

Fecha del CVA	06/04/2022
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Parte A. DATOS PERSONALES

Nombre *	Ángel V.		
Apellidos *	Delgado Mora		
Sexo *	Hombre	Fecha de Nacimiento *	
DNI/NIE/Pasaporte *		Teléfono *	
URL Web	www.ugr.es/local/adelgado		
Dirección Email	adelgado@ugr.es		
Identificador científico	Open Researcher and Contributor ID (ORCID) *	0000-0003-1843-5750	
	Researcher ID	L-8545-2014	
	Scopus Author ID		

* Obligatorio

A.1. Situación profesional actual

Puesto	Catedrático de Universidad		
Fecha inicio	1998		
Organismo / Institución	Universidad de Granada		
Departamento / Centro	Física Aplicada / Facultad de Ciencias		
País		Teléfono	
Palabras clave			

A.2. Situación profesional anterior

Periodo	Puesto / Institución / País
1986 - 1998	Profesor Titular de Universidad / Universidad de Granada
1984 - 1986	Profesor Colaborador / Universidad de Granada
1978 - 1984	Profesor Ayudante de Clases Prácticas / Universidad de Granada

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Física	UNIVERSIDAD DE GRANADA	1984
Licenciado en Ciencias Físicas	Universidad de Granada	1978

A.4. Indicadores generales de calidad de la producción científica

h-index: 39

Total citations: 6800

Citations per year: 227

(Fuente: Web of Science, Marzo 2022)

Sexenios investigación: 6

Sexenios Autonómicos: 5

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

RESUMEN CURRÍCULUM VITAE / SUMMARY

ÁNGEL V. DELGADO MORA

He acumulado 40 años de experiencia en la docencia e investigación universitarias. Mi labor investigadora se ha centrado desde el primer momento en las propiedades físicas de la interfase cargada sólido/disolución y las posibles aplicaciones de los resultados obtenidos. Mis estudios iniciales, que han sido factor común en muchas otras de mis actividades se relacionaron con las llamadas técnicas electrocinéticas: se obtiene información del estado eléctrico de la interfase aplicando un campo externo y analizando el transporte (ya sea de líquido, de carga o de las propias partículas subsiguiente). He participado en un buen número de proyectos referentes a electroforesis, tanto en campo ac como dc, conductividad eléctrica, dispersión dieléctrica, reología, etc., de sistemas dispersos sólido/líquido. Por invitación de la IUPAC colaboré en un proyecto internacional sobre Measurement and Interpretation of Electrokinetic Phenomena (JCIS 194 (2007) 309) que ha recibido la denominación de Muy citado en la WOS. El trabajo realizado ha sido tanto teórico como experimental en este campo. La investigación derivó pronto en aspectos aplicados, primero al campo de los materiales cerámicos y después al de las nanopartículas ferro- o ferrimagnéticas. Inicialmente, se trató de un trabajo centrado en la física de estos materiales en suspensión (magnetorreología), pero gran parte de mi investigación reciente se ha centrado en aplicaciones biomédicas. En concreto, he dedicado los últimos años al uso de estas partículas como vehículos de transporte de fármacos antitumorales como a su empleo como agentes de hipertermia magnética, otro método de ataque a las células tumorales mediante calentamiento local inducido por un campo magnético externo.

Finalmente, gracias a nuestra participación en un Proyecto FP-7 de la UE (CAPMIX), iniciamos la aplicación de nuestro estudio de las interfases a la producción de energía por intercambio de salinidad (energía azul) en medios porosos. También aquí son notables las contribuciones, tanto en la elaboración de modelos como en la implementación experimental. Más recientemente, hemos iniciado en el grupo el estudio del problema inverso: en lugar de cambiar la salinidad y obtener corriente eléctrica, aplicamos corriente eléctrica para modificar la salinidad (desalinización capacitiva). Fruto de este trabajo ha sido igualmente la posibilidad de editar un libro (Charge and Energy Storage in Electrical Double Layers, ISBN 978-0-12-811370-7, Academic Press.Elsevier, London, 2018).

Todo ello ha dado lugar a la participación en 26 proyectos de investigación financiados en concurrencia competitiva, más de 200 artículos JCR, más de 200 comunicaciones a congresos (un 50 % orales) y 24 tesis doctorales dirigidas.

SEXENIOS DE INVESTIGACIÓN: 6

TRAMOS AUTONÓMICOS: 5

QUINQUENIOS DOCENTES: 6

Parte C. MÉRITOS MÁS RELEVANTES

C.1. Publicaciones

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

- 1 Artículo científico.** M. Ortega-Munoz; P. Vargas-Navarro; S. Plesselova; et al; F. Santoyo--Gonzalez. 2021. Amphiphilic-like carbon dots as antitumoral drug vehicles and phototherapeutic agents *Materials Chemistry Frontiers*. 5, pp.8151-8160.
- 2 Artículo científico.** S. Ahualli; M.L. Jiménez; Z. Amador; M.M. Fernández; G.R. Iglesias; A.V. Delgado. 2021. Energy production by salinity exchange in polyelectrolyte-coated electrodes. Temperature effects *Sustainable Energy and Fuels*. 5, pp.3321-3329.
- 3 Artículo científico.** F. Reyes-Ortega; A.V. Delgado; G.R: Iglesias. 2021. Modulation of the Magnetic Hyperthermia Response Using Different Superparamagnetic Iron Oxide Nanoparticle Morphologies *Nanomaterials*. 11, pp.627.

- 4 **Artículo científico.** P. Arenas-Guerrero; A.V. Delgado; S. Ahualli; M.L. Jiménez. 2021. Polymer-induced orientation of nanowires under electric fields *Journal of Colloid and Interface Science*. Elsevier. 591, pp.58-66.
- 5 **Artículo científico.** G.R. Iglesias; S. Ahualli; P.M. Arenas-Fernández; A.V. Delgado. 2020. Combining soft electrode and ion exchange membranes for increasing salinity difference energy efficiency *J. Power Sources*. Elsevier. 453, pp.227840.
- 6 **Artículo científico.** G.R. Iglesias; S. Ahualli; A.V. Delgado; P.M. Arenas-Fernandez; M.M. Fernandez. 2020. Combining soft electrode and ion exchange membranes for increasing salinity difference energy efficiency *Journal of Power Sources*. 453, pp.227840.
- 7 **Artículo científico.** F. Carrique; E. Ruiz-Reina; F.J. Arroyo; A.V. Delgado. 2020. Influence of ion size effects on the electrokinetics of aqueous salt-free colloids in alternating electric fields *Physical Review E*. 102, pp.032614.
- 8 **Artículo científico.** Jabalera, Ylenia; Fernandez-Vivas, Antonia; Iglesias, Guillermo R.; Delgado, Angel V.; Jimenez-Lopez, Concepcion. 2019. Magnetoliposomes of mixed biomimetic and inorganic magnetic nanoparticles as enhanced hyperthermia agents *COLLOIDS AND SURFACES B-BIOINTERFACES*. 183, pp.110435. ISSN 0927-7765.
- 9 **Artículo científico.** Arenas-Guerrero, Paloma; Ahualli, Silvia; Delgado, Angel V.; Jimenez, Maria L. 2019. Electric Birefringence of Gold Nanorods: Effect of Surfactant Coating *JOURNAL OF PHYSICAL CHEMISTRY C*. 123-43, pp.26623-26632. ISSN 1932-7447.
- 10 **Artículo científico.** Peigneux, Ana; Oltolina, Francesca; Colangelo, Donato; Iglesias, Guillermo R.; Delgado, V, Angel; Prat, Maria; Jimenez-Lopez, Concepcion. 2019. Functionalized Biomimetic Magnetic Nanoparticles as Effective Nanocarriers for Targeted Chemotherapy *PARTICLE & PARTICLE SYSTEMS CHARACTERIZATION*. 36-6, pp.1900057. ISSN 0934-0866.
- 11 **Artículo científico.** Iglesias, G. R.; Ahualli, S.; Fernandez, M. M.; Jimenez, M. L.; Delgado, A. V. 2019. Soft electrodes in water desalination: application to multi-valent ions *ENVIRONMENTAL SCIENCE-WATER RESEARCH & TECHNOLOGY*. 5-5, pp.873-883. ISSN 2053-1400.
- 12 **Artículo científico.** P. Arenas-Guerrero; A.V. Delgado; M.L. Jimenez. 2019. Analysis of the electro-optical response of graphene oxide dispersions under alternating fields *Carbon*. 144, pp.395-401.
- 13 **Artículo científico.** P. Arenas-Guerrero; A.V. Delgado; A. Ramos; M.L. Jimenez. 2019. Electro-Orientation of Silver Nanowires in Alternating Fields *Langmuir*. 35, pp.395-401.
- 14 **Artículo científico.** P. Arenas-Guerrero; A.V. Delgado; KJ Donovan; K. Scott; T. Bellini; F. Mantegazza; M.L. Jiménez. 2018. Determination of the size distribution of non-spherical nanoparticles by electric birefringence-based methods *Scientific Reports*. Nature. pp.9502.
- 15 **Artículo científico.** C. Lorente; L. Cabeza; B. Clares; et al;. 2018. Formulation and in vitro evaluation of magnetoliposomes as a potential nanotool in colorectal cancer therapy *Colloids and Surfaces B Biointerfaces*. 171, pp.5533-565.
- 16 **Artículo científico.** M.L. Jiménez; S. Ahualli; P. Arenas-Guerrero; M.M. Fernández; G.R. Iglesias; A.V. Delgado. 2018. Multiionic effects on the capacitance of porous electrodes *Physical Chemistry Chemical Physics*. 20, pp.5012-5020.

