CURRÍCULUM VÍTAE NORMALIZADO

Alberto Anadón Barcelona

Generated from: Editor CVN de FECYT

Date of document: 15/07/2021

v 1.4.3

509b4a8f7db5b81e838ac901e628b9be

This electronic file (PDF) has embedded CVN technology (CVN-XML). The CVN technology of this file allows you to export and import curricular data from and to any compatible data base. List of adapted databases available at: http://cvn.fecyt.es/

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN

FECYT FUNDACIÓN ESPAÑOLA PARA LA CIENCIA Y LA TECNOLOGÍA

Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

During PhD, I mainly focused on spin caloritronics, more concretely we developed a system to measure Spin Seebeck effect (SSE) and thermoelectric-thermomagnetic properties of magnetic thin films (such as magnetite, maghemite, Ba-Zn hexaferrites and Ni-Zn ferrites). The main scientific advance obtained during my PhD. was the observation of an enhanced SSE signal present in multilayer structures and its interpretation in terms of the role of the spin current flowing between the magnetic layers in the thickness direction (DOI: 10.1103/ PhysRevB.92.220407).

I have a broad experience in experimental techniques and measurements including: X-ray diffraction and X-ray reflectivity; electrical transport, thermal transport and magnetotransport (PPMS and a "home made" equipment); SQUID and Vibrating sample magnetometry; pulsed laser deposition; scanning tunnelling microscopy and atomic force microscopy. In addition, I have experience with developing measurement systems, control and data analysis software using mainly LabView, Matlab and OriginPro. I have long experience in team working and communication skills in both written and spoken English since very early in my career, when I spent one year at Southampton University, UK; and I also was recipient of several international collaborations (Prof. E. Saitoh, Prof. S. Maekawa, Dr. R. Ramos, Dr. H. Adachi, Tohoku University, Sendai, Japan; Prof. J. Hejmanek, J. Hishner Institute of Physics of the Czech Academy of Sciences, Prague; J. D. Arboleda, University of Antioquia-Medellín, Colombia).

After my PhD I moved as a post-doctoral researcher to the Spin-Orbitronics reseach line, leaded by Paolo Perna, which is enclosed within the nanomagnetism research program at IMDEA nanoscience. I further improved my background in spin-orbit interaction phenomena with a particular emphasis on electrical transport of low-dimensional artificial magnetic structures and interfaces, such as ultrathin magnetic films and multilayers with perpendicular magnetic anisotropy in which spin Hall and interfacial spin-orbit phenomena arise. We aimed at a better understanding of fabrication processes and physical properties of new materials and functionalities as a first step towards the development of devices with custom-chosen properties. The nanomagnetism group at IMDEA has woldwide ongoing collaborations by participating in and coordinating highly competitive EU projects.

Currently I am a postdoc researcher at Institut Jean Lamour in Nancy, France, in the IJL Spin group. I work under the supervision of Prof. Juan-Carlos Rojas-Sanchez. Here we aim at using spintronics in 3D and 2D systems with the aim to obtain more efficient, faster, and environmentally cleaner devices for memory, energy harvesting, and logic applications.

I suggest as possible contacts for references some of my previous group leaders Prof. Juan-Carlos Rojas-Sanchez (juan-carlos.rojas-sanchez@univ-lorraine.fr), Prof. M. R. Ibarra (ibarra@unizar.es) from university of Zaragoza, Prof. Paolo Perna (paolo.perna@imdea.org) and Prof. Julio Camarero (julio.camarero@imdea.org), both from imdea nanoscience.

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Google Scholar (July 2021):
Indexed publications: 19
h-index: 10
i-10 index: 11

Total citations: 435

JCR (July 2021):
Publications in Web of Science 17
Sum of times cited 315
H-index 10
Average citations per item 18.5
Average citations per year 45.0

More than 20 participations in international congresses, including 1 invited contribution, more than 10 oral presentations and several poster presentations.

More than 10 papers reviewed in AIP and ACS journals.

Alberto Anadón Barcelona

Surname(s):	**Anadón Barcelona**
Name:	**Alberto**
DNI:	**17455553W**
ORCID:	**0000-0001-5939-6415**
ResearcherID:	**J-4699-2017**
Date of birth:	**11/12/1989**
Gender:	**Male**
Nationality:	**Spain**
Country of birth:	**Spain**
Aut. region/reg. of birth:	**Aragon**
Contact province:	**Zaragoza**
City of birth:	**Calatayud**
Contact address:	**calle Barrioverde 82**
Postcode:	**50100**
Contact country:	**Spain**
Contact aut. region/reg.:	**Aragon**
Contact city:	**La Almunia de Doña Godina**
Email:	**anadonbarcelona@gmail.com**
Mobile phone:	**(+34) 646376372**

Current professional situation

Employing entity: FUNDACIÓN IMDEA NANOCIENCIA
Professional category: postdoctoral fellow **Educational Management (Yes/No):** No
City employing entity: Madrid, Community of Madrid, Spain
Email: alberto.anadon@imdea.org
Start date: 15/10/2017
Type of contract: Temporary employment contract **Dedication regime:** Full time
Primary (UNESCO code): 220208 - Magnetism; 221109 - Electron carrier properties; 221111 - Electron transport properties; 221126 - Solid state devices; 221190 - Solid state Physics. Foil
Secondary (UNESCO code): 220200 - Electro-magnetism; 221100 - Solid state physics; 330713 - Recording devices; 331101 - Automation technology
Performed tasks: Solid-state physics and material science of low dimensional magnetic structures, covering epitaxial growth as well as surface/interface and magnetotransport characterization and nanofabrication. Design and fabrication of novel spintronics and spin-orbitronic devices by employing materials with tailored interface functionalities.
Identify key words: Fisica lm -- sistemas de bajas dimensiones y mesoscopicos [eng]
Applicability in teaching and/or research: Continued increases in the density of random access memory (RAM) technologies require new more efficient materials and devices. In this context the develoment of magnetoresistive random-access memory, which is a non-volatile random-access memory technology and is already a commertial product, combines all the strengths and none of the weaknesses of the existing RAM memory types.

