Luis Armando Rosario Moreno

Permanent Address

Méridal, Estado Mérida 5101
Venezuela
Phone: (0274) 252-1394
email: rosariol@ula.ve

Present Address

26654 Castleview way
Wesley Chapel, Fl 33543
USA
Phone: (813) 230-7992
email: rosariol@eng.usf.edu

EDUCATION

Ph.D., University of South Florida, *Tampa, Florida, United States of America.*
Concentration: Mechanical Engineering. 8/99

Master of Science, University of South Florida, *Tampa, Florida, United States of America*.
Concentration: Mechanical Engineering. 8/99

Ingeniero (Reválida), Universidad de Los Andes, *Mérida, Venezuela* 7/87
Especialidad: Ingeniero Mecánico (Mechanical Engineering).

Master of Science, University of Illinois at Urbana-Champaign, *Urbana, Illinois, United States of America* 5/75
Concentration: Thermal Systems/Mechanical Engineering

Bachelor of Science, University of Illinois at Urbana-Champaign, *Urbana, Illinois United States of America* 5/74
Major: Mechanical Engineering; Graduated with High Honors.

ACADEMIC EXPERIENCE

University of South Florida. Tampa, Fl USA 10/03-present

Research Assistant and Adjunct Faculty at USF

Thermal System Consultant for a NASA research Project related to Magnetic Refrigeration. Several CFD projects related to HVAC. Advisor for undergraduate and graduate students. Teaching Air Conditioning Design Class for the Fall semester 2004. I have actively participated in preparing 6 research proposal (NSF, ASHRAE, etc).

Private HVAC Consultant, *Mérida, Venezuela* 9/99- 5/03
Consulting in HVAC systems for: Commercial Buildings such as Banks, Hotels, Offices, Shops, Supermarkets, etc, educational and healthcare facilities. Energy conservation audits and projects.

Universidad de Los Andes, *Mérida, Venezuela*
Computational Fluids Dynamics (CFD) Research Group Coordinator 01/99- 9/99
Responsible for administrative activities of the research group. Research planning, bidding, monitoring all group research. There were some group projects with the Venezuelan Oil Industry (PDVSA-INTEVEP).

University of South Florida at Tampa, *Tampa, Florida, United States of America* 11/97 - 12/98
Project Chair
Responsible for a design project which was sponsored by American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). This project involved the monitoring of temperature and relative humidity in eight (8) supermarkets in the Tampa Bay area. The results of the project were average monthly values of

temperature and relative humidity in these various types of supermarkets. This data will be useful for storeowners and operators to assess energy savings in refrigerated display case operation by having air-conditioning systems operate at lower store relative humidity.

University of Illinois at Urbana-Champaign, *Urbana, Illinois, United States of America* 6/94 - 6/95
Visiting Scholar
Responsible for continuing research and development of room air conditioning project with ACRC (Air Conditioning and Refrigeration Center), a national science foundation industry/university cooperative research center.

- Study air side heat transfer coefficient for evaporator and condenser as part of room air conditioning project.
- Participated in complete series of seminars sponsored by ACRC; attended American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) 1994 Winter Conference.

Universidad de Los Andes, *Mérida, Mérida, Venezuela* 7/86 - 1/94
Director de Servicios Generales (Facility Director) (10/92 - 1/94)
Served as Director of General Services (Facility Director) for Universidad de Los Andes--the second largest university in Venezuela, with 40,000 students and 2,500 professors. Performed cross-functional management of 3 cafeterias, transportation
fleet with 40 buses and all university owned vehicles, campus phone system, computer network, electronic mail service, wood factory, central supply inventory, and equipment maintenance/purchasing.

- Successfully implemented total quality program for cafeteria operations, which resulted in 10% cost reduction for 1993.
- Organized scheduling and established route system for 40 campus buses.
- Established new transportation maintenance program.
- Created new university network system utilizing fiber optics and voice mail services.

Director de la Escuela de Ingeniería Mecánica (Head of ME Department) (2/90 - 10/92)
As head of the mechanical engineering department, planned all courses, research projects, seminars, and special events for 1,200 students and 45 professors. Maintained operating budget, established exchange programs with private industries and foreign universities, and provided support during development of graduate programs.

- Designed and administered total quality policies for all department offices.
- Orchestrated reciprocal exchange program with University of Illinois at Urbana-Champaign and University of Iowa mechanical engineering departments.
- Developed CAD/CAE (Computer Aided Design/Computer Aided Engineering) within mechanical engineering department.
- Established industry/university cooperative research project involving Universidad de Los Andes and Venezuelan Oil Company (PDVSA).