C.2. Congresos

- 1 M.L. Jimenez; P.M. Arenas; S. Ahualli; A.V. Delgado. Polymer-induced Orientation of Nanowires under Electric Fields. XXXV ECIS Conference. European Colloid and Interface Society. 2021. Grecia.
- 2 A.V. Delgado; G.R. Iglesias; S. Orozco; S. Ahualli. Use of layer-by-layer coating of electrodes by polyelectrolytes for capacitive deionization of solutions. XXXV ECIS Conference. European Colloid and Interface Society. 2021. Grecia.
- 3 A.V. Delgado; S. Ahualli; M.L. Jiménez; S. Bermúdez; F. Carrique. AC Electrokinetics of salt-free multilayered soft particles. 13rd Electrokinetic Conference Elkin 2019. Massachusetts Institute of Technology. 2019. Estados Unidos de América.
- 4 A.V. Delgado; S. Ahualli; M.L. Jimenez; M.M. Fernández; G.R. Iglesias. Ensemble of Soft Electrodes and Ionic Exchange Membranes for Capacitive Deionization. IAP 2018 Interfaces Against Pollution. Interfaces Against Pollution. 2018. Francia. Congreso.

- 5 A.V. Delgado; S. Ahualli; M.L. Jiménez; M.M. Fernández; G.R. Iglesias. Blue Energy by Capmix Methods: combination of polyelectrolyte and membrane-coated electrodes. IAP2018 Interfaces Against Pollution. Interfaces Against Pollution. 2018. Francia.
- 6 A.V. Delgado; S. Ahualli; F.J. Arroyo; M.L. Jiménez; F. Carrique. AC Electrokinetics of salt-free suspensions: model and experiments. 12th International Conference on Electrokinetics. 2017. Alemania. Participativo - Ponencia oral (comunicación oral).
- 7 F. Reyes; G.R. Iglesias; A.V. Delgado. Novel smart polymer-coated magnetite nanoparticles with hyperthermia properties. 31st Conference of the European Colloid & Interface Society (ECIS). 2017. España. Participativo - Ponencia oral (comunicación oral).
- 8 G.R. Iglesias; A.V. Delgado; F. González-Caballero; M.M. Ramos. Applications of Magnetic Particles in Hyperthermia and Drug Release. 14th International Conference on Magnetic Fluids. 2017. Participativo - Ponencia oral (comunicación oral).

C.3. Proyectos y Contratos

- 1 **Proyecto**. B-FQM-141-UGR18, Propiedades eléctricas de la interfase sólido/líquido en medios porosos. Aplicación a la desalinización capacitiva de soluciones salinas. Proyectos I+D+i del Programa Operativo FEDER 2018. Ángel V Delgado Mora. (Universidad de Granada). 01/01/2020-31/12/2021. 6.300 €. Investigador principal.
- 2 **Proyecto**. Nanopartículas en medios confinados: estructura de equilibrio y respuesta a campos externos (Conf-NP). Ministerio de Ciencia, Innovación y Universidades. María Luisa Jiménez Jiménez Olivares. (Universidad de Granada). 01/01/2019-31/12/2021. 96.800 €.
- 3 **Proyecto**. Nanoestructuras basadas en partículas no esféricas. Síntesis y aplicaciones en el diagnóstico y tratamiento del cáncer.. Junta de Andalucía. (Universidad de Granada). 01/01/2014-31/12/2018. 108.519 €.
- 4 **Proyecto**. Propiedades eléctricas de la interfase sólido/disolución. Modelos teóricos y aplicaciones a la obtención de energía eléctrica por cambio de salinidad.. Ministerio de Economía y Competitividad. A.V. Delgado. (Universidad de Granada). 01/01/2014-30/12/2017. 86.757 €.
- 5 **Proyecto**. GREIB-FQM144, Propiedades biomecánicas de tejidos biocompatibles generados mediante ingeniería tisular. FERNANDO GONZALEZ CABALLERO. Desde 01/01/2011.
- 6 **Proyecto**. CAPMIX. CAPACITIVE MIXING AS A NOVEL PRINCIPLE FOR GENERATION OF CLEAN RENEWABLE ENERGY FROM SALINITY DIFFERENCES. ANGEL VICENTE DELGADO MORA. Desde 01/10/2010. 2.404.750 €.
- 7 **Contrato**. MATERIALES MAGNETORREOLÓGICOS PARA AMORTIGUADORES JUAN DE DIOS GARCÍA LÓPEZ-DURÁN. 15/02/2006-15/02/2008. 92.000 €.

C.4. Actividades de transferencia y explotación de resultados

- 1 Silvia Ahualli Yapur; Guillermo Iglesias Salto; Ángel V Delgado Mora. P201731503. Sistema de separación iónica por medio de electrodos recubiertos de polímeros iónicos España. 29/12/2017.
- 2 **Patente de invención**. ANGEL VICENTE DELGADO MORA; MARIA LUISA JIMENEZ OLIVARES; GUILLERMO RAMÓN IGLESIAS; Insa-Monesma, Jorge; Romero-Palazon, Eduardo; Fernández-Ruiz-Morón, Luis; FERNANDO GONZALEZ CABALLERO; MODESTO TORCUATO LÓPEZ LÓPEZ; JUAN DE DIOS GARCÍA LÓPEZ-DURÁN. MAGNETORHEOLOGICAL FLUID (MRF) 26/10/2007.
- 3 **Patente de invención**. ANGEL VICENTE DELGADO MORA; GUILLERMO RAMÓN IGLESIAS; FERNANDO GONZALEZ CABALLERO; JUAN DE DIOS GARCÍA LÓPEZ-DURÁN. MÉTODO Y APARATO PARA LA DETERMINACIÓN DE LA VELOCIDAD DE SEDIMENTACIÓN Y EL PERFIL DE CONCENTRACIÓN DE PARTICULAS EN FLUIDOS MAGNÉTICOS Y MAGNETORREOLÓGICOS 13/09/2005.

C.5. Estancias en centros de I+D+i públicos o privados

Clarkson University. Department of Chemistry. Estados Unidos de América. Potsdam, New York. 07/01/1988-04/07/1988. 6 meses. Posdoctoral.

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Guillermo Ramón		
Family name	Iglesias Salto		
e-mail	iglesias@ugr.es	Web:	www.ugr.es/~iglesias
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-5623-1516		

A.1. Current position

Position	Associate Professor		
Initial date	20/12/2020		
Institution	University of Granada		
Department/Center	Department of Applied Physics		
Country	Spain	Teleph. number	+34958242734
Key words	Magnetic nanoparticles, Hyperthermia, Photothermia, Smart materials		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2019-2020	Contratado Investigador Doctor, University of Granada. Spain
2014-2019	Ramón y Cajal Fellowship. University of Granada. Spain
2012-2014	Contratado Investigador Doctor (European project), University of Granada. Spain
2009-2011	Senior Research Contract. Physical/Chem. Departmet. University of Graz Austria
2008-2009	Contratado Investigador Doctor. Junta de Andalucía, University of Granada
2003-2008	Contratado Investigador. Company-University. Repsol Corporation
2000-2002	Senior Executive. TELEFÓNICA SA. Argentina
1997-2000	Regional Manager. ERICSSON SACL. Argentina
1996-1997	Project Engineer. Telecommunications Company "Sistelec SRL" Argentina.
1988-1996	Secondary school assistant teacher. S.M. Tucumán. Argentina

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ph.D. Thesis Physics	University of Granada	2008
Ms.D. Physics	University of Granada	2006
Ms in Business Management	Escuela de Negocios de Andalucía	2003
Bs.D. electronic engineering	Universidad Nacional de Tucumán. Argentina	1994

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I received my Engineering degree in 1994. The first steps of my research career were in the Biomechanical area, where I was working in the design of vibrations sensors and their application. In 1997, I left the University to join two private international companies as a **Senior Executive in TELEFÓNICA SA.** (Multinational broadband and Worldwide Leader Technology Company) and as a **Regional Manager in ERICSSON** (World Leader Company in telecommunications technology, devices, and software), where I held different leader positions of responsibility. After 6 years in the private sector, in 2003, I got a grant associated with a **research contract with Repsol Corporation** and dealt with the synthesis and design of smart magnetic fluids to be applied in the automobile industry in smart dampers. In 2009 I obtained a **senior research contract at the University of Graz** working with Prof. Otto Glatter, expert in Small Angle X-Ray Scattering (SAXS). At the end of 2011, I joined the group of Dr. Delgado to work in an **European Project FPVII (EU-CAPMIX)**. In the spring of 2014, I was **awarded the "Ramón y Cajal" fellowship**, an open world an extremely competitive grant with a financial amount of 308.000 €. In 2015, I started working in a new area of bioengineering in the group, about the uses of magnetic nanoparticles for hyperthermia treatment. I have been frequently collaborating with international researchers from different areas of expertise, as can be seen in the co-