Previous positions and activities

	Employing entity	Professional category	Start date
1	FUNDACIÓN IMDEA NANOCIENCIA	Postdoctoral Researcher	01/10/2017
2	Universidad de Zaragoza	Predoctoral fellow (Competitive predoctoral grant awarded by the Aragón regional gobernment)	01/03/2013
3	Universidad de Zaragoza	Predoctoral fellow (Competitive, awarded by the Institute of nanoscience of Aragón)	01/10/2012
4	Universidad de Zaragoza	Predoctoral fellow (Competitive, awarded by the Institute of nanoscience of Aragón)	01/07/2012
5	Universidad de Zaragoza	Bachelor student (Competitive, awarded by the Institute of nanoscience of Aragón)	01/07/2011
6	Universidad de Zaragoza	Bachelor student (Competitive, awarded by the electronic design group)	01/07/2010
7	Institut Jean Lamour	Postdoctoral Researcher	15/10/2020

1 **Employing entity:** FUNDACIÓN IMDEA NANOCIENCIA
Professional category: Postdoctoral Researcher
Start-End date: 01/10/2017 - 15/10/2020 **Duration:** 3 years - 15 days

2 **Employing entity:** Universidad de Zaragoza **Type of entity:** University
Department: Física de la materia condensada, Instituto de nanociencia de Aragón, Universidad de Zaragoza
City employing entity: Zaragoza, Aragon, Spain
Professional category: Predoctoral fellow (Competitive predoctoral grant awarded by the Aragón regional gobernment) **Educational Management (Yes/No):** No
Phone: (34) 976762987 - 2987 **Email:** anadonb@unizar.es;anadonbarcelona@gmail.com
Start-End date: 01/03/2013 - 28/02/2017 **Duration:** 4 years
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 221111 - Electron transport properties; 221117 - Magnetic properties; 221126 - Solid state devices; 221190 - Solid state Physics. Foil
Secondary (UNESCO code): 221109 - Electron carrier properties; 221129 - Thermal properties of solids
Tertiary (UNESCO code): 221199 - Other
Performed tasks: During the period of my Ph.D. I have performed diversed activities. Here I list the most relevant tasks that I have performed: Research in the field of spin caloritronics. The main objective of the work I performed was the study of the physical principles that govern the spin Seebeck effect in nanostructures based on magnetite/platinum thin films, the optimization of related properties, and the fabrication of thermoelectric devices using this nanostructures. Growth of thin film nanostrucures by means of pulsed laser deposition and sputtering. Development of a system able to perform thermoelectric and thermomagnetic measurements, including the control and analysis software developed using LabView. Characterization of thin films and bulk systems, including: electronic transport properties, thermoelectric and thermomagnetic properties, thermal transport, magnetic properties using vibrating sample and SQUID magnetometers and photolithography carried out at a clean room.
Identify key words: Fisica lm -- sistemas de bajas dimensiones y mesoscopicos [eng]
Applicability in teaching and/or research: Thermoelectrics are a potentially transformative power generation technology because they possess the property to convert directly heat into an electric voltage. In addition, thermoelectrics are a pollution- free method for generating energy. Until last decade, efficiency of thermoelectric materials has remained low, but due to the study of

nanostructured materials they are becoming promising for commercial use. Our work is focused on studying spin dependent thermal transport properties of nanoestructured materials. This recent field is called spin caloritronics and is a very active topic within the spintronics community.

3 **Employing entity:** Universidad de Zaragoza **Type of entity:** University
Department: Instituto de nanociencia de Aragón, Instituto de nanociencia de Ara?on
City employing entity: Zaragoza, Aragon, Spain
Professional category: Predoctoral fellow (Competitive, awarded by the Institute of nanoscience of Aragón) **Educational Management (Yes/No):** No
Start-End date: 01/10/2012 - 28/02/2013 **Duration:** 3 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 221109 - Electron carrier properties; 221114 - Interfaces; 221117 - Magnetic properties; 221126 - Solid state devices; 221129 - Thermal properties of solids; 221302 - Heat transfer (physics of); 221308 - Thermal measurement techniques; 221311 - Transport phenomena; 331208 - Máterial properties; 332202 - Power generation
Performed tasks: During the period of my Ph.D. I have performed diversed activities. Here I list the most relevant tasks that I have performed: Research in the field of spin caloritronics. The main objective of the work I performed was the study of the physical principles that govern the spin Seebeck effect in nanostructures based on magnetite/platinum thin films, the optimization of related properties, and the fabrication of thermoelectric devices using this nanostructures. Growth of thin film nanostrucures by means of pulsed laser deposition and sputtering. Development of a system able to perform thermoelectric and thermomagnetic measurements, including the control and analysis software developed using LabView Characterization of thin films and bulk systems, including: electronic transport properties, thermoelectric and thermomagnetic properties, thermal transport, magnetic properties using vibrating sample and SQUID magnetometers and photolithography carried out at a clean room.
Identify key words: Magnetism
Applicability in teaching and/or research: Thermoelectrics are a potentially transformative power generation technology because they possess the property to convert directly heat into an electric voltage. In addition, thermoelectrics are a pollution- free method for generating energy. Until last decade, efficiency of thermoelectric materials has remained low, but due to the study of nanostructured materials they are becoming promising for commercial use. Our work is focused on studying spin dependent thermal transport properties of nanoestructured materials. This recent field is called spin caloritronics and is a very active topic within the spintronics community.

