

CURRICULUM VITAE



OSCAR SOTOLONGO-GRAU

ADDRESS

Carrer Arenys 24 - 15
08860 Castelldefels, Barcelona
Spain
Phone: +34 652 575 178
Email: osotolongo@fundacioace.com
Homepage: dfmf.uned.es/~osotolongo

PERSONAL DETAILS

Date of birth: 26th of August, 1972
Place of birth: Havana, Cuba
Present Citizenship: Cuba, Spain

EDUCATION

- 2006 – 2010 PhD. Universidad Nacional de Educación a Distancia (UNED). Spain.
PhD Thesis: ***ISTER***: *A new oncological index that optimize radiotherapy treatments and its implications in radiotherapy services planning.* (2010)
MsC Thesis: *Entropic formulation of Radiobiology.* (2009)
PhD Courses:
 ✓ Chaos in dynamical systems
 ✓ Digitalized images treatment
 ✓ Moment, heat and mass transport in fluids
 ✓ Combustion laboratory
- 1990 – 1996 Grade in Physics. University of Havana. Cuba.
Thesis: *Solution for the inverse problem of Fraunhofer diffraction.* (1996)
Postgraduate Courses:
 ✓ Functional analysis (1995)
 ✓ Measurement's uncertainties (1998)

TEACHING EXPERIENCE

- 2006 – 2010 UNED, Spain. Departamento de Física Matemática y de Fluidos.

Espectroradiometer operator in master course “Especialista/Experto en Teledetección”, (2007 – 2009). Measurement teaching.

“C programming” open course for researchers. (2008)

Teaching innovation project: “Virtualization of practicing in Enviromental Science. Farsight: a study case”.
Overview: *Design and making up for a virtual world prototype for farsight measurement practicing.*
- 1996 – 2000 University of Havana, Cuba. IMRE.
“Computer operator. Microsoft Windows and Office”. Open course, Mathematics Faculty, University of Havana. (2000)

“Microsoft Access”. Open course, Mathematics Faculty, University of Havana (2000)

“NC-ISO 10012 - Requirements for quality assurance in measurement equipment”. Postgrade course, National Institute of Metrology Research, Cuba. (1997)

“Electromagnetism”. Grade course, Pharmacy Faculty, University of Havana. (1993)

RESEARCH EXPERIENCE

- | | |
|-------------|---|
| 2012 – Now | Bioinformatics Analysis & HPC Manager at Fundació ACE, Institut Català de Neurociències Aplicades. |
| 2010 – 2012 | Research Associate in the project “Efectos de escala sobre las medidas de impedancia electroquímica local y global en procesos de disolución metálica (2010V/PUNED/0003)” directed by Pedro Córdoba Torres. (UNED, Spain) |
| 2008 – 2010 | Research Assistant in the project “Fluidodinámica de los procesos básicos en pilas de combustible (ENE2008-06683)” directed by Prof. José Luis Castillo. (UNED, Spain) |
| 2006 – 2008 | Research Assistant in the project “IM3: Imagen médica molecular y multimodalidad” Approved by Ministerio de Sanidad y Consumo and supervised by Prof. José Carlos Antoranz Callejo. Subproject: “Física Médica: imagen médica”. (UNED, Spain) |
| 1996 – 2000 | Research Assistant in the project “Determinación de distribución de partículas por métodos ópticos” supervised by M.P. Hernández. (University of Havana, Cuba) |

WORKING EXPERIENCE

- | | |
|-------------|---|
| 2012 – Now | Fundació ACE, Institut Català de Neurociències Aplicades.
Bioinformatics Analysis & HPC Manager <ul style="list-style-type: none">✓ Automated pipeline for Neuroimage processing. |
| 2005 – 2012 | UNED
Departamento de Física Matemática y de Fluidos <ul style="list-style-type: none">✓ Beowulf clusters management and install (Linux). Computer jobs parallelization (MPI, Lapack).✓ Web (Apache), ftp (Proftp), mail (Postfix, Sendmail) and database (MySQL, PostgreSQL) servers management. |