Decano Encargado de la Facultad de Ingeniería (2/90 - 10/92)
Served as interim dean for engineering faculty, students, and staff during absence of appointed dean.

Professor del Post Grado de Ingeniería de Mantenimiento de la Facultad de Ingeniería (1/90 - 6/94)
Work within engineering department as professor of graduate level maintenance engineering courses.

Coordinador de Pasantías de la Facultad de Ingeniería (7/87 - 2/89)
Organized and coordinated assignments, duties, and performance of student assistants for entire engineering department.

Coordinador de Pasantías de la Escuela de Ingeniería Mecánica (7/86 - 7/87)
Organized and coordinated assignments, duties, and performance of student assistants working with mechanical

engineering faculty members.

Professor de la Facultad de Ingeniería, Escuela de Mecánica (1/75 - Present)
Serve on faculty of mechanical engineering department, teaching coursework in air conditioning and design of thermal systems.

Preparador de Analisis V de la Facultad de Ingeniería (1/72 - 7/72)
Provided classroom support to calculus professor as teaching assistant.

Preparador de Física II de la Facultad de Ingeniería (1/71 - 7/71)
Performed duties of teaching assistant for physics professor.

Universidad Nacional Abierta, *Mérida, Mérida, Venezuela* 7/79-/90
Profesor en Asesoría de Ingeniería Industrial
Served as instructor for industrial engineering curriculum in correspondence program.

TEACHING EXPERIENCE

Curso de Ventilación Mecánica. Aire Acondicionado Básico y Aire Acondicionado Avanzado. (Maraven). *Lagunillas, Zulia, Venezuela*. 6/90 - 7/90

Curso de Ventilación Mecánica. Aire Acondicionado Básico y Aire Acondicionado Avanzado. (Lagoven). *Amuay, Falcón, Venezuela.* *6/89 - 7/89*

Curso Básico de Aire Acondicionado. Empresas del grupo King. (InverKing). *Valencia, Carabobo, Venezuela.* *10/88*

Seminario de Aire Acondicionado. Corporación Venezolana de Guayana (CVG). *Ciudad Guayana, Bolivar, Venezuela.* *1/80*

Subjects taught as **Mechanical Engineering Professor**
Universidad de Los Andes, *Mérida, Mérida, Venezuela:* 1/75- 9/99

- Mathematics
- Heat Transfer
- Thermodynamics
- Numerical Methods in Heat Transfer
- Instrumentation/Control Theory
- Mechanical Ventilation
- Air Conditioning
- Design of Thermal Systems
- Calculus

CONTINUING EDUCATION/PROFESSIONAL DEVELOPMENT

Design and Remediation to Achieve Acceptable Indoor Air Quality (ASHRAE). *San Antonio, Texas, United States of America*. 1988

Indoor Air Quality (ASHRAE). *Minneapolis, Minnesota, United States America.* 1997

Gerencia de Servicios con Calidad. *Caracas, Venezuela.* 1993

Creación de Empresas de base Tecnológica Universidad Nacional Autónoma de México. *México City,*

Luis Armando Rosario Moreno

México. 1992

Gases Refrigerates Capa de Ozono, United Nations. *Caracas, Venezuela.* 1992

Seminario Internacional: Vinculación Universidad-lndustria en USA. *Mérida,Venezuela.* 1992

International Insititute of Ammonia Refrigeration (iiar), Industrial Refrigeration Workshop, *Charlotte, North Carolina, United States of America.* 1992

Seminario de Propiedad Intelectual y Protección de Tecnología. *Mérida, Venezuela.* 1991

Gestión Tecnológica en organizaciones de Investigación y desarrollo. *Mérida, Venezuela.* 1991

Primer Simposium de Ingeniería de proyectos. *Caracas, Venezuela.* 1990

Taller Herramientas para la productividad. *Mérida, Venezuela.* 1990

Terceras Jomadas Nacionales de Mantenimiento. *Caracas, Venezuela.* 1985

Carrier Basic System Design Course. *Syracuse, New York, United States of America.* 1979

Principios de Control Automático para procesos industriales. *Caracas,Venezuela.* 1978

Transferencia de Calor por Convección. *Caracas,Venezuela.* 1976

PRIVATE SECTOR EXPERIENCE

Private HVAC Consulting, Mérida, Venezuela 9/99- 5/03
Broad knowledge of principles and practices related to HVAC, steam, hot and chilled water, and plumbing. Experience in building HVAC systems design. Experience in auditing, analysis, design, construction management, and energy auditing in large comercial, industrial and institutional facilities. Capable of performing building system field surveys, load estimating, code review, design/layout of plumbing and duct sizing,
Experience in HVAC systems for: Comercial Buildings such as Banks, Offices, Shops, Supermarkets, etc, educational and healthcare facilities.