4 **Employing entity:** Universidad de Zaragoza **Type of entity:** University
Department: Instituto de nanociencia de Aragón, Instituto de nanociencia de Ara?on
City employing entity: Zaragoza, Aragon, Spain
Professional category: Predoctoral fellow (Competitive, awarded by the Institute of nanoscience of Aragón) **Educational Management (Yes/No):** No
Start-End date: 01/07/2012 - 30/09/2012 **Duration:** 3 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 221109 - Electron carrier properties; 221111 - Electron transport properties; 221117 - Magnetic properties; 221190 - Solid state Physics. Foil; 331208 - Máterial properties; 332202 - Power generation
Performed tasks: Master thesis focused on the study of thermoelectric and thermomagnetic properties of thin films and bulk systems, focusing on oxides. Development of a system able to perform thermoelectric and thermomagnetic measurements, including the control and analysis software developed using LabView.
Identify key words: Magnetism

5 **Employing entity:** Universidad de Zaragoza **Type of entity:** University
Department: Instituto de nanociencia de Aragón, Instituto de nanociencia de Ara?on
City employing entity: Zaragoza, Aragon, Spain
Professional category: Bachelor student (Competitive, awarded by the Institute of nanoscience of Aragón) **Educational Management (Yes/No):** No
Start-End date: 01/07/2011 - 30/09/2011 **Duration:** 3 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 221111 - Electron transport properties; 221117 - Magnetic properties; 221128 - Surfaces; 221190 - Solid state Physics. Foil
Performed tasks: Bachelor thesis and research project as an optional module for the Physics degree. Research on thin film growth (by pulsed laser deposition) and charaterization for spintronics. Study of the electronic transport properties of a 2D electron gas in STO/STO:Nb ultrathin films.
Identify key words: Magnetism; Transiciones metal-aislante y densidad de carga [eng]

6 **Employing entity:** Universidad de Zaragoza **Type of entity:** University
Department: Group of Electronic Design - Center of Mixed ASICs Design (GDE-CDAM), Facultad de Ciencias
City employing entity: Zaragoza, Aragon, Spain
Professional category: Bachelor student (Competitive, awarded by the electronic design group) **Educational Management (Yes/No):** No
Start-End date: 01/07/2010 - 30/09/2010 **Duration:** 3 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 220302 - Circuit elements; 220306 - Electron transport; 220307 - Integrated circuits
Performed tasks: Design and characterization of integrated circuits using specialized software and tools. Characterization of the temperature response of electronic devices. Instrument control and data analysis using MatLab.
Identify key words: Verification of analogic integrated circuits; Design of analogic integrate circuits

7 **Employing entity:** Institut Jean Lamour
Professional category: Postdoctoral Researcher
Start date: 15/10/2020

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **University degree:** Higher degree
Name of qualification: Máster Universitario en Profesorado de Física y Química para E.S.O. y Bachillerato
Degree awarding entity: Universidad de Zaragoza **Type of entity:** University
Date of qualification: 21/09/2017

2 **University degree:** Higher degree
Name of qualification: Máster en Física y tecnologías físicas
Degree awarding entity: Universidad de Zaragoza **Type of entity:** University
Date of qualification: 22/08/2013

3 **University degree:** Higher degree
Name of qualification: Licenciado en Física
Degree awarding entity: Universidad de Zaragoza **Type of entity:** University
Date of qualification: 13/09/2012

Doctorates

Doctorate programme: Programa Oficial de Doctorado en Física
Degree awarding entity: Universidad de Zaragoza **Type of entity:** University
City degree awarding entity: Zaragoza, Aragon, Spain
Date of degree: 14/07/2017
European doctorate: No
Thesis title: Spin Seebeck effect in magnetite nanostructures
Thesis director: Manuel Ricardo Ibarra García
Thesis co-director: Myriam Haydee Aguirre
Obtained qualification: Maximum grade. Cum Laude
Recognition of quality: Yes
Standardised degree: Yes

Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

1 **Training title:** XXII International summer school "Nicolás Cabrera". New directions in spintronics and nanomagnetism
Awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
End date: 16/07/2015

2 **Training title:** Novel frontiers in Magnetism
Awarding entity: Universidad de Zaragoza **Type of entity:** University
End date: 15/02/2014 **Duration in hours:** 40 hours

3 **Training title:** Técnicas de nanofabricación para aplicaciones en nanotecnología
Awarding entity: Universidad de Zaragoza **Type of entity:** University
End date: 06/07/2011 **Duration in hours:** 40 hours

4 **Training title:** Diploma of higher education in physics and astronomy
Awarding entity: University of Southampton, UK **Type of entity:** University
End date: 30/06/2011 **Duration in hours:** 600 hours

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
Japanese	A1	A1	A1	A1	A1
English	C1	C1	C1	C1	C1
Spanish					

Teaching experience

General teaching experience

1 **Name of the course:** Física II
University degree: Graduado en Ingeniería de Tecnologías Industriales (30 horas)
Start date: 15/09/2014 **End date:** 18/09/2016
Entity: Universidad de Zaragoza **Type of entity:** University

2 **Name of the course:** Física 2
University degree: Graduado en Estudios en Arquitectura (30 horas)
Start date: 15/09/2014 **End date:** 20/09/2015
Entity: Universidad de Zaragoza **Type of entity:** University