authorships of my publications. In 2021 I obtained a **permanent position of Associated Professor** at the University of Granada. **As PI, I have obtained 6 grants, 3 of them national and 3 regionals, for a total amount of 787.585€.** Regarding the social dissemination, I participate every year in scientific dissemination activities organized by the University of Granada to promote the diffusion of science in the society and foster vocations among young people. This has been translated into **frequent participations in such events as the “European Researchers’ Night”, the “Week of Science”, “Science in Action”,** to mention a few. Contacts with students also facilitate this knowledge transfer, and in fact my research has attracted many of them for the direction of Master's and Bachelor's theses, reflected in **3 Doctoral theses**, one already completed and two in progress, as well as **9 Master's Theses and more than 15 Bachelor's theses in the last 5 years.** During my Academic career **I have received awards and distinctions** such as: **(2022) IX Premio Internacional de la FAEC “IX Premio Internacional a la Innovación en Carreteras Juan Antonio Fernández del Campo”.** Madrid, Spain. **(2019) 8th European Asphalt Technology Association Conference EATA Best Poster award EATA, Spain** **(2008) “Ciencia en Acción” Spanish Award, Spain. (2007) “Emilio Herrera Linares” Awarded “Invención o divulgación científica y tecnológica”.** At the international level, **I have been supervisor** every year of MSC grant applications, obtaining in the last year one of them for an **amount of 165,000€.** In addition, in 2017 **I submitted a project to the Consolidator call (H2020. ERC-2017-COG),** which was not awarded, although it was evaluated in the Ranking range: 81%-100% (Cost: €1,994,685.00), Title: “Multifunctional magNetic nAnosenors Detection with novEl engineeRing techniqueS”. Finally, in the last year **I have created a new laboratory (NanoMag_Laboratory)** dedicated to the application of electromagnetic fields in nanosystems, nanoparticle characterisation and design of microfluidic systems, among others.

Part C. RELEVANT MERITS (sorted by typology)

JCR articles	65	Citación (> 5 years)	1352
Patents	13	Project as IP (Σ 8)	787.585€
JCR articles 1º D	9	H Index WOS/google scholar	18/22
JCR articles Q1	34	Phd thesis supervised	1
JCR articles Q2	22	Master thesis supervised	9
Book Chapter	3	BSc thesis (Engineering)	18

C.1. Publications (see instructions)

1. Gaglio, S.C.; Jabalera, Y.; Montalbán-López, M.; Millán-Placer, A.C.; Lázaro-Callejón, M.; Maqueda, M.; Carrasco-Jimenez, M.P.; Laso, A.; Aínsa, J.A.; **Iglesias, G.R.**; Perduca, M.; López, C.J. **(2022)** Embedding Biomimetic Magnetic Nanoparticles Coupled with Peptide AS-48 into PLGA to Treat Intracellular Pathogens. *Pharmaceutics*, 14, 2744. **IF.:6.07**
2. Lázaro M, Lupiáñez P, Arias JL, Carrasco-Jiménez MP, Delgado ÁV, **Iglesias GR. (2022)** Combined Magnetic Hyperthermia and photothermia with polyelectrolyte/gold-coated magnetic nanorods. *Polymers*;14(22):4913. **IF: 4,967**
3. M.Ortega-Muñoz, P.Vargas-Navarro, S. Plesselova, M. Dolores Giron-Gonzalez, **G. R. Iglesias**, R. Salto-Gonzalez, F. Hernandez-Mateo, A.V. Delgado, F. Javier Lopez-Jaramillo and F. Santoyo-Gonzalez. **(2021)** *Mater. Chem. Front.*,5, 8151-8160 **IF.:6.06**
4. Sola-Leyva, A., Jabalera, Y., Chico-Lozano, M.A., Carrasco-Jiménez, M.P., **Iglesias, G.R***, Jimenez-Lopez, C. **(2020)**. Reactive oxygen species (ROS) production in HepG2 cancer cell line through the application of localized alternating magnetic field. *Journal of Materials Chemistry B*, 8 (34), pp. 7667-7676. **IF.:5.344**
5. Oltolina, F., Peigneux, A., Colangelo, D., Clemente, N., D’urso, A., Valente, G., **Iglesias, G.R.**, Jiménez-Lopez, C., Prat, M. **(2020)**. Biomimetic magnetite nanoparticles as targeted drug nanocarriers and mediators of hyperthermia in an experimental cancer model *Cancers*, 12 (9), art. no. 2564, pp. 1-25. **IF.:6.126**



6. Jabalera, Y., Fernández-Vivas, A., **Iglesias, G.R***, Delgado, Á.V., Jimenez-Lopez, C. (2019). Magnetoliposomes of mixed biomimetic and inorganic magnetic nanoparticles as enhanced hyperthermia agents Colloids and Surfaces B: Biointerfaces, 183, art. no. 110435. **IF.:4.389**
7. A Peigneux, F Oltolina, D Colangelo, **GR Iglesias**, AV Delgado, M Prat, et al. (2019) “Functionalized Biomimetic Magnetic Nanoparticles as Effective Nanocarriers for Targeted Chemotherapy PHARMACOLOGY & PHARMACY, 1900057 **IF.:4.194**
8. **G.R.Iglesias**, S.Ahualli, A.V.Delgado, P.M.Arenas-Fernández, M.M.Fernández. (2020). Combining soft electrode and ion exchange membranes for increasing salinity difference energy efficiency. Journal of Power Sources (453), 227840 IF: **9.127**
9. S. Ahualli, **G.R. Iglesias**, M.M. Fernández, M.L. Jiménez, A.V. Delgado. (2017), *Use of soft electrodes in capacitive deionization of solutions*, Environmental Science & Technology, 51: 5326-5333. IF: **6.198**
10. S. Ahualli; M.L. Jiménez; M.M. Fernández; **G. Iglesias**; D. Brogioli; A.V. Delgado. (2015). *Polyelectrolyte-coated carbons used in the generation of blue energy from salinity differences*, Physical Chemistry Chemical Physics, 16, 46: 25241 – 25246. IF: **4.493**,

C.2. Congress

- Magnetic gold nanoparticles under double external stimulus: magnetic field and laser irradiation Guillermo Iglesias Salto, M. Lázaro Callejón, P. Lupiañez Escobar and AV. Delgad. ECIS Conference: 36th European Colloid & Interface Society Conference. Chania, Crete, Greece Type of participation: **Oral presentation**. Date: 4/09/2022
- Reactive oxygen species (ROS) production in human hepatoma cell lines through the application of localized magnetic hyperthermia. G.R. Iglesias, A. Sola-Leyva, M. Ángeles Y. Jabalera, M.A. Chico Lozano, M. P. Carrasco-Jiménez and C. Jiménez-Lopez. 2nd International Conference on Nanomaterials Applied to Life Sciences 2020 (NALS 2020). Type of participation: **Oral presentation**. Date: 29/01/2020
- Use of Soft Electrodes for water purification by Capacitive Deionization (CDI). Authors: S. Ahualli, A.V. Delgado, M.M. Fernández, **G. Iglesias**. Material Research Society Fall Meeting and Exhibit, Boston, United States. Type of participation: **Oral presentation**. Date: 27/11/2016
- Effect of multi-valent ions on capacitive water desalination by soft electrodes. Authors: S Ahualli; MM Fernández; **GR Iglesias**; ML Jiménez; AV Delgado. Membranes in Drinking and Industrial Water Production, Leewarden, Netherlands. Type of participation: **Invited talk**. Date: 06/02/2017
- New materials as electrodes for capacitive energy production. A.V. Delgado; S. Ahualli; M.M. Fernández; **G.R. Iglesias**; M.L. Jiménez. Interfaces Against Pollution, Lleida, Spain. Type of participation: **Keynote**. Date: 04/09/2016

C.3. Research projects.

- Nanoagent-based three-method treatment for atherosclerosis: Combination of thermal, mechanical, and drug-based methods. **HORIZON-MSCA-2021-PF-01-01** (Marie Skłodowska-Curie Actions. **NanoTAS** (DOI:10.3030/101064263) Grant agreement ID: 101064263 Beneficiary: Zhila Shaterabadi. Supervisor: **G. IGLESIAS SALTO**. 01/02/2023–31/01/2025 Cuantía: **165.312,96€**
- Uso de la Técnica de Desalinización Capacitiva (CDI) para la Separación Selectiva de Iones. **IPs: SILVIA AHUALLI YAPUR, GUILLERMO IGLESIAS SALTO** (Ministerio de Ciencia e Innovación (Proyectos orientados a la transición ecológica y a la transición digital) TED2021-131855B-I00. 01/12/2022 – 30/11/2024. Cuantía: **112.700 €**
- Adquisición de un sistema óptico de super-resolución para el estudio de micro- y nano sistemas. EQC2019-005930-P. PLAN ESTATAL I+D+I 2017-2020. Equipamiento científico-técnico del subprograma estatal de infraestructuras de investigación y equipamiento científico-técnico. **IP: G. IGLESIAS SALTO** Cuantía: **108.635€**.
- Synergy of photo- and magnetic hyperthermia by means of bifunctional nanoparticles, and its influence on cell death by ROS production. Proyectos I+D+i Junta de Andalucía. 2020. **IP: G. IGLESIAS SALTO**. 04/10/2021 - 30/09/2023 Cuantía: **116.050€**.
- Transporte de iones en nanoestructuras. aplicaciones a la desalinización de aguas y la captura de co2 atmosférico. Proyectos I+D+i Junta de Andalucía 2020. **IPs.: SILVIA AHUALLI YAPUR, GUILLEMO IGLESIAS SALTO**. 04/10/2021 - 30/09/2023 Cuantía: **55.000€**.



