad de Mérida, Mérida, Venezuela, (Jul 13-17).
 - **Rojas, S.** (1998): Invited presentation “**Non-linear flow in Porous Media**”, presented at the “**Venezuelan Institute of Scientific Research**”, Venezuela, (May).
 - **Rojas, S.** and Barreto, W. (1990): *Dissipation and Gravitational Collapse in Radiating Spheres*. Presented at the **XL Conference of the Venezuelan Association for the Advance of the Science (ASOVAC)**, Cumaná, Estado Sucre, Venezuela. (Jul).

PROJECTS UNDER DEVELOPMENT

- **Responsable:** Rojas, Sergio
Título del proyecto: Estudio Numérico sobre Medidas de Riesgo Financiero basadas en Value-at-Risk (VaR) y Métodos de la Física Estadística”.
Fecha de Inicio: Mayo 2008.
Financiamiento: Ley Orgánica de Ciencia, Tecnología e Innovación (LOCTI) de Venezuela.
Estado: en ejecución.

- **Responsable:** Rojas, Sergio.
Título del proyecto: "Interrelación entre física y matemática: apuntes en función de fortalecer el proceso enseñanza-aprendizaje en tópicos de física básica 1 y 2 en la USB".
Fecha de Inicio: Mayo 2008.
Fecha de Finalización: Diciembre 2009
Financiamiento: Decanato de Extensión y Desarrollo (DEX) de la USB.
Estado: Finalizado.
Reporte disponible en:
<http://caos.fs.usb.ve/~srojas/Teaching/TeachingLearning.html>
<http://prof.usb.ve/srojas/TeachingLearning.html>

FORMER UNDERGRADUATE STUDENT

- **Thesis Title:** Portafolios de inversión y *Análisis de Componentes Independientes* (ICA).
Student: Licenciada en Educación Claudia Candanoza Santos.
Obtained Degree: Licenciada en Matemáticas, Escuela de Matemáticas, Universidad Central de Venezuela.
Thesis presentation: July 18, 2008.

ATTENDED COURSES AND WORKSHOPS

- Attended the Workshop "**Management of the relations University-Industry**", Universidad de Alicante, Alicante, España, (**Nov 6-10, 2006**).
- Completed the on-line course "**Management of the relations University-Industry**", Universidad de Alicante, Alicante, España, (**May 22- Jul 30, 2006**).
- Attended and completed the course "**Strategies of Teaching and Learning at a Distance**", Universidad Simón Bolívar, Sartenejas, Venezuela, (**Jun, 2006**).
- Attended and completed the course "**Effective Teaching and Active Learning**", Universidad Simón Bolívar, Sartenejas, Venezuela, (**Jan 10- Mar 31, 2005**).
- Attended and completed the course "**Teaching Design and portfolio**", Universidad Simón Bolívar, Sartenejas, Venezuela, (**Nov 2004**).
- Attended the "**DOE ACTS COLLECTION WORKSHOP: Enabling Technologies for High-End Computer Simulations**", Lawrence Berkeley National Laboratory, Berkeley, California, USA. (**Aug 24-27,2004**).
- Attended and completed the course "**Hyperbolic Systems and Numerical Methods**", taught at the **I Pan-American Studies Institute in Computational Science and Engineering**, Facultad de Matemática, Astronomía y Física (**FaMAF**), Universidad Nacional de Córdoba, Córdoba, Argentina, **Jun 24-Jul 5, 2002**.
- Attended the Workshop "**National plan of Science, Technology, and Innovation**", Ministerio de Ciencia y Tecnología, Caracas, Venezuela,**Jul 17, 2001**.

- Attended and completed the course “**Techniques on the identification and formulation of projects within the *Logical Framework Methodology***” taught at FUNDACITE-GUAYANA, Ciudad Guayana, Venezuela, **Jul 14-15, 2001**.
- Attended and completed the course “**Fundamentals of Reservoir Simulation**”, taught at Stanford University, Stanford, California, USA, **Aug 2-6, 1999**.
- Attended the “**American Physical Society Centennial Meeting**”, Atlanta, Georgia, USA. **Mar 20-26, 1999**.
- Attended and completed the course “**Reservoir Simulation: Level I**”, taught at PDVSA-INTEVEP, Caracas, Venezuela. **Nov 2-6, 1998**.
- Attended and completed the course “**Reservoir Engineering: Level I**”, taught at PDVSA-CIED, San Tomé, Estado Anzoátegui, Venezuela, **Apr 20-24, 1998**.
- Attended the Workshop “**Introduction to Research in Physics**”, held at the “**Venezuelan Institute of Scientific Research**”, Venezuela, **Nov 12-16, 1990**.