Accesorios Agro Industriales Compañia Anonima (AICA), *Mérida, Mérida, Venezuela* 7/86 - 7/92
Ingeniero de la Empresa
Designed and supervised construction of assembly line for DX equipment up to 40 tons.

Instalaciones Mecánicas y Proyectos Compañia Anonima (IMEPCA), *Mérida, Mérida, Venezuela* 7/75 - *7/92*
Ingeniero de la Empresa
Managed refrigeration and air conditioning projects; designed systems, supervised installations, prepared quotations, communicated progress to customers, purchased all necessary supplies, and planned maintenance programs. Performed energy-saving studies; worked with DX systems up to 4500 tons of refrigeration and chilled water systems with compact reciprocal chillers (2000 tons).

Matadero Semi-Industrial Tovar, *Mérida, Mérida, Venezuela* 7/87 - 7/89
Asesor del Matadero
Designed and analyzed layout, equipment, and operation procedures for cattle slaughterhouse.

Luis Armando Rosario Moreno

Pasantias en la Empresas Eurapo, *Venecia, Italia*
Worked in Venice, Italy, as assistant engineer for European company. 1/85

Instalación Mecánica de los Silos de la Vegita, *Barinas, Barinas, Venezuela* 1/76 - 12/79
Ingeniero Inspector
Supervised inspections of all mechanical systems, including transportation, ventilation, and dryers.

PUBLICATIONS

Rosario Moreno, Luis Armando. "Aire Acondicionado Avanzado." Publicaciones de la Facultad de Ingeniería. Universidad de los Andes: Mérida, Venezuela, Octubre, 1991.

Rosario Moreno, Luis Armando. "Aire Acondicionado Básico." Publicaciones de la Facultad de Ingeniería. Universidad de los Andes: Mérida, Venezuela, Octubre, 1991.

Rosario Moreno, Luis Armando. "Curso de Ventilación Mecánica." Publicaciones de la Facultad de Ingeniería. Universidad de los Andes: Mérida, Venezuela, Julio, 1991.

PROFESSIONAL AFFILIATIONS

- Miembro de la Comisión. Asesor de Campo del Museo de ciencia, tecnología, Artes y Oficios del Estado Mérida. *Mérida, Venezuela.* 11/91
- Colegio de Ingenieros de Venezuela. *Caracas, Venezuela.* 7/86
- Asociación de Profesores de la Universidad de los Andes. *Mérida, Venezuela.* 1/75
- American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) *Atlanta, Georgia, United States of America.* 5/74
- American Society of Mechanical Engineers (ASME) *New York, New York, United States of America..* 5/74
- Pi Tau Sigma-Honorary Society of Mechanical Engineers. University of Illinois at Urbana-Champaign. *Urbana, Illinois, United States of America.* 12/73
- Tau Beta Pi - Engineering Honorary Society. University of South Florida *Tampa,, Florida, United States of America.*

HONORS AND AWARDS

- Conferencista. Primer Congreso Bolivariano de Ingeniería Mecánica. Universidad de los Andes. *Mérida, Mérida, Venezuela.* 1999
- University of South Florida Graduate Fellowship. *Tampa, Florida, United States of America.* 1998-1999

Luis Armando Rosario Moreno

- Speaker. Presentation of Supermarket project. ASHRAE Florida West Coast Chapter meeting. *Tampa, Florida, United States of America.* 1998
- Conferencista. Primer Congreso de Ingeniería Mecánica. Universidad de los Andes. *Mérida, Mérida, Venezuela.* 1994
- Instructor. Curso de Aire Acondicionado Software--Auto-duc. Petroleos de Venezuela Sociedad Anonima (PDVSA). *Lagunillas, Zulia, Venezuela.* 1991
- Delegado. Seminario de Calidad Total. Fundación Educación Industria (FUNDEl). *Mérida, Mérida, Venezuela.* 1991
- Expositor. II Congreso Venezolano de Ingeniería Mecánica. *Maracaibo, Zulia, Venezuela.* 1991
- Diploma de Honor. 15 años de Servicios. Universidad de los Andes. *Mérida, Mérida, Venezuela.* 1990
- Botón de Honor. 10 años de Servicios. Universidad Nacional Abierta. *Mérida, Mérida,Venezuela.* 1990