- New technologies based on nanoparticles systems. fundamental and implementation. Entidad de afiliación/ financiadora: MINECO. IP: **G. IGLESIAS SALTO**. RYC-2014-16901. 31/10/2015 - 1/12/2020 Cuantía: **308.600€**.
- Enfoque novedoso para la detección de nano sensores magnéticos multifuncionales. C-FQM-497-UGR18 H2020. Proyectos de I+D+i. Programa Operativo FEDER de Andalucía 2014-2020 IP: **G. IGLESIAS SALTO** Cuantía: **6.300€**.
- Nanopartículas magnéticas no esféricas con aplicaciones biomédicas A1-FQM-341-UGR18 FRONTERA PUENTE. Proyectos de I+D+i Proyecto Operativo FEDER de Andalucía. 2014-2020 IP: **G. IGLESIAS SALTO** Cuantía: **6.300€**.
- Nanopartículas fibrilares magnéticas para aplicaciones biomédicas avanzadas. Entidad: CEI BioTic/UGR. IP: **G. IGLESIAS SALTO**. III Convocatoria de Microproyectos UGR (01/05/2014-31/12/2015). Cuantía: **2.000€**.
- **FP7- EU_Project**: CAPMIX. Capacitive mixing as a novel principle for generation of clean renewable energy from salinity differences IP: Ángel Delgado Mora. VII Programa Marco. Code: FP7-ENERGY-2010-FET 256868. **Degree of contribution: Researcher**. 01/10/2010 - 30/09/2014. Total amount: **2.404.750 €**
- **RTC-2017-6510-4**. “Smart technologies & high-performance materials for the next railway generation” (HP-Rail). Convocatoria: Proyectos Retos-Colaboración 2017. Ministerio de Ciencia, Innovación y Universidades, Agencia Estatal de Investigación, (AEI). Cofinanciado por el Fondo Europeo de Desarrollo Regional (FEDER) y CEPSA COMERCIAL PETROLEO S.A. Cuantia total: **641.604,15 €/ UGR: 227.897,00€** 01/6/2018 - 30/4/2022. **Degree of contribution: Researcher**

Relevant contracts participation

- (DEEPSAT) Desarrollo del subsistema de potencia para cubesat y nanosatélites Empresa: DHV tecnología espacial avanzada malagueña, S. L. (DHV). Retos-colaboración. MINECO (2016). Cuantía: **540.000€**.
- Desarrollo de una nueva tecnología de regeneración autónoma de materiales Empresa: Laimat soluciones científico-técnicas. (2010). Cuantía: **12.000€**.
- Lubricantes con propiedades reológicas controlables por campos magnéticos: REPSOL-YPF S.A. Participantes: REPSOL-YPF, Univ. de Granada. (2008) Cuantía: **144.000€**.

C.4. Contracts, technological or transfer merits

*(13 patents since 2008. Shown only the last 10 years- 3 patents licensed to companies)
Shortened titles*

- 1- “Sistema de separación iónica por medio de electrodos recubiertos con polímeros iónicos”. P201731503. (2017)
- 2- “Pavimento y sistema de seguridad que lo comprende” P201631096. (2016)
- 3- “Dispositivo para medición de energía producida por intercambio iónico”. PCT/ES2014/070722. (2014) PCT.
- 4- “Ligante Modificado con propiedades mecánicas controlables por campos magnéticos”. PCTES2014/071002 (2014) PCT.
- 5- “Amortiguador de fricción basado en elastómeros magnéticos”. P2013300647 (2014).ES
- 6- “Fluido magnetorreológicos, método de preparación y... “. PCT/ES2013/070443. (2013).
- 7- Fluido Magnetorreológicos P200801895 (2008) **Licensed** to REPSOL-YPF, S.A
- 8- Muleta mejorada de adaptación continua. U200801685 (2008)
- 9- Silla de montar de presión distribuida. U200802586. (2008) **Licensed** to *Escuela ecuestre Granada*
- 10 - Calzado con amortiguación. PCT ES2007/000266
- 11- Estructura de relleno con fluidos magnéticos. P200700104
- 12-“Fluido magnéticos y magnetorreológicos” (MRF). EPO7119395.7/P20060235 **Licensed** to *REPSOL-YPF, S.A*
- 13- “metodo y aparato para la determinacion de la velocidad de sedimentacion y el perfil de concentracion de particulas en fluidos magneticos y magnetorreologicos”. P200502282.



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date	15/02/2023
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First name	JIMÉNEZ OLIVARES		
Family name	MARÍA LUISA		
Gender (*)		Birth date	
ID number			
e-mail	jimenezo@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-5185-0465	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	10/08/2021		
Institution	University of Granada		
Department/Center	Applied Physics	School of Sciences	
Country	Spain	Teleph. number	+34 958 24 2743
Key words	Electrokinetics, Electrooptics, Nanotechnology,		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2012-2021	Associate profesor/Univ. Granada/Spain
2009-2012	Ramón y Cajal Fellow/Univ. Granada/Spain
2006-2009	Postdoct researcher/Univ. Granada/Spain/Pregnancies
2004-2006	Andalusian Postdoct contract/Univ. Milán/Italy
2003-2004	Postdoct researcher/Univ. Granada/Spain
1999-2003	Ph. D. Student/Univ. Granada/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Graduate in Physics	Granada/Spain	1998
PhD Physics	Granada/Spain	2003

Part B. CV SUMMARY

Number of 6-years research periods: 3

I got my **PhD in the Applied Physics department of the U. Granada** (1998-2003) (Junta de Andalucía grant). The topic was Electro-hydrodynamics of colloidal suspensions (8 papers, 296 WOS cites). In this period I developed a method to analyze dielectric properties of complex fluids in alternating fields that is currently used by others and cited every year since then. I also analyzed the response of non-spherical particles. In 2001 I made short 3 months stay in U. Goettingen (Germany), with prof. Kaatz. I continued working in U Granada with a postdoc position funded by Repsol-YPF, about magnetorheological fluids, improving their stability with polyelectrolyte coated particles (**European patent EP1629.3**).

In 2004 I got a 2 years **postdoc position in U. Milán** during two years (6 papers, 128 cites). I worked with prof. Bellini and prof. Mantegazza, in electric birefringence. I analyzed the structures in bidisperse



systems and how to control optical properties of these systems with alternating electric fields, a work published in *Nature Physics* (vol. 1, 103-106, año 2005).

In 2006 I went back to U. Granada with a postdoc position funded by J. Andalucía (FQM410). I worked in the models for electrokinetics of concentrated nanoparticles suspensions, in collaboration with prof. Shilov (National Acad. Sci of Kiev, Ucrania). I also worked with prof. Lyklema (U. Wageningen, Neetherlands) analyzing the specificity of ions in electrokinetics. I also studied concentrated suspensions of spherical polyelectrolyte brushes: latex nanoparticles densely coated by a thick layer of straight and highly charged polyelectrolyte chains. This work was done in collaboration with prof. Ballauff (Helmholtz Zentrum Berlin, Germany). I conducted a Ph.D thesis (Raúl R. Rica Alarcón, IP1). Publications: 11 (193 cites).

In 2009 I got a **Ramon y Cajal contract**, with which I started a new research line in Granada: analysis of electro-optics of complex fluids. This research line is already well established: I directed 3 master thesis and one PhD thesis (Paloma Arenas Guerrero). Publications in electrokinetics during this period: 9 papers (152 cites).

In 2010 I started in the project **CAPMIX, of VII European frame program**. I studied charged interfaces from a different point of view: their applications in capacitive electrodes for energy production. I made both experimental and theoretical contributions, establishing the important parameters to maximize the extracted energy. This work continued with a national Project SALEX (2013) (11 publications, 223 cites).

In this period I continue with electrokinetics and electric birefringence of non spherical nanoparticles, with a third Ph.D thesis (M.A. González) and 12 publications (69 cites).

In 2018 I got a **Madariaga grant** (program *Estancias de profesores e investigadores sénior en centros extranjeros* (MECD)) for a 6 months visit to U. Harvard with prof. Weitz. I've been learning microfluidics techniques for droplet generation and confocal microscopy. I applied these methods to analyze the transport mechanisms of droplets in 2D porous media, a work that will be presented in the conference of APS, fluids division (2 oral contributions in APS meetings).

In 2019 I started the national project PGC2018-098770.B.I00, in which I'm one of the PI.

To sum up, I have participated in one European project, one COST European action, 6 national projects (I'm the PI in two of them) and 5 projects of J. Andalucía (I'm the PI in one of them).

I have coauthored 57 papers in international journals (42 Q1 of which 9 are D1, and some in very high impact factor journals: *Curr. Opin. colloid interface sci.*, *Nature Physics*, *Carbon*, *Advances Colloid Inteface Sci.*), with 1061 times cited (WOS). **My h index is 22**. I serve as reviewer in several journals, and I'm one of the **editors of Scientific Reports**. I have co-supervised **3 PhD Thesis, 7 Master Thesis**. I have participated in **2 plenary talks** (2010 and 2016).

