

CURRICULUM VITAE



OSCAR SOTOLONGO-GRAU

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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. (*with distinction*)
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)
- 1990 – 1996 Grade in Physics. University of Havana. Cuba.
Thesis: *Solution for the inverse problem of Fraunhofer diffraction.* (1996)

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 Postdoctoral Grant by *Fundación para la Investigación Biomédica del Hospital Gregorio Marañón* in the project “Hybrid fluorescence molecular tomography and X-ray computed tomography system and method” directed by Dr. Juan José Vaquero López and supervised by Prof. José Carlos Antoranz Callejo. (HGUGM, Spain)
- 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 Dr. 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)

MANAGEMENT AND SUPPORT EXPERIENCE

Web design and programming for Aerosol Spanish Society Meetings (RECTA) since 2007 to 2009.

Beowulf clusters management and development for Departamento de Física Matemática y de Fluidos, UNED.

Web, Mail and File Sharing administration for Departamento de Física Matemática y de Fluidos, UNED.

PUBLICATIONS

- ✓ Sotolongo-Grau O, Pesini P, Valero S, Lafuente A, Buendía M, Pérez-Grijalba V, San José I, Ibarria M, Tejero MA, Giménez J, Hernández I, Tárraga L, Ruiz A, Boada M, Sarasa M, for the Alzheimer’s Disease Neuroimaging Initiative. *Association between cell-bound blood amyloid- β (1–40) levels and hippocampus volume* Alzheimer’s Research & Therapy. 2014; 5(8): 1-7

- ✓ Hernández I, Rosende-Roca M, Alegret M, Mauleón A, Espinosa A, Vargas L, Sotolongo-Grau O, Tárraga L, Boada M, Ruiz A *Association of TMEM106B rs1990622 Marker and Frontotemporal Dementia: Evidence for a Recessive Effect and Meta-Analysis* Journal of Alzheimer's Disease. 2014; 43 : 325-334
- ✓ Rodríguez-Pérez D and Sotolongo-Grau O and Sotolongo-Costa O and Antoranz J C. *Radiotherapy treatments using Tsallis entropy statistical approach* Journal of Physics: Conference Series. 2014; 490: 012132. DOI: <http://dx.doi.org/10.1088/1742-6596/490/1/012132>
- ✓ I. Hernández, A. Mauleón, M. Rosende-Roca, M. Alegret, G. Vinyes, A. Espinosa, O. Sotolongo-Grau, J.T. Becker, S. Valero, L. Tárraga, O.L. López, A. Ruiz, M. Boada. *Identification of Misdiagnosed Fronto-Temporal Dementia using APOE Genotype and Phenotype-Genotype Correlation Analyses* Current Alzheimer Research. 2013. [Epub ahead of print]
- ✓ A. Ruiz, P. Pesini, A. Espinosa, V. Pérez-Grijalba, S. Valero, O. Sotolongo-Grau, M. Alegret, I. Monleón, A. Lafuente, M. Buendía, M. Ibarria, S. Ruiz, I. Hernández, I. San José, L. Tárraga, M. Boada, M. Sarasa. *Blood amyloid Beta levels in healthy, mild cognitive impairment and Alzheimer's disease individuals: replication of diastolic blood pressure correlations and analysis of critical covariates*. PLoS One. 2013;8(11):e81334. DOI: <http://dx.doi.org/10.1371/journal.pone.0081334>.
- ✓ O. Sotolongo-Grau, D. Rodriguez-Perez, O. Sotolongo-Costa, J.C. Antoranz. *Tsallis entropy approach to radiotherapy treatments*. Physica A. 2013; doi:10.1016/j.physa.2013.01.020
- ✓ Sotolongo-Costa O, Sotolongo-Grau O. *Tsallis formalism in radiobiology*. Revista Cubana de Física. 2012.
- ✓ 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.