3 **Name of the course:** Semana de inmersión en la ciencia
University degree: Semana de inmersión en la ciencia 2015 (20 horas)
Start date: 15/06/2015 **End date:** 19/06/2015
Entity: Universidad de Zaragoza **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias

Scientific and technological experience

Research and development groups/teams

1 **Name of the group:** Pertenencia a instituto de investigación
Affiliation entity: FUNDACIÓN IMDEA NANOCIENCIA
Start date: 15/10/2017

2 **Name of the group:** Pertenencia a instituto de investigación universitaria
Affiliation entity: INSTITUTO DE NANOCIENCIA DE ARAGÓN (INA) **Type of entity:** University Research Institute

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** P2018/NMT4321 – NANOMAGCOSTCM – "Nanomagnetism solutions to the Challenges of Society"
Entity where project took place: FUNDACIÓN IMDEA NANOCIENCIA
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Miranda
Start-End date: 01/01/2019 - 31/12/2022
Total amount: 1.064.800 €

2 **Name of the project:** HISTRA
Entity where project took place: IEEE Magnetics **Type of entity:** Associations and Groups
Name principal investigator (PI, Co-PI....): Adrián Gudín Holgado; Alberto Anadón Barcelona
Nº of researchers: 2
Start-End date: 01/01/2021 - 31/12/2021
Total amount: 10.000 €

3 **Name of the project:** ByAxon
Entity where project took place: FUNDACIÓN IMDEA NANOCIENCIA
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Rodolfo Miranda; Teresa González
Start-End date: 01/01/2017 - 31/12/2020
Total amount: 3.750.000 €

4 **Name of the project:** SKYTRON (FIS2016-78591-C3-1-R) Towards tailored magnetic skyrmions for spintronic applications in energy saving technologies.
Entity where project took place: FUNDACIÓN IMDEA NANOCIENCIA
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Julio Camarero De Diego
Start-End date: 01/01/2016 - 31/12/2019
Total amount: 253.000 €

5 **Name of the project:** NANOFRONTMAG-CM
Entity where project took place: FUNDACIÓN IMDEA NANOCIENCIA
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Rodolfo Miranda
Nº of researchers: 70
Start-End date: 2014 - 2018
Total amount: 962.500 €

6 **Name of the project:** ELEMENTOS Y DISPOSITIVOS ESPINTRONICOS PARA APLICACIONES CON BAJO CONSUMO DE ENERGIA
Entity where project took place: INSTITUTO DE CIENCIA DE MATERIALES DE ARAGON (ICMA)
City of entity: Zaragoza, Aragon, Spain
Name principal investigator (PI, Co-PI....): Jose Ángel Pardo; César Magén
Nº of researchers: 5
Start-End date: 01/01/2015 - 31/12/2017
Total amount: 160.000 €

7 **Name of the project:** SOGRAPHENE (FLAG-ERA JTC)
Entity where project took place: FUNDACIÓN IMDEA NANOCIENCIA
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Paolo Perna; Julio Camarero; Rodolfo Miranda
Start-End date: 01/01/2015 - 31/12/2017
Total amount: 1.200.000 €

8 **Name of the project:** GRUPO CONSOLIDADO E26 MAGNETISMO EN NANOESTRUCTURAS Y SUS APLICACIONES (MAGNA)
Geographical area: Regional
Entity where project took place: Facultad De Ciencias - Universidad de Zaragoza
Name principal investigator (PI, Co-PI....): Manuel Ricardo Ibarra García
Nº of researchers: 32
Funding entity or bodies:
DIPUTACIÓN GENERAL DE ARAGÓN

Start-End date: 01/01/2016 - 31/12/2016 **Duration:** 1 year
Total amount: 26.198 €

9 **Name of the project:** THERMO-SPINTRONIC - HIGH PERFORMANCE ENERGY CONVERSION BY THE INTERPLAY BETWEEN THERMOELECTRICITY AND SPIN SEEBECK EFFECT (FP7 - GA nº 304043)
Geographical area: European Union
Entity where project took place: Instituto Universitario De Investigación En Nanociencia De Aragón - Universidad de Zaragoza
Name principal investigator (PI, Co-PI....): Myriam Haydée Aguirre; Manuel Ricardo Ibarra García
Nº of researchers: 4
Funding entity or bodies:
UNION EUROPEA

Start-End date: 01/09/2012 - 31/08/2016 **Duration:** 4 years
Total amount: 100.000 €

10 **Name of the project:** GRUPO CONSOLIDADO E26 MAGNETISMO EN NANOESTRUCTURAS
Geographical area: Regional
Entity where project took place: Facultad De Ciencias - Universidad de Zaragoza

Name principal investigator (PI, Co-PI....): Manuel Ricardo Ibarra García
Nº of researchers: 35
Funding entity or bodies:
DIPUTACIÓN GENERAL DE ARAGÓN

Start-End date: 01/01/2014 - 31/12/2014 **Duration:** 1 year
Total amount: 27.357 €

11 **Name of the project:** NANOCIENCIA Y NUEVOS MATERIALES PARA DESAFIOS MEDIOAMBIENTALES
Entity where project took place: Facultad De Ciencias - Universidad de Zaragoza **Type of entity:** University
City of entity: Zaragoza, Aragon, Spain
Nº of researchers: 11
Start-End date: 01/12/2011 - 31/12/2014
Total amount: 158.000 €

12 **Name of the project:** E26 MAGNETISMO EN NANOESTRUCTURAS
Entity where project took place: Facultad de Ciencias **Type of entity:** University
City of entity: Zaragoza, Aragon, Spain
Name principal investigator (PI, Co-PI....): Manuel Ricardo Ibarra García
Nº of researchers: 34
Funding entity or bodies:
DIPUTACION GENERAL DE ARAGON

