

SERGIO ROMERO-HERNANDEZ

Date of Birth: 08 August 1972

Marital status: Single

Nationality: Mexican

ACADEMIC BACKGROUND:

- 1996-2001 **PhD in Mechanical Engineering (Computer Aided Engineering)**
Imperial College of Science, Technology and Medicine. London, UK
Thesis: Determination of Windage Losses on High-Speed Rotating Discs with Superposed Flow.
Involved the conceptual design, stress and dynamic analysis, instrumentation and commissioning of a purpose built high-speed windage test rig. Re-engineering and assembly of a Garret Turbocharger for use as a prime mover. Development of a reliable Computational Fluid Dynamics model to match and predict the experimental results. The research is focused on the determination and characterisation of the flow field on rotor-stator systems at high rotational speeds.
Associate supervisor of 2 MSc (1 graduated with distinction) and 4 BEng projects, involving assessment and guidance in the experimental, computational and logistic aspects.
- 1995-1996 **MSc in Advanced Mechanical Engineering**
Imperial College of Science, Technology and Medicine. London, UK
Thesis: Effects of Surface Roughness on Windage.
Involved experimental and theoretical analysis on the nature of the windage losses on high-speed rotor-stator systems, developing a consistent and reliable methodology for the analysis of the experimental results.
Courses involved study of Polymers, Fracture Mechanics, Mechanical Transmissions, Mechanism Synthesis, Computer Aided Design, Finite Element and Finite Volume Stress Analysis, Control Engineering (Digital and analogue) and Environmental Engineering.
- 1990-1995 **Mechanical Engineering Degree**
Universidad Nacional Autonoma de México. Mexico D.F., Mexico
Thesis: Implementation of an evaporative pattern casting method with didactic purposes.
Grade Average: 8.71/10. Second in the department to complete degree.
Assistant teacher for the subject Science of Materials.
Selected to represent the Engineering Faculty in the International Business Seminar of Procter & Gamble, event held in the Sheraton Hotel, Mexico City(1994)

WORK EXPERIENCE:

- Ene 2002- **Instituto Tecnológico Autónomo de México.** México DF, México.
Research Professor: In charge of the subjects of Material Science (theory and laboratory), Manufacturing Proceses, Computer Aided Design and Product Design and Development. Currently involved in research projects with the National Council of Science and Technology on CFD of high speed rotating devices. As well as research in product lifecycle management, PLM.
- Dec 1999- **The Turbo Genset Company Ltd.** London, UK (<http://www.turbogenset.com>)
Research Engineer: In charge of the improvement on the efficiency of a high-speed generator directly coupled to a gas turbine. Conducting computational research by means of CFD techniques in order to find an optimum design with minimum energy losses and hence improving the cooling and the overall efficiency.
- Sept 1997
- Dec 1999 **Centre for Computing Services.** Imperial College, London, UK.
Helpdesk support Engineer : Offered advise and solution to all type of computing related problems that members of College may have. Involving a close telephone and face to face assistance in applications, networks, email managers and programming. The position involved being the front face of the centre and the proper management of all incoming enquires.

- Mar 1997 **Conference Centre.** Imperial College, London, UK.
Conference co-ordinator: Involved in the co-ordination of the 1997 European Conference for Liver studies. The work involved a close participation in the layout of the event as well as a prompt response to all unexpected problems.
- Sept 1993 **Centre for Research and Technical Assistance on Materials**
 - Mar 1994 **(UDIATEM).** Universidad Nacional Autonoma de Mexico, Mexico D.F. Mexico.
Technical assistant: Worked closely with Mr. Brunno Janseens, from the University of Gent, on the operation of a scanning electron microscope. This accounted for the social service of my Engineering degree.

AWARDS, COURSES AND OTHERS:

- 2004 Winner of the Academic Excellency Award of the Academic División of Engineering, Instituto Tecnológico Autónomo de México, México DF.
- 2004 Elected as candidate to National Researcher by the National Council of Science and Technology, Mexico.
- 2003 Author of the technical paper "Investigación en la Transferencia de Calor de Sistemas Disco-Estator Girando a Alta Velocidad" presented in the VIII Latinamerican Conference of Turbomachinery, Veracruz, México.
- 2003 Author of the technical paper "Modelado Computacional de Pérdidas por Fricción Aerodinámica en Discos Girando a Alta Velocidad" Ingeniería Mecánica Tecnología y Desarrollo, Journal of the Mexican Society of Mechanical Engineering, Vol. 1, Num. 3, Año 2, Septiembre 2003, pp. 102-107
- 2003 Author of the technical paper " A Framework of Computer Aided Engineering and LCA Applied for Life Cycle Management" presented in the International Conference InLCA/LCM 2003, Seattle, Washington.
- 2003 Technical Manager of the basic research project SEP-CONACYT, "Experimental and Computational research on the aerothermal effects on enclosed discs rotating at high speed", granted by the National Council of Science and Technology, México.
- 2003 Author of the technical paper "Integration of Effective Engineering Design, Innovation and Environmental Performance in the Product Life Cycle Management " presented in the International Conference 3rd International Symposium Product Lifecycle Management (PLM03), Indian Institute of Science, Bangalore India.
- 2003 Elected Member of the Product Development and Management Association (PDMA), Malden, MA, USA.
- 2002 Author of Chapter 2 of the technical book "Advances of CFD in Fluid Machinery Design", Edited by Prof. Robin Elder, Professional Engineering Publishing, Londres, Institution of Mechanical Engineers, UK. ISBN 1860583539.
- 2002 Elected Associate Member of the Institution of Mechanical Engineers, conferring the use of the letters AMIMechE in official paperwork. London, UK.
- 2001 Author of the article "Prediction of Aerothermal Phenomena in High-Speed Disc-Stator Systems" presented in the Seminar: Advances of CFD in Fluid Machinery Design, of The Institution of Mechanical Engineers, London, UK.
- 2001 Author of European patent application "Guided-vaned-spacers for axial flux generator cooling" on behalf of The Turbo Genset Company Ltd.
- 2001 Author of Chapter 6 in technical book "Computational Fluid Dynamics in Practice", June 2001, edited by Dr N Rhodes, Professional Engineering Publishing, ISBN I 86058 352 0
- 2000 CFD Consultant (STAR-CD) for IC consultants (on behalf of British Petroleum) on feasibility of axial labyrinth seals.
- 1999 Author of the article "Numerical determination of Windage Losses on High-Speed Rotating Discs" to be presented in the Seminar: CFD Technical developments and Future Trends, of The Institution of Mechanical Engineers, London, UK.
- 1999 FEAA Consultant (ANSYS) for the Centre for Vibration Engineering, Imperial College, London.
- 1999 CAD Consultant (Pro Engineer) for the Centre for Vibration Engineering, Imperial College, London.

- 1998 CAD Consultant (Pro Engineer) for the Centre for Vibration Engineering, Imperial College, London.
- 1998 Speaker on the Seminar "Experimental Determination of Windage Losses" given at the postgraduate Division of the Engineering Faculty, National Autonomous University of Mexico, UNAM, Mexico City.
- 1997 Course "Pro Engineer and Pro Mechanica" given by Parametric Technologies support staff. Department of Civil Engineering. Imperial College, London.
- 1996 Participant on the Lab View Seminar from National Instruments, Essex, UK.
- 1994 Course "Corrosion" given by Dr. Yvan Houbert from the University of Gent. at Engineering Faculty, UNAM, Mexico City.
- 1993 Course "Mechanical Behaviour of Materials" given by Dr. Yvan Houbert from the University of Gent. at Engineering Faculty, UNAM, Mexico City.

PERSONAL:

Languages:

Spanish (*Native*) English (*Fluent*) Italian (*Fluent*) Greek (*Basic*)

Proficient in several operating systems, programming languages and application tools, including UNIX, LINUX, Windows systems, mac OSx, Fortran, Microsoft Office, Visual Basic, AutoCAD, MatLab, Pro Engineer, IDEAS, ANSYS, Star CD, FLUENT, ICEPAK, ICEM, Lab View, as well as having a general knowledge of networks. My main area of expertise being the integration of the tools that conform the general CAE repertoire, i.e. CAD, FEA, CFD.

Since an early age, I have been involved in extracurricular activities to organise courses, trips, campaigns and social events. I was involved in the scout movement for 13 years and was deeply involved in the organisation and realisation of mountaineering and rock climbing courses and expeditions. As part of the committee on the organization of my first degree, I had the opportunity to develop and practice my organizational skills. Furthermore, I am a founder member of the Latin-American Society at Imperial College. Finally photography and travelling highlight as my favourite activities having been already in more than 20 countries around Europe, Asia and the Americas.