

Part A. Personal Information

DATE	January 2023
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Surname(s)	GARCIA-TENORIO GARCIA-BALMASEDA	
Forename	RAFAEL	
Social Security, Passport, ID number		
Sex	Male	
Age	63	
Researcher codes	WoS Researcher ID (*)	H-5288-2015
	SCOPUS Author ID(*)	
	Open Researcher and Contributor ID (ORCID)	0000-0002-3976-4695

(*) At least one of these is mandatory

A.1. Current position

Post/ Professional Category	CATEDRATICO DE UNIVERSIDAD. FULL PROFESSOR	
UNESCO Code	2301.16, 2503.04, 2503.09, 2510.02, 3308.05, 3320.01	
Key Words	Radiation Physics, Environmental Radioactivity, Radiological Protection, Radioecology , Accelerator MassSpectrometry (AMS)	
Name of the University/Institution	Centro Nacional Aceleradores	
	Department/Centre	
	Full Address	Avenida Tomas Alva Edison, 7
	Email Address	gtenorio@us.es
	Phone Number	+34- 954460553
Start date	2001	

A.2. Education (title, institution, date)

Year	University	Degree	Title
1982	Seville	First degree	Physics
		Masters (if appropriate)	
1987	Seville	PhD	Physics

A.3. Indicators of Quality in Scientific Production (See the instructions)

- **Recognized positively six research periods (sexenios)** 1987/1992, 1993/1998, 1999/2004, 2004/2010, 2011-2016, 2017-2022 and **1 transfer of knowledge sexenio**
- In the last ten years, director of **8 PhD Thesis**. Nowadays I am tutorizing another two
- **190 papers published** in journals included in SCI (95 of the papers in journals from the first quartile)
- **1750 citations** in the last 10 years (average of 175 per year)
- **Index h = 33 (scopus) 35 (researchgate)**
- **250 communications** to workshops, conferences and symposia at national and international level

Part B. Free Summary of CV (Max. of 3.500 characters, including spaces)

My scientific career started in 1982, focused since the beginning in the fields of environmental radioactivity, radiation detectors for environmental measurements and radiological protection: I did my doctoral thesis in Pb-210 dating of sediment cores and peats (finished in 1987), doing afterwards in the coming years contributions in the fields of gamma- ray spectrometry, alpha-particle spectrometry and liquid scintillation counting between others centering the interest in Natural radioactivity and in the evaluation of the occupational and environmental radiological impact of NORM industries. In relation with this NORM activities, I have acted as an external expert in missions of the IAEA to Tunes, Jordania, Siris and Brazil, and I have contributed to the drafting of several safety reports and safety guide of the IAEA.

More recently I have done some contributions in the study of the radioactive impact in the south of Spain and in the Pacific Ocean generated by the releases and emissions of artificial radionuclides associated to the Fukushima accident and I have done some original contributions in the evaluation and characterization of the remaining terrestrial contamination due to the Palomares accident using for that physical techniques not conventional in the field of environmental radioactivity. Also I have performed several environmental applications by using accelerator mass spectrometry and I have used accelerator of charged particles for the characterization of environmental samples

Since 2009 my scientific career has been complemented with scientific/administration responsibilities in the National Accelerator Centre (CAN). During 8 years I have been Vice-Director of the Centre and during the last 10 years I am the responsible of the irradiation unit. Of CAN. I am coordinating the efforts of the scientific team supporting this application,

All my research activities during 35 years are reflected in the participation of 12 national projects, in 10 European projects, and other projects financed by the regional government, Consejo de Seguridad Nuclear, CIEMAT, ENRESA, etc. Co-author of more than 190 papers in international journals and more than 250 communications to congress and symposia. I have been the supervisor of 16 PhD thesis and the main organizer of three international conferences: Recently, I have been the IP by the University of Seville in the European project COMET (2015-2017) and the IP in the national projects MINECO FIS2015-69673-P(2015-2018).

I have performed a scientific stay of 15 months in the University of Uppsala (Sweden) and of 2 months in National Institute of Radiological Sciences (Japan). I have given invited lectures in: Atomic Energy Commission of Syria, Finnish Centre for Radiation and Nuclear Safety, Low-level Radioactivity Laboratory, Kanazawa University, (Japan), Universidad de Guanajuato, México, Instituto Tecnológico Nuclear, Sacavem (Portugal), IAEA, Vienna and in several Spanish universities.