- ✓ Web programming and design for department (dfmf.uned.es), farsight course (PHP, VRML) (dfmf.uned.es/teledemo/) and medical physics group (phpSQLiteCMS) (dfmf.uned.es/medphys/).
 - ✓ Web application for exams virtual delivery. Section of "Selectividad" exams.
 - ✓ Web programming and management for RECTA 2007 to 2009 congresses (PHP, MySQL) (dfmf.uned.es/RECTA2009/).
- 2004 – 2010 Arquide Estudio
- ✓ Design and programming for the company web.
 - ✓ Network and server administration (Windows 2000 y Debian Linux).
 - ✓ Web parsing, mail scripting y task automation.
- 2004 – 2005 Acens Technologies
Operations, Networks, systems and Security Center
- ✓ Instalation, configuration and management of dedicated servers. RedHat, Debian, Windows 2000 y 2003 Server.
 - ✓ Applications support. Web, mail and file servers. Apache, IIS, Tomcat, Sendmail, Postfix, NFS, SSH, etc.
 - ✓ Management tools programming. Perl, PHP. Backup tools.
 - ✓ Database support. MySQL, MSSQL Server.
- 2003 – 2012 Fundación Hispano Cubana
- ✓ Network, server and workstations management.
- 2002 – 2003 Unisegur Servicios Urbanos
Computer services
- ✓ Tecnological analysis and consulting.
 - ✓ Infraestructure support.
 - ✓ Network management.
 - ✓ Web design and programming. (Linux/Apache/PHP/MySQL)
 - ✓ Enterprise training.
- 2002 – 2003 FEP Consultores
- ✓ Office Courses.
 - ✓ Network management.
- 2001 Lemur Solution
Network administration and Application programming
- ✓ BNC Network install and management. Workstations administration.

- ✓ Ciberalia Project. (Teamwork)
 - Application database design (SQL Server 7).
 - Client-Server application design and programming (Visual Basic 6) for a BBIGG Internet & Games internet café.
 - Windows NT 4.0 Server and SQL Server 7.0 installation and configuration.
- ✓ Cosmodat Project. (Teamwork)
 - Database interface design and programming (Access 97 and Visual Basic 6) for video library, documentation and development at Cosmopolitan Television channel.

1999 – 2000

Havana University, Mathematics Faculty

Systems analyst

- ✓ Installation of Windows NT and Windows 2000 Professional workstations. Borland Delphi, J Builder, Visual C++, C++ Builder, Microsoft Office.
- ✓ Primary and backup Windows NT 4.0 servers management.
- ✓ Windows 98 workstations.
- ✓ Windows NT intranet development.

1998 – 1999

BRASCUBA Cigarrillos S.A.

Production division assistant

- ✓ Control and reckoning of production cost and raw material consumption efficiency at secondary process (cigarette manufacturing).
- ✓ Development of Microsoft Excel and Access tools.
- ✓ Production supervision and efficiency reckoning at primary process (loose manufacturing).
- ✓ Estimation of the storage capacity required and available for plant expansion and new brands assimilation.

1996 – 1998

Metrology Research Institute

Physical Chemistry Lab

- ✓ Measurement verification of spectrophotometers, photoelectric colorimeters, saccharimeters, polarimeters, pH and conductivity meters, filters certification.
- ✓ Uncertainty measurement in : spectrophotometry, colorimetry, sacarimetría, polarimetry, pH, refractometry and conductometry.
- ✓ Quality Protocols Manual of Physical Chemistry Lab. Revision.
- ✓ Na lamp certification for dimensional measurements.
- ✓ Work Experience on Microsoft Office, Microcal Origin and Mathcad.

PUBLICATIONS

- ✓ O. Sotolongo-Grau, D. Rodríguez-Pérez, O. Sotolongo-Costa, J.C. Antoranz. *Tsallis entropy approach to radiotherapy treatments*. Physica A. 2013; doi:10.1016/j.physa.2013.01.020
- ✓ Sotolongo-Grau O, Rodríguez Pérez D, Antoranz JC , Gaggero Sager LM, Sotolongo-Costa O. *Radiotherapy and the role of the immune system*. Nova Scientia. 2012; 8(4) : 13-15.
- ✓ Sotolongo-Grau O, Rodríguez Pérez D, Antoranz JC , Sotolongo-Costa O. *Tissue Radiation Response with Maximum Tsallis Entropy*. Physical Review Letters. 2010; 105: 158105.
- ✓ Sotolongo-Grau O, Rodríguez Pérez D, Santos Miranda JA, Sotolongo-Costa O, Antoranz JC. *Immune System – Tumor Efficiency Ratio as a new oncological index for radiotherapy treatment optimization*. Mathematical Medicine and Biology. 2009; 26: 297-307.
- ✓ Sotolongo-Grau O, Rodríguez-Pérez D, Santos-Miranda JA, Antoranz JC. *Cuantificación del impacto de los retrasos en los resultados de los tratamientos de radioterapia*. Revista de Física Médica. 2008; 9(2): 70-75.
- ✓ Rodríguez Pérez D, Sotolongo-Grau O, Espinosa Riquelme R, Sotolongo-Costa O, Santos Miranda JA, Antoranz JC. *Assesment of cancer immunotherapy outcome in terms of the immune response time features*. Mathematical Medicine and Biology. 2007; DOI: 10.1093/imammb/dqm003.