Part C. RELEVANT MERITS

C.1. Publications (from 2018)

Actividades científicas y tecnológicas

Producción científica

Publicaciones, documentos científicos y técnicos

1. Martin-martin, S; Ramos-Tejada, MM; Rubio-Andrés, A.; Bonhome, AB; Delgado, AV, **Jiménez ML** (2023) *Macromolecules* 56, 518 - 527.
2. Delgado, AV; Ahualli, SA; Arroyo, FJ; **Jiménez, ML**, Carrique, F. (2022) *Adv. Colloid Interface Sci.* 299, 102539.
3. Martín-Martín, S; Delgado, AV; Arenas, P. **Jiménez ML**, (2022) *J. Colloid Interface Sci.* 622, 700 – 707.
4. Carrique F; Ruiz-Reina E; Arroyo FJ; **Jiménez ML**; Ahualli S; Delgado AV. (2022) *Phys. Rev. E* 105, 064604.



5. Arenas-Guerrero, P., Delgado, Á. V., Ahualli, S., & **Jiménez, M. L.** (2021). *J. Colloid Interface Sci.*, 591, 58-66.
6. Delgado, A. V., Ahualli, S., Arroyo, F. J., **Jiménez, M. L.**, & Carrique, F. (2021) *Advances in Colloid and Interface Science*, 102539.
7. Ahualli, S.; **Jiménez, M. L.**; Amador, Z.; Fernandez, M. M.; Iglesias, G. R.; Delgado, A. V. (2021) *Sustainable Energy & Fuels*. 5- 13, pp. 3321 - 3329.
8. Ahualli, S., Bermúdez, S., Carrique, F., **Jiménez, M. L.**, & Delgado, Á. V. (2020). *Polymers*, 12(9), 2097.
9. Delgado, A. V., **Jiménez, M. L.**, Iglesias, G. R., & Ahualli, S. (2019). *Current Opinion in Colloid & Interface Science*, 44, 72-84.
10. Arenas-Guerrero, P., Delgado, Á. V., & **Jiménez, M. L.** (2019). *Carbon*, 144, 395-401.
11. Arenas-Guerrero, P., Ahualli, S., Delgado, A. V., & **Jiménez, M. L.** (2019). *J. Phys. Chem. C*, 123(43), 26623-26632.
12. Arenas-Guerrero, P., Delgado, A. V., Ramos, A., & **Jiménez, M. L.** (2018). *Langmuir*, 35(3), 687-694.
13. Arenas-Guerrero, P., Delgado, Á. V., Donovan, K. J., Scott, K., Bellini, T., Mantegazza, F., & **Jiménez, M. L.** (2018). *Scientific Reports*, 8(1), 1-10.
14. **Jiménez, M. L.**, Ahualli, S., Arenas-Guerrero, P., Fernández, M. M., Iglesias, G., & Delgado, A. V. (2018). *Phys. Chem. Chem. Phys.*, 20(7), 5012-5020.
15. Arenas-Guerrero, P., **Jiménez, M. L.**, Scott, K., & Donovan, K. J. (2018). *Carbon*, 126, 77-84.

C.2. Congress (from 2016)

1. Authors: Martín-Martín S, Delgado AV, Ramos-Tejada MM, Rubio A, **Jiménez ML**
Conference: 36th Conference of the European Colloid and Interface Society (international conference)
Type of participation: Oral presentation; Date: 04/09/2022; Place: Chania, Creta, Greece
2. Authors: Cazorla A, Delgado AV, Martín-Martín S, **Jiménez ML**
Conference: ELKIN 2022 (international conference)
Type of participation: Oral presentation; Date 04/07/2022; Place: Tel-Aviv, Israel.
3. Authors: **Jiménez ML**, Arenas-Guerrero P, Ahualli S, Delgado AV
Conference: 35th ECIS conference (international conference)
Type of participation: Oral presentation; Date: 05/09/2021 – 10/09-2021; Place: Athens (Greece)
4. Authors: Shima P; Bijarchi MA; **Jiménez ML**; Weitz DA
Conference: 71st Annual Meeting of the APS Division of Fluid Dynamics
Type of participation: Oral presentation; Date: 18/11/2018 - 20/11/2018; Place: Atlanta (USA)
5. Authors: **Jiménez ML**, Ahualli S, Amador Z, Fernández MM, Iglesias G, Delgado AV
Conference: International Symposium on Electrokinetics (ELKIN 2017)
Type of participation: Oral presentation; Date: 10/09/2017 - 12/09/2017; Place: Dresden (Germany)
6. Authors: Delgado AV; Ahualli S; Fernández MM; Iglesias G; **Jiménez ML**
Conference: Interfaces Against Pollution
Type of participation: **Keynote**; Date: 04/09/2016 - 07/09/2016; Place: LERIDA, Spain

C.3. Research projects (from 2011)



1. PID2021-127427NB-I00 (Ministerio de Ciencia e Innovación). Comportamiento de enjambre y agregación de microrrobots mediante interacciones controladas. *PI*: Raúl A. Rica Alarcón and **María L. Jiménez Olivares** (University of Granada). 01/09/2022 a 31/08/2025. 205700 €
2. PGC2018-098770-B-I00 (Ministerio de Ciencia, Innovación y Universidades). Nanopartículas en medios confinados: estructura de equilibrio y respuesta a campos externos. *PI*: **María L. Jiménez Olivares** and Silvia Ahualli Yapur (University of Granada). 01/01/2019 a 31/12/2021. 96800 €
3. B-FQM-141-UGR18 (Consejería de Innovación, Ciencia y Empresa). Propiedades eléctricas de la interfase sólido/líquido en medios porosos. Aplicación a la desalinización capacitiva de soluciones salinas. *PI*: Ángel V. Delgado Mora and **María L. Jiménez Olivares** (U. Granada). 01/01/2020 - 31/12/2021. 6.400 €
4. P18-FR-3583 (Consejería de Innovación, Ciencia y Empresa, J. Andalucía) Manipulación de nanopartículas metálicas mediante pinzas ópticas y trampas de iones en medio acuoso. *PI*: Raúl A. Rica Alarcón y Margarita López-Viota Gallardo (U. Granada. 01/01/2020 – 31/12/2023. Researcher
5. FIS2013-47666-C3-1-R (Ministerio de Economía y Competitividad). Propiedades eléctricas de la interfase sólido/disolución. Modelos teóricos y aplicaciones a la obtención de energía eléctrica por cambio de salinidad. *PI*: Ángel V. Delgado Mora (U. Granada) 01/01/2014 - 31/12/2017. 86760 €. Researcher.
6. FP7-ENERGY-2010-FET 256868 (EU, 7th Frame Program) CAPMIX. Capacitive mixing as a novel principle for generation of clean renewable energy from salinity differences. *IP*: Ángel V. Delgado Mora (U. Granada). 01/10/2010 - 30/09/2014; 2.404.745€. Researcher

C.4 Other merits

Authors: **M.L. Jiménez**, S. Ahualli, M.M. Fernández, R.A. Rica and A.V. Delgado*

Conference: 25th ECIS conference

Type of participation: **Keynote**; Date: 04/09/2011 – 09/09/2011; Place: Berlin, Germany

Authors: Delgado AV, **Jiménez ML**, Arroyo FJ, Carrique F

Conference: ELKIN 2010

Type of participation: **Plenary**; Date: 01/01/2010 ; Place: Turku (Finlandia)

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

CV date 25-1-2023

Part A. PERSONAL INFORMATION

First name	José Ricardo		
Family name	Arias González de la Aleja		
e-mail	ricardo.ariasgonzalez@upv.es	URL Web:	www.ariasgonzalez.com
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-6802-0874		

A.1. Current position

Position	Profesor Titular de Universidad (Associate Professor)		
Initial date	November 7 th , 2022		
Institution	Universitat Politècnica de València		
Department/Center	Departament of Applied Physics, Centro de Tecnologías Físicas		
Country	Spain	Teleph. number	
Key words	Nanotechnology, Molecular Biophys. Mechanochemistry, Molecular motors, Information Theory, Optical tweezers. UNESCO spec. code: 2406 / 2206 / 2415		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2019-2022	Prof. Contratado Doctor / U. Politècnica de València / Spain/
2013-2018	Scientist / Fundación IMDEA Nanociencia / Spain/
2008-2013	Ramón y Cajal / Fundación IMDEA Nanociencia / Spain/
2006-2008	Postdoc / Centro Nacional de Biotecnología, CSIC / Spain
2003-2006	Postdoc / University of California, Berkeley / USA/

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Physics	Universidad Complutense de Madrid / Spain	2002
Master in Science	Universidad Complutense de Madrid / Spain	1997

Number of *sexenios* (6-year research periods): 3

Number of *quinquenios* (5-year teaching periods): 1

Number of PhD thesis supervised = 4 (1 in progress)

Total citations Web of Science) = 1203 (more than 25 citations per article)

Average citations/year during the last 5 years = 81

Number of scientific publications (JCR): 43

Number of scientific publications in the first quartile (Q1): 30

h Index = 20

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I received both my MSc in Physics (1997) and my PhD (2002) from U. Complutense. During my doctoral research in the Materials Science Institute (ICMM-CSIC), Madrid, supervised by Prof. M. Nieto-Vesperinas, and short stays in the National Institute of Standards and Technology (NIST, Gaithersburg, MD, USA) and EMBL-Heidelberg (Germany), I developed theory to understand the electromagnetic field in nanoparticles. By the end of my PhD, I worked at the École Centrale Paris (France) on the interactions between fluorescent molecules and nanoparticles, what made me seek for the applications of optical technologies in biological processes.