Start-End date: 01/01/2013 - 31/12/2013
Total amount: 20,83 €

Results

Industrial and intellectual property

Title registered industrial property: SPIN SEEBECK THERMOELECTRIC DEVICE, METHOD AND USE
Type of industrial property: Patent of invention
Inventors/authors/obtainers: IBARRA GARCÍA, MANUEL RICARDO; MORELLÓN ALQUÉZAR, LUIS ALBERTO; AGUIRRE , MYRIAM HAYDÉE; RAMOS AMIGO, RAFAEL ENRIQUE; ANADÓN BARCELONA, ALBERTO; ALGARABEL LAFUENTE, PEDRO ANTONIO; LUCAS DEL POZO, IRENE
Entity holder of rights: UNIVERSIDAD DE ZARAGOZA (49.5%) - UNIVERSIDAD DE TOHOKU (40%) - FUNDACION ARAGON I+D (3.5%) - C.S.I.C. (7%)
Date of register: 2014
Licences: No

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 Anadon, A.; Ramos, R.; Lucas, I.; Algarabel, P. A.; Morellon, L.; Ibarra, M. R.; Aguirre, M. H.. Characteristic length scale of the magnon accumulation in Fe3O4/Pt bilayer structures by incoherent thermal excitation. APPLIED PHYSICS LETTERS. 109 - 1, AMER INST PHYSICS, 04/07/2016. ISSN 1077-3118

Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 3.411
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 148
Source of citations: WOS
Citations: 4
Relevant publication: Yes

2 Ramos, R.; Kikkawa, T.; Aguirre, M. H.; Lucas, I.; Anadon, A.; Oyake, T.; Uchida, K.; Adachi, H.; Shiomi, J.; Algarabel, P. A.; Morellon, L.; Maekawa, S.; Saitoh, E.; Ibarra, M. R.. Unconventional scaling and significant enhancement of the spin Seebeck effect in multilayers. PHYSICAL REVIEW B. 92 - 22, AMER PHYSICAL SOC, 11/12/2015. ISSN 1550-235X

Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - PHYSICS, CONDENSED MATTER
Impact index in year of publication: 3.718
Journal in the top 25%: Yes
Position of publication: 16
No. of journals in the cat.: 67
Source of citations: WOS
Citations: 22
Relevant publication: Yes

3 Alberto Anadón; Adrián Gudín; Rubén Guerrero; Iciar Arnay; Alejandra Guedeja-Marron; Pilar Jiménez-Cavero; Jose Manuel Díez Toledano; Fernando Ajejas; María Varela; Sebastien Petit-Watelot; Irene Lucas; Luis Morellón; Pedro Antonio Algarabel; Manuel Ricardo Ibarra; Rodolfo Miranda; Julio Camarero; Juan Carlos Rojas-Sánchez; Paolo Perna. Engineering the spin conversion in graphene monolayer epitaxial structures. APL Materials. 9 - 6, pp. 061113 - 061113. 2021. Available on-line at: <https://doi.org/10.1063/5.0048612>.

Type of production: Scientific paper
Format: Journal

4 María Blanco-Rey; Paolo Perna; Adrian Gudin; Jose Manuel Diez; Alberto Anadón; Pablo Olleros-Rodríguez; Leticia de Melo Costa; Manuel Valvidares; Pierluigi Gargiani; Alejandra Guedeja-Marron; Mariona Cabero; María Varela; Carlos García-Fernández; Mikhail M. Otrokov; Julio Camarero; Rodolfo Miranda; Andrés Arnau; Jorge I. Cerdá. Large Perpendicular Magnetic Anisotropy in Nanometer-Thick Epitaxial Graphene/Co/Heavy Metal Heterostructures for Spin–Orbitronics Devices. ACS Applied Nano Materials. 4 - 5, pp. 4398 - 4408. 2021. Available on-line at: <https://doi.org/10.1021/acsanm.0c03364>.

Type of production: Scientific paper
Format: Journal

5 Fernando Ajejas; Alberto Anadon; Adrian Gudin; José Manuel Diez; Cosme G. Ayani; Pablo Olleros-Rodríguez; Leticia de Melo Costa; Cristina Navío; Alejandro Gutierrez; Fabian Calleja; Amadeo L. Vázquez de Parga; Rodolfo Miranda; Julio Camarero; Paolo Perna. Thermally Activated Processes for Ferromagnet Intercalation in

Graphene-Heavy Metal Interfaces. ACS Applied Materials & Interfaces. 12 - 3, pp. 4088 - 4096. 2020. Available on-line at: <https://doi.org/10.1021/acsami.9b19159>.
Type of production: Scientific paper **Format:** Journal

6 Fernando Ajejas; Alberto Anadon; Adrian Gudin; Jose Manuel Diez; Cosme G Ayani; Pablo Olleros-Rodr{\'\i}guez; Leticia De Melo Costa; Cristina Navio; Alejandro Gutierrez; Fabian Calleja; others. Thermally Activated Processes for Ferromagnet Intercalation in Graphene-Heavy Metal Interfaces. ACS Applied Materials & Interfaces. ACS Publications, 2019.
Type of production: Scientific paper **Format:** Journal

7 Rafael Ramos; Takashi Kikkawa; Alberto Anadón; Irene Lucas; T Niizeki; Ken-ichi Uchida; Pedro Algarabel; Luis Morellón; Myriam Aguirre; Manuel Ricardo Ibarra; Eiji Saitoh. interfaced-induced ANE in Fe3O4/Pt. Applied Physics letters. 2019.
Type of production: Scientific paper **Format:** Journal
Corresponding author: No