CONGRESS COMUNICATIONS & PROCEEDINGS

- ✓ Mathways into Cancer 2012
Tsallis entropy approach to radiotherapy fractionation dosage. Sotolongo-Grau O, Rodríguez-Pérez D, Sotolongo-Costa Oscar, Antoranz JC.
- ✓ Sotolongo-Grau O, Rodríguez-Pérez D, Sotolongo-Costa Oscar, Antoranz JC. *A nonextensive model for radiobiology*. Á. Jobbágy (Ed.): 5th European IFMBE Conference, IFMBE Proceedings 2011; 37: pp. 367–370.
- ✓ MaxEnt 2010. 30th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering. July 2010.
Non-extensive Radiobiology. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. C. Antoranz, O. Sotolongo-Costa. Bayesian inference and maximum entropy methods in science and engineering, edited by A. Mohammad-Djafari, J.-F. Bercher, and P. Bessiere (AIP, 2010), vol. 1305 of AIP Conference Proceedings, pp. 219 - 226
- ✓ ICMBE 2010. International Conference on Mathematical Biology and Ecology. May 2010.
ISTER (Immune System - Tumor Efficiency Rate): an important key for

- planning in radiotherapeutic facilities.* O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos-Miranda, M. M. Desco, O. Sotolongo-Costa, J. C. Antoranz.
- ✓ XII Congreso de la Asociación Española de Teledetección, Calatayud, September de 2009.
Prácticas de teledetección a distancia en la UNED. Una solución para todos. D. Rodríguez, J.A. Domínguez, O. Sotolongo, C. Santa Marta, N. Malpica, J.C. Antoranz.
 - ✓ World Congress on Medical Physics and Biomedical Engineering. WC2009. September 2009.
A Mathematical Aid Decision Tool for RT Planning. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos-Miranda, M. M. Desco, O. Sotolongo-Costa, J. C. Antoranz. IFMBE Proceedings. 2009; 25/I: pp. 101–104. (ISBN: 978-3-642-03897-6)
 - ✓ XVII Congreso Nacional de la Sociedad Española de Física Médica. June 2009.
Cuantificación del impacto de las paradas técnicas en los tratamientos de radioterapia. O. Sotolongo-Grau, D. Rodríguez-Pérez, M. J. García Hernández, J. A. Santos-Miranda, J. C. Antoranz.
 - ✓ XXVI Congreso Anual de la Sociedad Española de Ingeniería Biomédica. CASEIB 2008. October 2008.
Cuantificación del impacto de los retrasos en los tratamientos de radioterapia. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, J. C. Antoranz.
 - ✓ XXV Congreso Anual de la Sociedad Española de Ingeniería Biomédica. CASEIB 2007. November 2007.
Impacto de retrasos e interrupciones en radioterapia. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, J. C. Antoranz.
 - ✓ XVI Congreso Nacional de Física Médica. May 2007
Estudio estadístico de la efectividad de los tratamientos oncológicos radioterápicos sobre un amplio espectro de pacientes virtuales. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, O. Sotolongo-Costa, J. C. Antoranz.
 - ✓ International conference on computational and Mathematical Methods in Science and engineering, CMMSE 2006. September 2006.
Treatment success in oncology. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, O. Sotolongo-Costa, J. C. Antoranz. Proceedings of the International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2006. 2006; pp 644-651. (ISBN: 84-611-1090-0)
Assesment of cancer immunotherapy outcome in terms of the immune response time features. D. Rodríguez-Pérez, O. Sotolongo-Grau, Ramón Espinosa Riquelme, O. Sotolongo-Costa, J. A. Santos Miranda, J.C. Antoranz.