In 2003 I moved to University of California-Berkeley for postdoctoral research under the supervision of Prof. C. Bustamante. I studied DNA experimentally, by manipulating molecules on a one-by-one basis. In 2006, I joined the National Center of Biotechnology in Madrid (CSIC,



Spain) to continue my biology formation. While I started my independent career, I developed an experimental environment for single-molecule manipulation, which includes a state-of-the-art optical tweezers, the Optical Nanomanipulation Lab (www.ariasgonzalez.com). I used this technique to investigate the physical basis of the conformational states of nucleic acids, DNA replication and structural changes of organelles subjected to chemical and physical stimulus.

During 2008-2018, I worked in IMDEA Nanoscience and in 2019, I joined the Universitat Politècnica de València. I am interested in understanding molecular processes that make cellular machinery function, including the behavior of biocompatible nanostructures in the cellular context. I use both theory and experiments whose scientific basis relies as close as possible to first physics principles. In this regard, by 2012 I started a theoretical research line on the application of Information Theory to genetic systems, which I foster individually (10 original articles to date).

I have 1 granted patent and 43 research articles in international journals, 26 of them as the “corresponding author”, including 2 reviews and 2 book chapters as corresponding author as well. The average impact factor of my publications (in physics, chemistry, biology or multidisciplinary journals such as ACS Nano, Proc. Natl. Acad. Sci. USA) is higher than 5.0.

I have headed 5 grants, one of international level from the Human Frontiers Science Program (LT00085/2004-C), another one belonging to the Explora national program (MAT2013-49455- EXP, <6% success in 2013 call), two other from MICINN (MAT2015-71806-R, PID2019-107391RB-I00) and a Ramón y Cajal tenure position (RYC-2007-01765), with positive I3 evaluation. I have also participated in other 13 national or international grants. I have supervised 4 PhD thesis, 9 master students and 3 postdocs.

I have participated in more than 30 international congresses, being invited in 13, and in 31 national congresses, being invited in 12. I have taken part in the organizing committee of 5 congresses. I have given 28 invited seminars and been a speaker in 6 international schools.

I have taught in 8 master programs (10 hour/year), including a private business school (Aliter). Since 2019, I regularly teach Physics in the 1st year of several engineering degrees and both Statistical Physics (2nd year) and Biophysics (3rd year) in Engineering Physics degree.

In 2011 I was awarded by the Real Sociedad Española de Física. I have carried out a broad dissemination of science, including contributions to newspapers such as El País or El Mundo. I am grant evaluator for Spanish programs and for the Europ. Council, among others.

Supervised works

PhD thesis:

Dr. F.M. Muñoz Pérez, Title: *Optical tweezers with diffractive lenses: from trapping to biophysics*. Supervisors: J.R. Arias-González and J.A. Monsoriu. U. Politècnica València. In progress since 2022.

Dr. H. Rodríguez Rodríguez, Title: *Optical manipulation of quantum dots and single magnetic nanostructures*. Supervisors: J.R. Arias-González and B.H. Juárez. Doctorado en Ciencias de la Luz y la Materia. U. Autónoma Madrid. Date of defence: 31/5/2019.

Dr. I. Gutiérrez Pérez, Title: *The folding complexity of TERRA G-quadruplex unveiled at the single-molecule level*. Supervisor: J.R. Arias-González. Doctorado en Física de la Luz y de la Materia. U. Autónoma Madrid. Date of defence: 18/9/2017.

Dr. S. Hormeño Torres, Title: *Biophysics of centrosomes and DNA studied by optical manipulation*. Supervisors: J.R. Arias-González and J.M. Valpuesta. Department of Molecular Biology. U. Autónoma Madrid. Date of defence: 5/5/2010.

Master thesis: Á. Cano Tortajada (2017), E. Poyatos Racionero (2014), I. Gutiérrez Pérez (2013), P. Gregorio Godoy (2011), A.M. de Aguilera (2010), J. Klett Arroyo (2008), M. Müller (2007), S. Turschner (2007), S. Hormeño Torres (2006). U. Autónoma Madrid (diff. programs).

Postdoctoral researchers: S. de Lorenzo and E. Herrero-Galán (IMDEA Nanociencia) and R. Bocanegra Rojo (CNB-CSIC).

Part C. RELEVANT MERITS

C.1. Publications (Author, underlined; *: corresponding author)

1. J.R. Arias-Gonzalez* (2022), “Fluctuation relations for irreversible emergence of information”, *Sci. Rep.* 12: 17230. Relevant aspects: Single-author research article (IF: 4.996). We find and demonstrate fluctuation theorems specific of Information Theory.



2. J. Sánchez-Dehesa & J.R. Arias-Gonzalez (2022), "Characterization of avoided crossings in acoustic superlattices: The Shannon entropy in acoustics", *Front. Phys.* 10:971171. We introduce the Shannon entropy in wave phenomena.
3. H. Rodríguez-Rodríguez, G. Salas & J.R. Arias-Gonzalez* (2020), "Heat Generation in Single Magnetic Nanoparticles under Near-Infrared Irradiation", *J. Phys. Chem. Lett.* 6:2182-2187. Relevant aspects: IF: 7.329. First direct measurement of the heat generated from a single magnetic nanoparticle in a physiological environment.
4. H. Rodríguez-Rodríguez, M. Acebrón, F. J. Iborra & J.R. Arias-Gonzalez* and B. H. Juárez (2019), "Photoluminescence activation of organic dyes via optically trapped quantum dots", *ACS Nano* 13, 7223-7230. Relevant aspects: IF: 13.903 (JCR).
5. I. Gutiérrez, M. Garavís, S. de Lorenzo, A. Villasante, C. González & J.R. Arias-Gonzalez* (2018), "Single-Stranded Condensation Stochastically Blocks G-Quadruplex Assembly in Human Telomeric RNA", *J. Phys. Chem. Lett.* 9, 2498-2503. Relevant aspects: IF: 7.329. Stochasticity in an RNA complex structure unveiled at the single-molecule level.
6. J.R. Arias-Gonzalez* (2017), "A DNA-centered explanation of the DNA polymerase translocation mechanism", *Sci. Rep.* 7: 7566. Relevant aspects: Single-author research article (IF: 4.122). First study of the mechanism and thermodynamic efficiency of a molecular motor that manages the genetic information.
7. J.L. Morin, F.J. Cao, J.M. Lazaro, J.R. Arias-Gonzalez, J.M. Valpuesta, J.L. Carrascosa, M. Salas & B. Ibarra (2015), "Mechano-chemical kinetics of DNA replication: identification of the translocation step of a replicative DNA polymerase", *Nucleic Acids Res.* 43:3643-3652 (2017). Relevant aspects: IF: 11.561. DNA polymerase mechanism unveiled.
8. M. Garavís, R. Bocanegra, E. Herrero-Galán, C. González, A. Villasante & J.R. Arias-Gonzalez* (2013), "Mechanical unfolding of long human telomeric RNA (TERRA)", *Chem. Commun.* 49:6397-6399. Relevant aspects: IF: 6.718 (JCR).
9. E. Herrero-Galán, M.E. Fuentes-Pérez, C. Carrasco, J.M. Valpuesta, J.L. Carrascosa, F. Moreno-Herrero & J.R. Arias-Gonzalez* (2013), "Mechanical Identities of RNA and DNA Double Helices Unveiled at the Single-Molecule Level", *J. Am. Chem. Soc.* 135:122-131. Relevant aspects: IF: 11.444. Citations: 100 (JCR). First mechanical study of dsRNA.
10. J.A. Morin, F.J. Cao, J.M. Lázaro, J.R. Arias-Gonzalez, J.M. Valpuesta, J.L. Carrascosa, M. Salas & B. Ibarra (2012), "Active DNA unwinding dynamics during processive DNA replication", *Proc. Natl. Acad. Sci. USA* 109:8115-8120. Relevant aspects: IF: 9.737. Single-molecule study of DNA polymerase, with primer extension & unwinding capacities.

C.2. Congress

Int'l conferences, participant as Keynote/Inv. Speaker

- 2018 – Nanoscale Imaging & Manipulation in Life and Materials Sciences. Madrid (Spain)
- 2017 – 1st Biology for Phys. Conf.: Is there new Phys. in Living Matter? Barcelona (Spain)
- 2015 – Applied Optics and Photonics China. Beijing (China)
- 2014 – 10th Eur. Confer. on Magnetic Sensors and Actuators (EMSA). Vienna (Austria).
- 2013 – Optical Tweezers in Life Sciences. Berlin (Germany).
- 2013 – Biomolecules and single-molecule techniques. Madrid (Spain).

Congress organization, most relevant:

- Nanoscale Imaging and Manipulation in Life and Materials Sciences. Organizing and Scientific Committee. Congress held on 8-9 October 2018 in Madrid. International scope.
- XI Meeting on Nucleic Acids and Nucleosides. Scientific Committee. Congress held on 21-22 June 2017 in Madrid. National scope.
- "23rd Congress of the International Commission for Optics (ICO-23)". Local Committee. Held on 26-29 August, 2014. Santiago de Compostela. International scope.

