CV
Sergio J. Rojas

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EDUCATION

- **Ph.D. Physics**. *The City College of the City University of New York*, New York, NY, USA. **February 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 emited by spherical symmetric massive bodies.

RESEARCH ACCOMPLISHMENTS

- **Guevara-Jordan, J.M., and Rojas, S.** (2003). A Method of Fundamental Solution for Modeling Porous Media Advective Fluid Flow. *Accepted for publication by SIAM Applied Numerical Mathematics Journal.*

- **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, **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, **B.Sc. Dissertation**, Universidad de Oriente, Venezuela.
- **Rojas, S., and Barreto, W.** *Disipación y Colapso Gravitacional en Esferas Radiantes*, Sección Física III, **XL Conferencia de la Asociación Venezolana para el Avance de la Ciencia (ASOVAC)**, Cumaná, Estado Sucre, Venezuela. **Julio, 1990**.

PROFESSIONAL EXPERIENCE

- **Associated Researcher**. *Centro Nacional de Cálculo Científico, Universidad de los Andes*, Mérida, Estado Mérida, Venezuela. **Nov 2002-Present**.

  Working 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**. *Departamento de Física, 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 petróleos de Venezuela, S.A.)*, Caracas, Venezuela. **Oct 1991-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, 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).

PRESENTATIONS

- **Rojas, S.**: "***Mimetic Finite Difference Method for the Steady Diffusion Equation with Rough Coefficients***". Minisymposia presentation at the **2003 SIAM Conference on Computational Science and Engineering**, San Diego, CA, USA. **Febrero 10-13, 2003**.

- **Rojas, S.**: "***Mimetic Method: An example***". Oral Presentation given 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, 2002**.

- Rojas, S.: "**Applications of Principal Component Analysis (PCI) in Finance**". Seminar given by invitation at the **Mathematics Department**, Universidad Central de Venezuela (UCV), Venezuela, **May, 2002**.

- **Rojas, S.**: "**Fundamentals of Fluid Flow in Porous Media**". Seminar given by invitation at the "**II Jornadas de Investigación Básica Orientada en Exploración y Producción**", held at PDVSA-INTEVEP, Venezuela, **Oct 1-2 1998**.

- **Rojas, S.**: "**Asymptotics in Porous Media Flow**". Invited presentation given at the "**School on Physical and Mathematical problems of Fluid Dynamics**", held at the Universidad de Mérida, Mérida, Venezuela, **Jul 13-17, 1998**.

- Rojas, S.: "**Non-linear flow in Porous Media**", a talk given by invitation at the "**Venezuelan Institute of Scientific Research**", Venezuela, **May 1998**.

- **Rojas, S., and Barreto, W.** *Dissipation and Gravitational Collapse in Radiating Spheres*, oral presentation at the **XL Conference of the Venezuelan Association for the Advance of the Science (ASOVAC)**, Cumaná, Estado Sucre, Venezuela. **Jul 1990**.

CONFERENCES, WORKSHOPS AND COURSES

- Attended 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**.

COMPUTATIONAL SKILLS

- **Programming Languages**: C++/C, Fortran 90/77.
- **Software/Computer Packages**: Matlab, Maple, Mathematica, Nekton/Fluent, LaTeX, 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

- **Main Jury** of the Undergraduate Thesis "*Viscosidad de un gas ideal en régimen de transición en la modalidad de flujo de Poiseuille*" presentado por el Br. Urbaneja B., Carlos E. para obtar a la Licenciatura en Física en la Universidad de Oriente, **Dic 2001**.
- **Fellowship**: Oregon Graduated Institute of Science and Technology, **2000**.
- **Cum Laude**: B.Sc. Physics, 1991.
- **Memberships**:

- **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 (read, write, speak).

Other

- Willing to travel.
- Willing to relocate.

Sergio J. Rojas
March 5, 2003