Since November 2018 I am the Director of Centro Nacional de Aceleradores

Part C. Relevant accomplishments

C.1. Publications (10 more relevant)

- 1.- M.C.Jiménez-Ramos, **R.García-Tenorio**, I.Vioque, G.Manjón y M.García-León (2006). Presence of plutonium contamination in soils from Palomares (Spain), Environmental Pollution 141, 487-492
- 2.- J.M.Abril, **R.García-Tenorio**, S.Enamorado, M.D.Hurtado, L.Andreu y A.Delgado (2008). The cumulative effect of three decades of phosphogypsum amendments in reclaimed marsh soils from SW of Spain: 226Ra, 238U and Cd in soils and tomato fruits. Science of the Total Environment 403, 80-88
- 3.- S.Hurtado, **R.García-Tenorio** y M.García León (2009).Coincidence summing corrections in gamma-ray spectrometry using GEANT4 code" IEEE Transactions on Nuclear Science 56,1531-1536

- 5.- A.Baeza, J.A. Corbacho, A. Rodríguez, J. Galván, **R.García-Tenorio**, G.Manjón, J. Mantero, I,Vioque, D. Arnold, I. Serrano, I Vallés, A. Vargas (2012). Influence of the Fukushima Daichi nuclear accident on Spanish environmental radioactivity levels. Journal of Environmental Radioactivity 114, 138-145
- 6.-N. Casacuberta, P. Masqué, J. Garcia-Orellana, **R. Garcia-Tenorio** and K.O.Buesseler (2013). ⁹⁰Sr and ⁸⁹Sr in seawater off Japan as a consequence of the Fukushima Dai-ichi nuclear accident. Biogeosciences 10, 3649-3659
- 7.- M.J.Gazquez, J.Mantero, F.Mosqueda, **R.García-Tenorio** y J.P.Bolívar (2014). Radioactive characterization of leachates and efflorescences in the neighbouring areas of a Phosphogypsum Disposal sit as a preliminary step before its restoration. Journal of Environmental Radioactivity 137, 79-87
- 8.- C. Raaf, M. Raberisana, E. Holm, **R. García-Tenorio** and E. Chamizo
“On the Presence of Plutonium in Madagascar Following the SNAP-9A Satellite Failure”
Journal of Environmental Radioactivity 177 (2017) 91-99
- 9.- M. Rodas, **R. García-Tenorio**, J. M. Estela,V. Cerdà and L. Ferrer
“An integrated automatic system to evaluate U and Th dynamic lixiviation from solid matrices and to extract/pre-concentrate leached analytes previous ICP-MS detection”
Talanta 175 (2017) 507-513
10. B. Salbu, V. Kaspharov, O.C.Lind, **R.García-Tenorio**, M.P.Johanssen, D. Child, P. Roos and C. Sancho
“Challenges associated with radioactive particles in the environment”
Journal of Environmental Radioactivity 186 (2018) 101-115