- ✓ XXIV Congreso Anual de la Sociedad Española de Ingeniería Biomédica. CASEIB 2006.
Efectividad de los tratamientos oncológicos radioterápicos sobre un amplio espectro de pacientes. O. Sotolongo Grau, D. Rodríguez Pérez, J.A. Santos Miranda, O. Sotolongo Costa, J.C. Antoranz.
- ✓ XVI Congreso Nacional de Física Médica.
Efectividad de los tratamientos oncológicos radioterápicos sobre un amplio espectro de pacientes. O. Sotolongo Grau, D. Rodríguez Pérez, J.A. Santos Miranda, O. Sotolongo Costa, J.C. Antoranz.
- ✓ SLAFES-XV Cartagena de Indias, Colombia, November 1999.
Determination of particle size distribution of particles on aerosols and suspensions by UV-VIS-NIR absorbance measurement. A new procedure for absorbing particles.
- ✓ International Conference “Centenario del Descubrimiento del electrón”, La Habana. (1997)
Inverse Problem in size particle measurement by laser diffraction.
- ✓ VII National Symposium of Cuban Physics Society. La Habana. (1996)
Regularization methods applied to ill-posed problems solutions.
- ✓ Latinoamerican Meeting about Optics, Laser and its Applications, Cartagena de Indias. September 28 -October 2, 1998.
Size particle distribution measurement using a comercial espectrofotometer.
- ✓ II Workshop on Optoelectronics Materials and Devices. La Habana. (1998)
On the existence of a distribution of barrier heights in Schottky diodes as an inverse problem solution.
- ✓ Latinoamerican Meeting in Optics, Laser and its Applications, La Habana. November 20-25, 1995.
LDS dispersion matrix study using Rosin-Ramler function.
Size particle measurement using Fraunhofer diffraction.

OTHER PUBLICATIONS

- ✓ O. Sotolongo-Grau, Daniel Rodriguez-Perez, Oscar Sotolongo-Costa, J. C. Antoranz. *Tsallis entropy approach to radiotherapy treatments.*
arXiv:1104.5088v5 [q-bio.TO]
- ✓ Oscar Sotolongo-Grau, Daniel Rodríguez-Pérez, José Carlos Antoranz, Oscar Sotolongo-Costa. *Non-extensive radiobiology.*
arXiv:1006.3410v1 [q-bio.QM]
- ✓ O. Sotolongo-Grau, D. Rodriguez-Perez, J. C. Antoranz, Oscar Sotolongo-Costa. *Generalized calculus in radiobiology: Physical implications.*
arXiv:0908.2449v1 [physics.bio-ph]

- ✓ O. Sotolongo-Grau, D. Rodriguez-Perez, J. A. Santos-Miranda, J. C. Antoranz, Oscar Sotolongo-Costa. *Statistical mechanics formulation of radiobiology*.
arXiv:0907.5551v3 [physics.med-ph]
- ✓ O. Sotolongo-Grau, D. Rodriguez-Perez, J. A. Santos-Miranda, M. M. Desco, O. Sotolongo-Costa, J. C. Antoranz. *A mathematical aid decision tool for RT planning*.
arXiv:0906.1309v1 [physics.med-ph]
- ✓ O. Sotolongo-Grau, D. Rodriguez-Perez, J. A. Santos-Miranda, O. Sotolongo-Costa, J. C. Antoranz. *Immune System – Tumor Efficiency Rate as a new Oncological Index for Radiotherapy Treatment Optimization*.
arXiv:0706.0418v2 [q-bio.PE]
- ✓ D. Rodriguez-Perez, Oscar Sotolongo-Grau, Ramon Espinosa Riquelme, Oscar Sotolongo-Costa, J. Antonio Santos Miranda, J. C. Antoranz. *Tumors under periodic therapy – Role of the immune response time delay*.
arXiv:q-bio/0604008v1 [q-bio.TO]

LANGUAGE KNOWLEDGE

Spanish	native
English	fair

OTHER KNOWLEGDE AND SKILLS

- ✓ System administration: Linux, BSD & Windows. Cluster management.
- ✓ Image edition (ImageMagick, GIMP, Adobe Photoshop).
- ✓ Document formatting (LaTeX).
- ✓ Scripting languages (Bash, Perl)

REFERENCES

These persons are familiar with my professional qualifications and my character:

Prof. Dr. J.C. Antoranz

Former thesis supervisor	Phone: +34-91-398.7121
Senda del Rey 9	Fax: +34-91-398.7628
28040 Madrid	Email: jcantoranz@dfmf.uned.es
Spain	

Barcelona, August 12, 2013