PATENTS/TECHNOLOGICAL DEVELOPMENTS

Autoduc software-Design of duct systems, low velocity - equal friction method. *Mérida, Venezuela.*

Expert system for maintenance of DX systems up to 40 tons. *Mérida, Venezuela.*

Fast cooling fish system using N_2 liquid. *Corpoandes, Mérida, l/enezuela.*

SOFTWARE SKILLS

- MathCAD
- Math Lab
- Fortran
- Basic
- Visual Basic
- C language
- MS OFFICE
- Unix
- CFD
- AutoCAD.

SELECTED RESEARCH PAPERS

Stoecker W.F., Rosario L, Heidenreich M.E., and Phelan T.R., 1978."Stability of an Air-Temperature Control Loop", *ASHRAE Transactions*, Vol 84, Part 1, pp 35-53. Atlanta, Georgia, USA.

Rosario L., 1995. "Review of Air-Side Heat Transfer Correlations", *ACRC University of Illinois*, Urbana, Illinois, USA..

Rosario L., and Rahman M.M., 1996."Analysis of Radial Fin Assembly Heat Transfer with Dehumidification", *31ST Intersociety Energy Conversion Engineering Conference*, Vol 2, pp 1494-1499. Washington, DC, USA.

Rosario L., and Rahman M.M., 1996."Analysis of Radial Fin Assembly Heat Transfer with Dehumidification using Phoenics", *ASME Graduate Student Conference*, University of Alabama, Alabama, USA.

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Howell R.H., Rosario L., and Bula A., 1997."Simulation of Refrigerated Display Case Performance in Supermarkets", *Proceedings of the IASTED International Conference Applied Modelling and Simulation*, No 265-057. Banff, Canada.

Howell R.H., Rosario L., and Bula A., 1997."Effects of Indoor Relative Humidity on Refrigerated Display Case Performance ", *Proceedings of CLIMA 2000 Conference*, Brussels, Belgium.

Rosario L., and Rahman M.M., 1998."Overall efficiency of a Radial Fin Assembly under Dehumidification Conditions", *ASME Journal of Energy Resources Technology*, Vol. 120, No 4, pp. 299-304. USA.

Rosario L., and Rahman M.M., 1998."Modeling of Partially Wet Radial Fin Assembly Used As a Dehumidifier Coil", *33rd Intersociety Energy Conversion Engineering Conference*, Paper No 263. Colorado Springs, Co, USA.

Rosario L., and Rahman M.M., 1998."Analysis of Heat Transfer in a Partially Wet Radial Fin Assembly with Dehumidification", Submitted to *International Journal of Heat and Fluid Flow*, USA.

Rosario L., and Rahman M.M., 1999."Heat Transfer in a Finned Dehumidifier Coil under Partially Condition", *proceedings of International Conference on Renewable and Advanced energy Systems for the 21st Century*, April 11-15. Hawaii United States of America.

Howell R.H., Rosario L., D. Riiska, and M. Bondoc, 1999." Potential Savings in Display Case Energy withReduced Supermarket Relative Humidity", *Proceedings of Twentieth International Congress of Refrigeration*. Sept. Sydney, Australia.

Rosario L., and Rahman M.M., 1999."A Two-Dimensional Analysis of Heat Transfer in a Finned Tube assembly During Dehumidification", *ASME Journal of Energy Resources Technology*,Vol.121, pp. 247-253, USA.

Rosario L., 1999. "A simplified Experimental Model to Simulate an Air Conditioner", Ph.D. Dissertation, *University of South Florida*, Mechanical Engineering Department, Tampa, Florida, U.S.A.

Rosario L., 1999. "Analysis of Heat Transfer in a Finned Dehumidifier Coil", M.Sc. Thesis, *University of South Florida*, Mechanical Engineering Department, Tampa, Florida, U.S.A.

Rosario L., Oct. 2000."A Simplified Experimental Model To Simulate an Air Conditioner", *Proceedings of Mercofrio 2000*. Porto Alegre, Brasil.

Rosario L., Vielma C. And Pereyra E., Nov. 2000. "Sistemas Expertos para la Solución de Problemas Comunes en Equipos de Aire Acondicionado", *Jornadas Investigación Facultad de Ingeniería, Universidad Central de Venezuela*, Caracas, Venezuela.