C.2. Research Projects and Grants

- 1.- Title of the project: Resolución de Problemas Ambientales Marinos y Terrestres Clave Mediante Nuevos Desarrollos en Espectrometría de Masas con Acelerador de Baja Energía (Leams) en el CNA IPs: *Rafael García-Tenorio García-Balmaseda / José María López Gutiérrez*Type of Project: *Plan Estatal 2013-2016 Excelencia - Proyectos I+D*
Reference: *FIS2015-69673-P Start: 01-01-2016 Finish: 30-04-2019*
- 2.- Title of the Project: Coordination and implementation of a pan-European Instrument for Radioecology (COMET). European Comission Project number: 604974. FP7-Fission-2013. 15/10/2014 al 31/05/2017. Number of partners: 20, including Universidad de Sevilla 159246 Euros. IP Universidad de Sevilla: Rafael García-Tenorio
- 3- Title of the project: Optimización de un procedimiento general para la determinación de isótopos de Torio en muestras ambientales e industriales. Financed by Consejo de Seguridad Nuclear. Coordinated project between Universidades de Sevilla, Huelva, País Vasco and Salamanca. IP Project J. Carlos Lozano (Univ. Salamanca) IP Universidad de Sevilla: Rafael García-Tenorio. 100000 Euros
- 4.- Title of the project: Espectrometría de masas con aceleradores de bajas energias (LEAMS) en el Centro Nacional de Aceleradores (CNA): datación y aplicaciones ambientales. EntidMinisterio de Economía y Competitividad. 01/10/2012 until 01/10/2015. 122000 Euros IP: Manuel García-León
- 5.- Title of the project: Aplicación de técnicas de datación por isótopos radiactivos en ecosistemas andaluces. Junta de Andalucía (Consejería de Innovación, Ciencia yEmpresas). Coordinated project: Universidades de Sevilla, Huelva, Granada and others. 31/08/2008 until 31/01/2012. 364668 Euros. IP: Rafael García-Tenorio. Number of researchers: 34.

C.3. Contracts

- 1.- Title: Plan De Vigilancia radiological Ambiental. Redes Estaciones Muestreo. Contrato 68/83. Financed by: Consejo de Seguridad Nuclear. 01/01/1999 until now, anual renovation. IP Guillermo Manjón Collado. 54000 Euros (per year).

2.- Title: Plan de Vigilancia Radiológica Ambiental independiente de las instalaciones de el Cabril y la Fábrica de Uranio de Andujar. Contrato 68/83. Financed by Consejo de Seguridad Nuclear. 01/01/2002 until now (annual renovation). IP. Rafael García-Tenorio. 15000 Euros (per year).

3.- Title: Actividades de investigación en medidas de muestras de suelos para su caracterización radiológica. Contrato 68/83. Financed by: CIEMAT. 01/01/2008 al 31/12/2009. 50000 Euros.

4.- Title: Estudio y evaluación del impacto radiológico producido por las actividades de diversas industrias no nucleares del Sur de España. Contrato 68/83. Financed by ENRESA. 01/01/2005 al 31/12/2007. 18000 Euros.

5.- Title: Formación PhD student from Ghanna Atomic Energy Comission. Subvención. Financed by IAEA 01/01/2013 to 31/12/2015. 30600 Euros.

C.4. Patents and other IPR

C.5. DIRECTION of PhD thesis , Master Thesis, etc

A total of 16 PhD thesis directed , External evaluator of thesis from Ireland, India and México

C.6. Participation in committees and international representations

- Member Steering Committee in International Symposia on Naturally Occurring Radioactive Material (NORM Conferences). Promoting entity: IAEA
- Member Steering Committee in the EU-NORM Conferences
- External consultant of IAEA in NORM.issues
- Associated editor in Journal of Chemistry
- Evaluador de proyectos de investigación para la ANEP desde 2009
- Reviewer of the following indexed journals: Journal of Environmental Radioactivity, Applied Radiation Isotopes, Journal of Radioanalytical and Nuclear Chemistry, Radiation Protection Dosimetry, Environmental Monitoring and Assessment, Water Air and Soil Pollution, Marine Pollution Bulletin, Journal of Geochemical Exploration, Science of the Total Environment, Arabian Journal of Chemistry, International Journal of Environmental Analytical Chemistry, Environmental Science and Pollution Research, Geochronometria.....

C.7 Experience in Administration

Secretary Departamento Física Aplicada, Universidad de Sevilla 1992/1995

Vice-Director Escuela Técnica Superior de Arquitectura 1995

Vice-Director del Centro Nacional de Aceleradores 2009 hasta 2017.

Director del Centro Nacional de Aceleradores actualmente

C8.- Experience in Organization of I+D+I activities

- President Organizing Committee IV Jornadas sobre Control de Calidad en la Medida de Radiactividad Ambiental, Sevilla 18-20 May 2005
- President Organizing Committee Vth International Symposium on Naturally Occurring Radioactive Material, 19-23 March 2007.
- President Organizing Committee International Topical Conference on Po and Pb isotopes, Sevilla, October 2009
- President Organizing Committee II International Conference on Radioecological Concentration Processes, Sevilla, November 2016.