8 J.D. Arboleda; O. Arnache; M.H. Aguirre; R. Ramos; A. Anadón; M.R. Ibarra. Evidence of the spin Seebeck effect in Ni-Zn ferrites polycrystalline slabs. Solid State Communications. 270, pp. 140 - 146. 2018. ISSN 0038-1098
Type of production: Scientific paper **Format:** Journal

9 Fernando Ajejas; Adrian Gud{\'\i}n; Ruben Guerrero; Alberto Anadon; Jose Manuel Diez; Leticia de Melo Costa; Pablo Olleros; Miguel Angel Ni{\~n}o; St{\'e}fania Pizzini; Jan Vogel; others. Unraveling Dzyaloshinskii--Moriya interaction and chiral nature of Graphene/Cobalt interface. Nano letters. 18 - 9, pp. 5364 - 5372. ACS Publications, 2018.
Type of production: Scientific paper **Format:** Journal

10 Seifert, T.; Martens, U.; Guenther, S.; Schoen, M. A. W.; Radu, F.; Chen, X. Z.; Lucas, I.; Ramos, R.; Aguirre, M. H.; Algarabel, P. A.; Anadon, A.; Koerner, H. S.; Walowski, J.; Back, C.; Ibarra, M. R.; Morellon, L.; Saitoh, E.; Wolf, M.; Song, C.; Uchida, K.; Muenzenberg, M.; Radu, I.; Kampfrath, T.. Terahertz Spin Currents and Inverse Spin Hall Effect in Thin-Film Heterostructures Containing Complex Magnetic Compounds. SPIN. 7 - 3, WORLD SCIENTIFIC PUBL CO PTE LTD, 01/09/2017. ISSN 2010-3247
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 1

11 Hirschner, J.; Marysko, M.; Hejtmanek, J.; Uhrecky, R.; Soroka, M.; Bursik, J.; Anadon, A.; Aguirre, M. H.; Knizek, K.. Spin Seebeck effect in Y-type hexagonal ferrite thin films. PHYSICAL REVIEW B. 96 - 6, AMER PHYSICAL SOC, 23/08/2017. ISSN 2469-9950
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 0

12 Uchida, K.; Iguchi, R.; Daimon, S.; Ramos, R.; Anadon, A.; Lucas, I.; Algarabel, P. A.; Morellon, L.; Aguirre, M. H.; Ibarra, M. R.; Saitoh, E.. Enhancement of the spin Peltier effect in multilayers. PHYSICAL REVIEW B. 95 - 18, AMER PHYSICAL SOC, 30/05/2017. ISSN 2469-9950, ISSN 2469-9969
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 1

13 Jimenez-Cavero, P.; Lucas, I.; Anadon, A.; Ramos, R.; Niizeki, T.; Aguirre, M. H.; Algarabel, P. A.; Uchida, K.; Ibarra, M. R.; Saitoh, E.; Morellon, L.. Spin Seebeck effect in insulating epitaxial gamma-Fe2O3 thin films. APL MATERIALS. 5 - 2, AMER INST PHYSICS, 01/02/2017. ISSN 2166-532X
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 1

14 R Ramos; T Kikkawa; A Anadón; I Lucas; K Uchida; PA Algarabel; L Morellón; MH Aguirre; E Saitoh; MR Ibarra. Temperature dependence of the spin Seebeck effect in [Fe3O4/Pt]n multilayers. AIP Advances. 7 - 5, pp. 055915 - 055915. AIP Publishing, 2017.

DOI: https://doi.org/10.1063/1.4974060

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Total no. authors: 10
Corresponding author: No
Impact source: ISI
Category: PHYSICS, APPLIED
Impact index in year of publication: 1.653
Journal in the top 25%: No
Position of publication: 81
No. of journals in the cat.: 146

15 Ramos, R.; Anadon, A.; Lucas, I.; Uchida, K.; Algarabel, P. A.; Morellon, L.; Aguirre, M. H.; Saitoh, E.; Ibarra, M. R.. Thermoelectric performance of spin Seebeck effect in Fe3O4/Pt-based thin film heterostructures. APL MATERIALS. 4 - 10, AMER INST PHYSICS, 01/10/2016. ISSN 2166-532X

Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 4.335
Journal in the top 25%: Yes
Position of publication: 24
No. of journals in the cat.: 148

Impact source: ISI
Category: Science Edition - NANOSCIENCE & NANOTECHNOLOGY
Impact index in year of publication: 4.335
Journal in the top 25%: No
Position of publication: 29
No. of journals in the cat.: 87

Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 4.335
Journal in the top 25%: Yes
Position of publication: 47
No. of journals in the cat.: 275

Source of citations: WOS
Citations: 10

16 David Arboleda, Juan; Arnache Olmos, Oscar; Haydee Aguirre, Myriam; Ramos, Rafael; Anadon, Alberto; Ricardo Ibarra, Manuel. Spin Seebeck effect in a weak ferromagnet. APPLIED PHYSICS LETTERS. 108 - 23, AMER INST PHYSICS, 06/06/2016. ISSN 0003-6951, ISSN 1077-3118

Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 3.411
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 148

Source of citations: WOS
Citations: 1

17 Ramos, R.; Aguirre, M. H.; Anadon, A.; Blasco, J.; Lucas, I.; Uchida, K.; Algarabel, P. A.; Morellon, L.; Saitoh, E.; Ibarra, M. R.. Anomalous Nernst effect of Fe3O4 single crystal. PHYSICAL REVIEW B. 90 - 5, AMER PHYSICAL SOC, 26/08/2014. ISSN 1098-0121, ISSN 1550-235X

Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - PHYSICS, CONDENSED MATTER
Impact index in year of publication: 3.736
Journal in the top 25%: Yes
Position of publication: 14
No. of journals in the cat.: 67

Source of citations: WOS
Citations: 22

18 Alberto Anadón. Interfacial spin-orbit torques in metallic multilayers [In preparation].
Type of production: Scientific paper
Corresponding author: Yes

Works submitted to national or international conferences

1 **Title of the work:** Disentangling the anomalous Nernst and spin Seebeck effect in epitaxial Graphene/Cobalt heterostructures
Name of the conference: Tohoku-Lorraine Joint Conference 2021
Corresponding author: Yes
City of event: Online, France
Date of event: 03/03/2021
End date: 03/03/2021
Organising entity: Universite de Lorraine
City organizing entity: Nancy, France,

2 **Title of the work:** Spin-Orbit Torque from the Introduction of Cu Interlayers in Pt/Cu/Co/Pt Nanolayered Structures for Spintronic Devices
Name of the conference: CMD 2020 GEFES
Corresponding author: Yes
City of event: Online, Spain
Date of event: 31/08/2020
End date: 04/09/2020
Organising entity: EPS, GEFES, RSEF **Type of entity:** Associations and Groups
City organizing entity: Spain

3 **Title of the work:** Disentangling the anomalous Nernst and spin Seebeck effect in epitaxial graphene/cobalt heterostructures (Oral presentation)
Name of the conference: Intenational symposium on metallic multilayers
Corresponding author: Yes
City of event: Madrid, Community of Madrid, Spain
Date of event: 24/06/2019
End date: 28/06/2019
Organising entity: FUNDACIÓN IMDEA NANOCIENCIA
Alberto Anadón Barcelona; Rubén Guerrero; Pilar Jimenez-Cavero; Adrián Gudin; Jose Manuel Díez-Toledano; Pablo Olleros; Fernando Ajejas; Leticia De Melo Costa; Irene Lucas; Luis Morellón; Pedro Antonio Algarabel; Manuel Ricardo Ibarra; Rodolfo Miranda; Paolo Perna; Julio Camarero.

4 **Title of the work:** Disentangling the anomalous Nernst and spin Seebeck effect in epitaxial graphene/cobalt heterostructures (Oral presentation)
Name of the conference: Sol-Skymag 2019
Corresponding author: Yes
City of event: San Sebastián, Basque Country, Spain
Date of event: 24/06/2019
End date: 28/06/2019
Alberto Anadón Barcelona; Rubén Guerrero; Pilar Jimenez-Cavero; Adrián Gudin; Jose Manuel Díez-Toledano; Pablo Olleros; Fernando Ajejas; Leticia De Melo Costa; Irene Lucas; Luis Morellón; Pedro Antonio Algarabel; Manuel Ricardo Ibarra; Rodolfo Miranda; Paolo Perna; Julio Camarero.

5 **Title of the work:** Determination of the Dzyaloshinskii-Moriya interaction in epitaxial asymmetric trilayers. (Oral Presentation)
Name of the conference: 2019 Joint MMM-intermag
Corresponding author: No
City of event: Washington D.C., United States of America
Date of event: 14/01/2019
End date: 18/01/2019
Organising entity: IEEE magnetics **Type of entity:** Associations and Groups
Fernando Ajejas; Adrián Gudín; Alberto Anadón Barcelona; Rubén Guerrero; Jan Vogel; Julio Camarero; Stefania Pizzini; Paolo Perna.

6 **Title of the work:** Unravelling Dzyaloshinskii–Moriya interaction and chiral nature of Graphene/Cobalt interface. (Oral presentation)
Name of the conference: 2019 Joint MMM-intermag
Corresponding author: Yes
City of event: Washington D.C., United States of America
Date of event: 14/01/2019
End date: 18/01/2019
Organising entity: IEEE magnetics
Alberto Anadón; Fernando Ajejas; Jose Manuel Díez; Pablo Olleros; Leticia De Melo Costa; Adrián Gudín; Rubén Guerrero; Stefania Pizzini; Jan Vogel; Manuel Valvidares; Pierluigi Gargiani; Maria Varela; Julio Camarero; Rodolfo Miranda; Paolo Perna.

7 **Title of the work:** Low current modifications in anomalous Hall effect signals in perpendicularly magnetized systems (oral presentation)
Name of the conference: Sol-Skymag 2018
Corresponding author: Yes
City of event: San Sebastián, Basque Country, Spain
Date of event: 18/06/2018
End date: 22/06/2018
Organising entity: IKERBASQUE
Rubén Guerrero; Alberto Anadón; Adrián Gudín; Fernando Ajejas; Jose Manuel Díez; Julio Camarero; Rodolfo Miranda; Paolo Perna.

8 **Title of the work:** Tuning domain wall velocity with Dzyaloshinskii-Moriya interaction in epitaxial asymmetric trilayers (oral presentation)
Name of the conference: Sol-Skymag 2018
Corresponding author: No
City of event: San Sebastián, Basque Country, Spain
Date of event: 18/06/2018
End date: 22/06/2018
Organising entity: IKERBASQUE
Fernando Ajejas; Adrián Gudín; Alberto Anadón; Jose Manuel Díez; Julio Camarero; Rubén Guerrero; Paolo Perna.

9 **Title of the work:** Magnon diffusion in Fe3O4 thin films (Poster presentation)
Name of the conference: To-Be Meeting Spring 2016
Corresponding author: Yes
City of event: Warwick, West Midlands, United Kingdom
Date of event: 06/04/2016
End date: 08/04/2016
Organising entity: MP1308 COST action TO-BE **Type of entity:** Associations and Groups

Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García; Myriam Haydee Aguirre.