SPECIAL TEACHING ACTIVITIES

- *Métodos de Mecánica Estadística con aplicaciones en Ingeniería de Finanzas* (http://caos.fs.usb.ve/~srojas/Curso_StatFin.html). I teach this course to Financial Engineers via the *Research and Development Foundation of the Universidad Simón Bolívar* (FUNINDES) (<http://www.funindes.org.ve/>). **September 2006 - present**.
- *Introducción a la Computación de Cluster con MPI y Aplicaciones*. In collaboration with Doctor Germán Larrazabal, we taught this course at the **I Escuela Venezolana de Simulación Numérico Computacional en Ingeniería y Ciencias Básicas** (EVESINCIC 2005), Universidad Centroccidental Lisandro Alvarado (UCLA), Barquisimeto, Venezuela. **March 28 - April 6, 2005**.
- *Introduction to Cluster Computing with MPI for Scientific and Engineering Applications*. In collaboration with Doctor Germán Larrazabal, we taught this course at the **Second Pan-American Advanced Studies Institute in Computational Science and Engineering**, Universidad Nacional Autónoma de Honduras, Tegucigalpa, Honduras. **June 13-25, 2004** (<http://www.sci.sdsu.edu/compsciwork/PASIII/indexPASI.II.htm>).
- *Parallel Numerical Computations Applied to Science and Engineering*. A graduate course taught in collaboration with Dr. Pablo Guillén at the **Graduate Programs of Applied Mathematics and Fundamental Physics** of the *Universidad de Los Andes*, Edo. Mérida, Venezuela.
Course web page: <http://caos.fs.usb.ve/~srojas/Numerical/num.res.html>
- *FORTRAN 90 Programming under UNIX Applied to Science and Engineering*. A graduate course taught in collaboration with Dr. Pablo Guillén, at the **Graduate Program of Applied Mathematics** of the *Universidad de Los Andes*, Edo. Mérida, Venezuela.

- ***Parallel Numerical Computations Applied to Science and Engineering.*** A short course taught in collaboration with Dr. Pablo Guillén and Dr. Germán Larrazabal at the **Physics Department** of the *Universidad del Zulia* Edo. Zulia, Venezuela. **June 24-27, 2003.**
- ***Introduction to Computational Fluid Dynamics.*** A short course taught at **The Department of Mathematics and Computer Science of the University of the West Indies**, St. Augustine, Trinidad. **Apr. 22-25, 2003.**

COMPUTATIONAL SKILLS

- **Programming Languages:** C++/C, Fortran 90/77.
- **Software/Computer Packages:** Matlab, Maple, Mathematica, Nekton/Fluent, L^AT_EX, S-Plus, Barra, Power Point, Excel.
- **Scripting Languages:** PERL, HTML, Unix shell programming.
- **Operating Systems:** Unix, Windows 98/NT.
- Skilled at using the Internet for research and creating WEB pages using CGI programming via PERL and HTML instructions.

HONORS

- **Cum Laude:** B.Sc. Physics, 1991.
- **Venezuelan Research Incentive Program (*PPI Level II*),** number 6466, (2008-presente).
- **Venezuelan Research Incentive Program (*PPI Level I*),** number 6466, (2005-2008).
- **Adviser** of the Undergraduate Thesis “*Inversion portfolios and Independent Component Analysis*” carried out by Br. Claudia Candanoza Santos, Mathematics Undergraduate student at the Universidad Central de Venezuela (June 2006-present).
- **Adjoint Faculty of *San Diego State University*** (2004-2005).
- **Main Referee** of the Undergraduate Thesis “*Determinism and Randomness in Time Series*” presented by Br. Yérali Gandica para optar al título de Licenciada en Física en la Universidad Simón Bolívar. **Feb 2005.**
- **Main Referee** of the Undergraduate Thesis “*Viscosity of an ideal gas in the Poiseuille transition regimen*” presented by Br. “*Viscosidad de un gas ideal en régimen de transición en la modalidad de flujo de Poiseuille*” presented por el Br. Urbaneja B., Carlos E. para optar a la Licenciatura en Física en la Universidad de Oriente, **Dic 2001.**
- **Fellowship:** Oregon Graduated Institute of Science and Technology, **2000.**
- **Memberships:**

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- **Institute of Physics.** Subscriber of the journals *Quantitative Finance*, *Physics Education*, and *Reports on Progress in Physics* .
 - **American Physical Society.** Subscriber of the journal *American Journal of Physics*.

LANGUAGES

- Fluent in Spanish (*Mother Tongue*).
- Fluent in English (reading, writing, listening, and speaking).

Sergio J. Rojas
September 3, 2010