C.3. Research projects, most relevant:

1. "Biophotonic applications of structured diffractive lenses" (PID2019-107391RB-I00). Call *Retos*, 2018, from MICINN. Start: Jan. 1, 2020, end: Dec. 31, 2022. Budget: 104 060.00 €. IP: J.A. Monsoriu and J.R. Arias González.
2. Acciones para la contratación de investigadores predoctorales e investigadores posdoctorales, cofinanciadas por Fondo Social Europeo a través del Programa Operativo de Empleo Juvenil y la Iniciativa de Empleo Juvenil (YEI). Start: March 1, 2018, end: Feb. 28, 2019. Funded Budget: 26 000 €. IP: J.R. Arias González



3. "Influence of magnetic nanoparticle heating over individual biomolecules determined by optical tweezers" (MAT2015-71806-R). Call *Retos*, 2015, from MINECO. Start: Jan. 1, 2015, end: Dec. 31, 2018. Budget: 60 500 €. IP: J.R. Arias González and G. Salas.
4. "New frontiers in fundamental and applied magnetism" (NANOFROTMAG) (S2013/MIT-2850). *Comunidad Madrid*. Fund. budget: 894.400 €. Coordin.: R. Miranda.
5. "G-quadruplex as a nanoheater-induced molecular switch demonstrated by optical tweezers" (MAT2013-49455-EXP). Call: *Explora*, 2013, from MINECO. Start: Sept. 1, 2014, end: Aug. 31, 2015. Funded budget: 18 000 €. IP: J.R. Arias González.
6. "Intracellular optical trapping of centrosomes in vivo in asymmetrically dividing stem cells" (RYC-2007-01765). Call: *Ramón y Cajal*, 2007, MICINN. Start: March 1, 2008, end: Feb. 28, 2013. Funded budget: 188 900 €. IP: J.R. Arias González.
7. "Molecular Nanoscience (CSD2007-00010). Call: *Consolider-Ingenio*, 2007, from MECD. Start: 2007, end: 2013. Budget: 5 500 000 €. IP: E. Coronado (Inst. Ciencia Molecular).
8. "Fundamentals and applications of molecules, nanoparticles and magnetic nanostructures: from spintronics to medicine" (NANOBIOMAGNET P2009MAT-1726). Grant from the Comunidad de Madrid. Start: Jan. 2010; end: Dec. 2013. Funded budget: 1 092 300 €. IP: Prof. Rodolfo Miranda (IMDEA Nanociencia).

C.4. Contracts, technological or transfer merits

Patent: "Método de detección de estructuras marcadas" (National, No. ES2745070, date: June 29, 2021, country: Spain). Authors: B.H. Juárez, J.R. Arias-Gonzalez, H. Rodríguez-Rodríguez, M. Acebrón and F.J. Iborra.

Pioneer in Spain in the development and use of optical tweezers in the areas of Molecular and Cellular Biophysics (nucleic acids, molecular motors and cellular organelles) and Nanoparticles. See also the publications and activities in this CV from my group, the *Optical Nanomanipulation Lab*, developed between the Instituto Nicolás Cabrera (U. Autónoma de Madrid) and the Centro Nacional de Biotecnología (CSIC). I evolved and transferred my lab to IMDEA Nanociencia between 2011-2019 and moved to U. Politècnica València in 2019.

Reviewer in international scientific journals: Nature Commun., Sci. Rep. (NPG), Nano Lett., ACS Nano, J. Am. Chem. Soc., Langmuir (ACS), Nucleic Acids Res. (Oxford Journals), Phys. Rev. Lett., Phys. Rev. B and E (APS), Biophys. J. (Cell Press), Mol Biosystems (RSC).

Projects reviewer: European Commission (*FET Proactive* call, 2018), Ministerio de Ciencia, Innovación y Universidades (MICINN and former MINECO, since 2012), Chilean Organ. Sci. Res., FONDECYT (2011), Netherlands Organisation for Scientific Research (2009).

Outreach: relevant contributions:

- Interview: in *PV Magazine* (international magazine on photovoltaics and solar energy), article "Optical Tweezers can benefit solar cell research", October 5, 2018.
- Interview: in *El País*, article "Premio Nobel de Física 2018 a las herramientas hechas de luz", October 2, 2018.
- J. Ricardo Arias González, "La ciencia es un universo paralelo de nuestra vida cotidiana", *El País*, scientific article. November 10, 2015.
- J. Ricardo Arias González, "Hacia la ingeniería de nanomáquinas", *El Mundo*, scientific article. October 13, 2014.
- J. Ricardo Arias González, "Nanociencia y Nanotecnología", book chapter, edited by the Fundación MAPFRE, Chapter 13, April 10, 2011.
- J. Ricardo Arias González, "Manipulación laser de células, orgánulos y biomoléculas", *Revista Española de Física* 24:46-52 (2010).
- J. Ricardo Arias-Gonzalez, "*NanoBioCiencia*: La vuelta al sabio renacentista", *Blog de la Comunidad de la Comunidad de Madrid*, Article of analysis. February 2009.

Awards

- 2018, 2019, 2020 – Articles in J. Phys. Chem. Lett. and ACS Nano highlighted in *Biofísica*
- 2012 – Award of the *Real Sociedad Española de Física* and the *BBVA Foundation*, Best published article on Physics (*Revista Española de Física* 24:46-52 (2010)).
- 2011 – Award of the *Spanish Society of Microscopy*, SME, best Ph.D thesis in the area of *Life Sciences*, Awarded PhD student: S. Hormeño (supervisor, J.R. Arias-Gonzalez).

Part A. PERSONAL INFORMATION		CV date	15/02/2023
First and Family name	Ana María Gómez Ramírez		
Researcher codes	Open Researcher and Contributor ID (ORCID)	0000-0003-4402-7515	
	SCOPUS Author ID	57073662300	
	WoS Researcher ID	G-4471-2016	

A.1. Current position

Name of University/Institution	University of Seville // Faculty of Physics		
Department	Atomic, Molecular and Nuclear Physics Department		
Address and Country	Avda. Reina Mercedes, S/N, 41012, Sevilla, España.		
Phone number	E-mail	anamgr@us.es	
Current position	Profesora Titular (Associated Professor)	From	31-03-2022
Key words	Atmospheric pressure plasma, Plasma physics, plasma-driven processes, Plasma-catalysis, plasma diagnosis, plasma reactors, plasma applications		

A.2. Education

PhD, Licensed, Graduate	University	Year
PhD degree in Physics (Extraordinary Award)	University of Granada	2007-11
MS degree in "Métodos y Técnicas Avanzadas en Física" (9.6/10)	University of Granada	2007
BS degree in Physics (8.3/10)	University of Granada	2001-06

A.3. General indicators of quality of scientific production

- a)** 27 research items in WOS. 25 research papers, **22 in T1, 10 (40%) in D1**. 2 indexed proceedings and 1 book chapter. The first or senior author in 75% of her publications.
- b)** H-index. 13. 629 citations. 23.30 citation/year.
- c)** **2 PhD supervised theses** (March 2018, June 2022, +2 ongoing PhD theses), **4 MS theses** and 11 BC projects.
- d)** >45 contributions to international conferences, with 17 oral communications and **5 invited talks (+2 scheduled for 2023)**.
- e)** Competitive grants obtained: **Juan de la Cierva Postdoctoral Fellow** (Spanish Ministry of Economy and Competitiveness), **Ramon Areces Postdoctoral Fellowship** (Fundación Ramón Areces), **FPU Predoctoral Fellowship** (Spanish Ministry of Education and Science- with 2 predoctoral foreign stays-7 month). Initiation to research (competitive student program of the University of Granada) and Collaborative Student (competitive student program of the Spanish Ministry of Education and Science).
- f)** **Two national research periods** acknowledged.
- g)** **Principal investigator of 2 National Plan I+D projects (+FPI Scholarship), 1 Regional project and 1 industrial R&D project.**
- h)** I3 certificate.

Part B. CV SUMMARY

Ana is an Assistant Professor at the Atomic, Molecular and Nuclear Physics Department (University of Seville, US). Her current research field deals with atmospheric-pressure plasmas and their characterization. It is mainly focused on plasma-driven processes, aiming at both the driving of valuable gas plasma processes to generate valuable chemicals or to induce the decomposition of wastes and contaminants and at the compression and description of physical mechanisms involved in such processes. This research approach is complemented with design, construction and characterization of novel plasma reactors and their application for biological and medical applications. She obtained her PhD degree in 2011 at the University of Granada (FPU program). Her thesis, entitled "Influence of the nature of the carrier liquid and the shape of the magnetic particles on the properties of magnetorheological suspensions", got the Extraordinary Award at the University of Granada. In



2012 she started a postdoctoral stay at the University of Bayreuth (Germany) funded through Fundación Ramón Areces under the project “Suppressing the Rayleigh-Taylor instability by means of rotating magnetic fields. Analysis in three-dimensions”. Later on she came back to Spain, where she joined the Profs. González-Elipe and Cotrino group (Nanotechnology on Surfaces and Plasma) in Seville, where she started a new research line focused on atmospheric-pressure plasmas. Later on, she got a “Juan de la Cierva” grant and was involved in several R&D contracts that allowed her to work as a post-doctoral researcher at the US until 2022, when she obtained a position as associated professor. During this last stage, she became responsible for the atmospheric-plasma research line in the research group. Her main achievements so far have been to unravel the plasma and surface mechanisms occurring in high-interest processes such as NH₃ synthesis, H₂ production or CO₂ elimination by means of atmospheric pressure plasmas. Besides the use of well-established techniques in the field, she has proposed the use of the isotope labelling technique, a completely innovative technique in the plasma field. She had supervised 2 PhD thesis, 4 MS thesis and 11 BS students (currently supervising 2 PhD more). She has been involved in several research projects (13) that addressed both fundamental and applied physic problems and has participated in 4 R&D project with the industry through the Research Foundation of the US and with companies such as Abengoa, Hynergreen or Arquimea. Currently she acts as Principal Investigator of three I+D projects and an industry contract (Inyecciones Plásticas Mecacontrol SL–through CDTI), the later aiming at the oxidative reforming of diesel fuels to get hydrogen by means of atmospheric plasmas. She usually acts as a reviewer of international journals and usually participates in dissemination research events.