COMMUNICATIONS IN CONGRESS & PROCEEDINGS

- ✓ 13th International Geneva/Springfield Symposium on Advances in Alzheimer Therapy 2014, Geneva, (Switzerland).
Assessment of association between cell bound $A\beta$ 40 levels in blood and hippocampus volume: the AB128 project Oscar Sotolongo-Grau, Pedro Pesini, Sergi Valero, Asunción Lafuente, Mar Buendía, Itziar San José, Marta Ibarria, Miguel A Tejero, Joan Giménez, Isabel Hernández, for the Alzheimer's Disease Neuroimaging Initiative, Lluís Tàrraga, Agustín Ruiz, Mercè Boada, Manuel Sarasa.
- ✓ Alzheimer Association International Conference 2013, Boston(USA).
Identification of misdiagnosed frontotemporal dementia using apolipoprotein genotype and linear discriminant analysis. Isabel Hernandez; Ana Mauleon; Maitée Rosende-Roca; Montse Alegret; Georgina Vinyes-Junque; Ana Espinosa; Liliana Vargas; Oscar Sotolongo; James Becker; Lluís Tàrraga, Agustín Ruiz, Mercè Boada.
- ✓ LXV REUNIÓN ANUAL SOCIEDAD ESPAÑOLA NEUROLOGÍA. Barcelona, del 19 al 23 de Noviembre de 2013. *Niveles sanguíneos de amiloide beta en sujetos sanos, con deterioro cognitivo leve y con enfermedad de Alzheimer: replicación de las correlaciones con la tensión arterial y análisis de covariables.* Agustín Ruiz Laza,; Pedro Pesini; Ana Espinosa; Oscar Sotolongo-Grau; Virginia Pérez-Grijalba; Sergi Valero; Montserrat Alegret; Inmaculada Monleón; Asunción Lafuente; Mar Buendia; Marta Ibarria; Susana Ruiz; Isabel Hernández; Itziar San José; Lluís Tàrraga; Mercè Boada; Manuel Sarasa.
- ✓ International Conference on Mathematical Modeling in Physical Sciences, IC-MSQUARE 2013, Praha (Czech Republic), 1-5 September de 2013
Radiotherapy treatments by using Tsallis entropy statistical approach. D. Rodríguez-Perez, O. Sotolongo-Grau, O. Sotolongo-Costa, J. C. Antoranz. Open Access Journal of Physics: Conference Series (JPCS) IOP Conference Series (in press).
- ✓ Mathways into Cancer 2012
Tsallis entropy approach to radiotherapy fractionation dosage. Sotolongo-Grau O, Rodríguez-Pérez D, Sotolongo-Costa Oscar, Antoranz JC.
- ✓ 5th European IFMBE Conference
A nonextensive model for radiobiology. Sotolongo-Grau O, Rodríguez-Pérez D, Sotolongo-Costa Oscar, Antoranz JC. 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-Perez, J. C. Antoranz, O. Sotolongo-Costa.
- ✓ 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. IFMBE Proceedings. 2009; 25/I: pp. 101–104. (ISBN: 978-3-642-03897-6). O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos-Miranda, M. M. Desco, O. Sotolongo-Costa, J. C. Antoranz.
- ✓ 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.
- ✓ XXVII Congreso Anual de la Sociedad Española de Ingeniería Biomédica. O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, J. C. Antoranz. *La importancia del sistema inmune en los tratamientos de radioterapia.* XXVII Congreso Anual de la Sociedad Española de Ingeniería Biomédica. Proceedings CASEIB 2009 (ISBN: 978-84-608-0990-6).
- ✓ XII Congreso de la Asociación Española de Teledetección
D. Rodríguez, J.A. Domínguez, O. Sotolongo, C. Santa Marta, N. Malpica, J.C. Antoranz. *Prácticas de teledetección a distancia en la UNED. Una solución para todos.* Teledetección - Agua y desarrollo sostenible. Actas del XII Congreso de la Asociación Española de Teledetección. Salomón Montesinos Aranda, Lara Fernández Fornos, Eds., pp 401-404. (ISBN: 978-84-613-4257-0)
- ✓ 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. Proceedings CASEIB 2008 (ISBN: 978-84-619-3641-6). 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
O. Sotolongo-Grau, D. Rodríguez-Pérez, J. A. Santos Miranda, J. C. Antoranz. *Impacto de retrasos e interrupciones en radioterapia.* XXV Congreso Anual de la Sociedad Española de Ingeniería Biomédica. CASEIB 2007. November 2007. Proceedings CASEIB 2007 (ISBN: 84-612-0389-7).

- ✓ 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
 Sotolongo-Grau O, Rodríguez Pérez D, Santos Miranda JA, Sotolongo-Costa O, Antoranz JC. *Treatment success in oncology.* International conference on computational and Mathematical Methods in Science and engineering, CMMSE 2006. September 2006. 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)
- ✓ International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2006
 D. Rodríguez-Pérez, O. Sotolongo-Grau, Ramón Espinosa Riquelme, O. Sotolongo-Costa, J. A. Santos Miranda, J.C. Antoranz. *Assesment of cancer immunotherapy outcome in terms of the immune response time features.* International conference on computational and Mathematical Methods in Science and engineering, CMMSE 2006. September 2006. Proceedings of the International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2006. 2006; pp 571-580. (ISBN: 84-611-1090-0)
- ✓ 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.

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]

OTHER WORKING EXPERIENCE

- | | |
|-------------|--|
| 2012 – Now | Fundació ACE, Spain.
Neuroimaging pipeline construction with Fresurfer and FSL.
Bioinformatics analysis.
High Performance Computing Management. |
| 2006 – 2012 | UNED, Spain.
Linux clusters management and development.
Web design, programming and management. |
| 2004 – 2006 | Acens Technologies, Spain.
Management and installation of dedicated servers. Web, Mail and Data servers with Linux and MS Windows.
Administration tools development. |
| 2002 – 2003 | Unisegur, Spain.
IT Consulting.
Network administration and Web programming. |
| 2001 | Lemur Solutions, Spain.
Network administration.
Custom applications programming. |
| 1999 – 2000 | University of Havana, Cuba. Mathematics Faculty.
Network and systems administration. |
| 1996 – 1998 | Metrology Research Institute, Cuba.
Development of calibration and certification methods.
Standards development following ISO-9000. |

LANGUAGE KNOWLEDGE

Spanish	native
English	fair

OTHER KNOWLEGDE AND SKILLS

- ✓ Linux server administration. Clusters & HPC management.
- ✓ Programming languages: C, Perl, Fortran.
- ✓ Bioinformatics and Neuroimaging skills.

REFERENCES

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

Prof. J.C. Antoranz, Ph.D.

Former thesis supervisor

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