10 **Title of the work:** Magnon diffusion in Fe3O4 heterostructures (Oral presentation)
Name of the conference: 20th International Conference on Solid Compounds of Transition Elements
Corresponding author: Yes
City of event: Zaragoza, Aragon, Spain
Date of event: 04/2016
Organising entity: Universidad de Zaragoza **Type of entity:** University
City organizing entity: Zaragoza, Aragon, Spain
Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García; Myriam Haydee Aguirre.

11 **Title of the work:** Study of the Spin Seebeck effect dependence on Fe3O4 thin film thickness (Oral presentation)
Name of the conference: 2015 MRS Fall Meeting & Exhibit
Corresponding author: Yes
City of event: Boston, United States of America
Date of event: 29/11/2015
End date: 04/12/2015
Organising entity: Materials Research Society
City organizing entity: Warrendale, PA, United States of America
Rafael Ramos Amigo; Alberto Anadón Barcelona; Irene Lucas; Myriam Haydee Aguirre; Takashi Kikkawa; ken-ichi Uchida; Hiroto Adachi; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Sadamichi Makawa; Eiji Saitoh; Manuel Ricardo Ibarra García.

12 **Title of the work:** Comprehensive study of NIckel-Zinc ferrites as an opportunity for spincaloritronics applications (Poster presentation)
Name of the conference: 20th International Conference on Magnetism
Corresponding author: No
City of event: Barcelona, Catalonia, Spain
Date of event: 05/07/2015
Juan David Arboleda; Oscar Arnache; Myriam Haydee Aguirre; Alberto Anadón Barcelona; Rafael Ramos Amigo; Manuel Ricardo Ibarra García.

13 **Title of the work:** Spin Seebeck and anomalous Nernst effect in magnetite epitaxial thin films grown on different substrates (Oral presentation)
Name of the conference: 20th International Conference on Magnetism
Corresponding author: No
City of event: Barcelona, Catalonia, Spain
Date of event: 05/07/2015
Myriam Haydee Aguirre; Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García.

14 **Title of the work:** Spin Seebeck and anomalous Nernst effect in magnetite epitaxial thin films grown on different substrates (Poster presentation)
Name of the conference: 20th International Conference on Magnetism
Corresponding author: No
City of event: Barcelona, Catalonia, Spain
Date of event: 05/07/2015
Myriam Haydee Aguirre; Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García.

15 **Title of the work:** Study of the magnon diffusion in Fe3O4 heterostructures (Poster presentation)
Name of the conference: 20th International Conference on Magnetism
Corresponding author: Yes
City of event: Barcelona, Catalonia, Spain
Date of event: 05/07/2015
Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García; Myriam Haydee Aguirre.

16 **Title of the work:** Thermal spin current generation in Fe3O4/Pt thin films (Awarded best poster presentation)
Name of the conference: 20th International Conference on Magnetism
Corresponding author: No
City of event: Barcelona, Catalonia, Spain
Date of event: 05/07/2015
Rafael Ramos Amigo; Takashi Kikkawa; Alberto Anadón Barcelona; Irene Lucas; Myriam Haydee Aguirre; Ken-ichi Uchida; Hiroto Adachi; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García; Sadamichi Maekawa; Eiji Saitoh.

17 **Title of the work:** Spin Seebeck effect generation in Fe3O4/Pt thin film heterostructures (Oral presentation)
Name of the conference: International conference on thermoelectrics
Corresponding author: No
City of event: Dresden, Germany
Date of event: 28/06/2015
End date: 02/07/2015
Myriam Haydee Aguirre; Alberto Anadón Barcelona; Rafael Ramos Amigo; Irene Lucas; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Manuel Ricardo Ibarra García.

18 **Title of the work:** Thermomagnetic transport effects in transition metal oxides with a metal-insulator transition (Oral presentation)
Name of the conference: 2015 MRS Fall Meeting & Exhibit
Corresponding author: No
City of event: Boston, United States of America
Date of event: 30/11/2014
End date: 05/12/2014
Organising entity: Materials Research Society
City organizing entity: Warrendale, PA, United States of America
Rafael Ramos Amigo; Alberto Anadón Barcelona; Irene Lucas; Myriam Haydee Aguirre; Takashi Kikkawa; ken-ichi Uchida; Hiroto Adachi; Pedro Algarabel Lafuente; Luis Morellón Alquézar; Sadamichi Makawa; Eiji Saitoh; Manuel Ricardo Ibarra García.

19 **Title of the work:** Temperature dependence of the spin Seebeck effect in [Fe3O4/Pt](n) multilayers
Name of the conference: 61st Annual Conference on Magnetism and Magnetic Materials (MMM)
City of event: New Orleans,
Organising entity: AIP Publishing; IEEE Magnet soc
Type of contribution: Scientific paper
Ramos, R.; Kikkawa, T.; Anadon, A.; Lucas, I.; Uchida, K.; Algarabel, P. A.; Morellon, L.; Aguirre, M. H.; Saitoh, E.; Ibarra, M. R."AIP ADVANCES". 7 - 5, 01/05/2017. ISSN 2158-3226

Other achievements

Stays in public or private R&D centres

Entity: Institute of Physics, Academy of Sciences of the Czech Republic, Prague **Type of entity:** R&D Centre
Faculty, institute or centre: Academy of Sciences of the Czech Republic
City of entity: Prague, Praha, Czech Republic
Start-End date: 12/06/2016 - 26/06/2016 **Duration:** 14 days
Goals of the stay: Guest
Provable tasks: Thermal transport measurements in bulk and single crystal magnetite samples