Rosario L., Vielma C. And Pereyra E., Nov. 2000. "Estimación de Temperatura y Humedad Relativa en Venezuela a través de Redes Neuronales", Jornadas *Investigación Facultad de Ingeniería, Universidad Central de Venezuela*, Caracas, Venezuela.

Rosario L., and Rahman M.M., May 2001."Heat Transfer in a Finned Dehumidifier Coil under Wet Condition", Paper N° OAF4. *Proceedings of 5th Latin-American and Caribbean Congress on Fluid Mechanics* Caracas, Venezuela.

Rosario L., Vielma C. And Pereyra E., Marzo 2001. "Estimación de Temperatura y Humedad Relativa en Venezuela a través de Redes Neuronales", Revista Ciencia e Ingeniería , Vol.2, N°. 1, Universidad de Los Andes, Mérida, Venezuela.

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L.A. Rosario*, A.B. González y A.J. Ramírez, Oct 2001. “Programa Computacional para el Diseño de Ductos de Aire acondicionado (Ductulador 2000), V Congreso Iberoamericano de Ingeniería Mecánica, Universidad de los Andes. Mérida, Venezuela.

Howell R.H. and Rosario L., 2001.” Relative Humidity and Temperature Measurements and Predictions in Supermarket”, *ASHRAE Transactions*. Vol. 107, Part 2, pp. 415-423, USA.

Rosario L., September 2001.”An Air-Conditioning Simulation Model Based on Experimental Data”, Paper N° 569. Proceedings of *Clima 2000*. Naples, Italy.

Rosario L., Porteiro J.L. and Rahman M.M., Nov 2001.” A Simplified Experimental Model to Simulate an Air Conditioner”, *Proceedings of IMECE* 2001*ASME Conference*, New York USA.

Rosario L., Porteiro J.L. and Rahman M.M., Nov 2002.” Air-Conditioner Experimentation”, *Proceedings of IMECE* 2002 *ASME Conference*, New Orleans USA.

Ho. S.H., Rosario L., and Rahman M.M., Nov 2004.”Predictions of Relative Humidity and Temperature in an Operating Room,” *Proceedings of IMECE 2004 ASME Conference*, Anaheim, California USA.

Rosario L., and Rahman M.M., Nov 2004.”Thermodynamic Analysis of Magnetic Refrigerators,” *Proceedings of IMECE 2004 ASME Conference*, Anaheim, California USA.

Ho. S.H., Rosario L., and Rahman M.M., Dic 2004.”Comparison of underfloor amd overhead air distribution systems in an office,” *International of Heat and Flow ASME*.

Ho. S.H., Rosario L., and Rahman M.M., March 2005. "Effect of Using Ceiling Fan on Human Thermal Comfort in Air-Conditioned Space" paper # AIAA-2005-5734 *3rd International Energy Conversion Engineering Conference*

Ho. S.H., Rosario L., and Rahman M.M., March 2005. "Analysis of Thermal Comfort in Air-Conditioned Room with Ceiling Fan" *ASHRAE for 2006 Chicago Meeting. Paper #TECH-00053-2005.R1*

Ho. S.H., Rosario L., and Rahman M.M., "Analysis of thermal comfort and contaminant removal in an office room with underfloor air distribution system" Proceedings of HT2005 ASME Summer Heat Transfer Conference July 17-22, 2005, Westin St. Francis, San Francisco, California, USA. Paper HT2005-72437.

Brown M., Rosario L., and Rahman M.M., June 2005.”Thermodynamic Analysis of Transcritical Carbon Dioxide Cycles,” *Proceedings of IMECE 2005 ASME Conference*, Orlando, Florida USA.

Rosario L., and Rahman M.M., June 2005.”Thermodynamic Analysis of a Magnetic Liquefier for Hydrogen,” *Proceedings of IMECE 2005 ASME Conference*, Orlando, Florida USA.

Begdouri H., Rosario L., and Rahman M.M., June 2005.”Fluid Flow and Heat Transfer by a Window Air Conditioner Unit and Associated Thermal Comfort ,” *Proceedings of IMECE 2005 ASME Conference*, Orlando, Florida USA.

Ho. S.H., Rosario L., and Rahman M.M., Nov 2006.”Numerical Analysis of Thermal Behavior in a Refrigerated Warehouse,” *Proceedings of IMECE 2006 ASME Conference*, Chicago, Illinois USA.