She has lectured more than 1000 hours in subjects of the Degree in Physics, Math, or Engineering Degrees, and had been coordinator of the subject “Plasma Technology and Materials”. She also collaborates as professor in the Interuniversity Master “Plasma, Laser and Tecnologías de Superficie”

Part C. RELEVANT MERITS

C.1. Publications

1. Plasma assisted CO₂ dissociation in pure and gas mixture streams with a ferroelectric packed-bed reactor in ambient conditions. *Chemical Engineering Journal*, 2022, 430, 133066. Factor de impacto (IF): **13.273. D1**.
2. Unravelling discharge and surface mechanisms in plasma assisted ammonia reactions. A. *ACS Sustainable Chemistry & Engineering*, 8, 14855-14866, 2020. **Primer decil-D1. IF: 7.6**.
3. Electrical and reaction performances of packed-bed plasma reactors moderated with ferroelectric or dielectric materials. *Plasma Process Polym.*, 2020:e2000193, 10pp. **D1. IF:3.1**.
4. Isotope labelling for reaction mechanism analysis in DBD plasma processes. *Catalyst*. 9, 45, 2019. **IF: 3.4**.
5. Surface chemistry and germination improvement of Quinoa seeds subjected to plasma activation. *Scientific Report*, 7, 5924, 2017. IF: 4.3. Q1.
6. Improving the pollutant removal efficiency of packed-bed plasma reactors incorporating ferroelectric components. *Chemical Engineering Journal*, 314, 311-319, 2017. **IF: 6.2. D.1**
7. About the enhancement of chemical yield during the atmospheric plasma synthesis of ammonia in a ferroelectric packed bed reactor. *Plasma Processes and Polymers*, 14, 1600081, 2017. IF:2.8.
8. Isotope labelling to study molecular fragmentation during the dielectric barrier discharge wet reforming of methane. *Journal of Power Sources*, 325, 501-505, 2016. **IF: 6.33. D1**.
9. Efficient synthesis of ammonia from N₂ and H₂ alone in a ferroelectric packed-bed DBD reactor. *Plasma Sources Sci. Technol.* 24, 065011(2015) IF: 3.59. Q1.
10. Low temperature production of formaldehyde from carbon dioxide and ethane by plasma-assisted catalysis in a ferroelectrically moderated dielectric barrier discharge reactor. *ACS Catalysis*, 4, 402-408 (2014). **IF: 9.312. D1**.

C.2. Research Projects and Grants (participation as researcher)

As Principal Investigator

1. Desarrollo de plasmas intermitentes operados con electricidad renovable para la eliminación y revalorización de CO₂. TED2021-130124A-I00. Ministerio de Ciencia e Innovación. Agencia Estatal de Investigación. Agencia Estatal de Investigación. Universidad de Sevilla, Universidad de Córdoba. 01/12/2022-30/11/2024 (2 years). IPs: Ana María Gómez Ramírez, Manuel Oliva Ramírez. 148.925,00 Eu.



2. Atmospheric Pressure Gliding-Arc Plasmas for Sustainable Applications [FIREBOW] - PID2020-114270RA-I00. Ministerio de Ciencia e Innovación. Agencia Estatal de Investigación. Universidad de Sevilla, Universidad de Córdoba, Universidad Loyola Andalucía. 01/09/2021 al 31/08/2024 (3 years). 108.900,00 Eu (+FPI Scholarship). IP: Ana María Gómez Ramírez,
3. Plasmas Atmosféricos de Arco Deslizante para la Producción Sostenible de Amoniaco e Hidrógeno (ARCPLAS) - US-1380977. Fondo Europeo de Desarrollo Regional (FEDER). Junta de Andalucía. Universidad de Sevilla. Universidad Loyola Andalucía. 2 years (2021-2022). 77.987,00 Eu. IPs: Ana María Gómez Ramírez, José Cotrino Bautista.

As researcher

1. Recubrimientos termocrómicos inteligentes para la climatización eficiente y el control ambiental (TOLERANCE). P18-RT-3480. Junta de Andalucía. PIs: Alberto Palmero Acebedo y Ángel Barranco Quero. (2020-2022). 119.800 €.
2. Arquitecturas de multicapas nanoestructuradas para el desarrollo de dispositivos optofluídicos sensores y procesos de funcionalización superficial avanzada (NANOFLOW- MAT2016-79866-R). Agencia Estatal de Investigación (AEI) y Fondo Europeo de Desarrollo Regional (FEDER). (2017-19). PIs: Francisco Yuvero y Ángel Barranco. 275.000 €.
3. WPSA: Preparation and exploitation of JT-60SA. European Commission. CFP-IPH-AWP19-SA-05-CIEMAT-01 (2019) PI: Manuel García Muñoz. 201.550€
4. Plasmas de descarga de barrera dieléctrica para el desarrollo de procesos industriales a presión atmosférica (Dbd-Tech). Proyecto Motriz- Proyecto Excelencia Junta de Andalucía. (2014-2018) PI: José Cotrino Bautista. 184.000 €.
5. Recupera 2020. Purificación de aire en invernaderos y centros de tratamiento de alimentos. EU (social funds) – MICINN. (2014-2016). PI: José Cotrino Bautista. 285.000 €.
6. Desarrollo de una nueva tecnología de regeneración autónoma de materiales (CEN-20101005). Centro para el Desarrollo Tecnológico e Industrial (CDTI) Ministerio de educación y ciencia (MICINN). Universidad de Granada, Acciona, Repsol, Boeing, Cyes, Técnicas Reunidas, Socinser, Steelcase, Laimat. (27/09/2010-31/01/2013). PI: A.V. Delgado Mora (Universidad de Granada): 7.730.063,063 €
7. Fluidos magnéticos de nueva generación (P09-FQM4787). Junta de Andalucía. Proyecto de excelencia. Universidad de Granada. (01/01/2010-31/12/2013). PI: Juan de Dios García López-Durán 157.973,68 €
8. Diseño de amortiguadores inteligentes para electrodomésticos basados en lubricantes magnetoviscosos (IPT-020000-2010-6). Ministerio de Ciencia e Innovación. Universidad de Granada. Universidad Politécnica de Mondragón, Fagor Electrodomésticos S. C. (01/01/2010-31/12/2013). PI Juan de Dios García López-Durán. 1.122.457,20 €.

C.3. Contracts, technological or transfer merits.

As Principal Investigator

1. Sistema de generación de hidrógeno a partir de gasoil. Project contracted with Inyecciones plásticas mecacontrol S.L.-CDTI. S.L. Fundación de Investigación de la Universidad de Sevilla. Universidad de Sevilla. (09/04/2020- 01/11/2022). 45.000,00 €

As Researcher

2. Desarrollo de nuevos plasmas fríos para aceleración de germinación en condiciones de sequía. Project contracted with: Arquimea ingeniería S.L. PI: A.R. González-Elipe. 88.000 € (December 2019-21).
3. Nuevo sistema de propulsión espacial basado en el principio de Mach. Project contracted with: Arquimea ingeniería S.L. PI: A.R. González-Elipe. 100.000 € (December 2019-21).
4. Construcción y puesta en funcionamiento de un reactor de plasma DBD para la producción de hidrógeno. Project contracted with Abengoa Hidrógeno, S.A. Universidad de Sevilla (FIUS). 13/05/2012-24/09/2012. PI: J. Cotrino.: 93.500€.
5. Estudio sobre el uso de combinaciones de reactores de descarga de barrera dieléctrica para la producción de hidrógeno a partir del reformado de hidrocarburos. Project contracted with Hynergreen Technologies, S.A. Universidad de Sevilla (FIUS). 07/09/2011-6/03/2012. PI: J. Cotrino. 43.000€.

C.4 Activity as supervisor

- 1) **PhD thesis.** March 2018. “Plasmas de descarga de barrera dieléctrica con empaquetamiento ferro-eléctrico a presión atmosférica y su aplicación a la producción de hidrógeno y a la descontaminación de aire”. A. Montoro-Damas. Sobresaliente Cumlaudem with honors.



- 2) **PhD thesis.** June 2022. “Atmospheric Pressure Plasmas for More Sustainable Chemical Processes and Environmental Applications”. P. Navascués. Sobresaliente Cumlaude with honors.
- 3) **MS Thesis** (2019-2020). Synthetic equilibrium and startup for the Smart Spherical Tokamak. Máster Interuniversitario en Plasma, Láser y Tecnologías de Superficie. A. Márquez 2020. (9/10)
- 4) **MS Thesis** (2017-2018). “Plasmas Atmosféricos de Barrera Ferroeléctrica para la Descomposición de CO₂”. Máster en Plasma, Láser y Tecnologías de Superficie. P. Navascués. (10/10, with honors)
- 5) **MS Thesis** (2017-2018). “Diseño de un actuador de plasma basado en descargas de barrera dieléctrica”. S. Balsera. (10/10).
- 6) **MS Thesis** (2021-2022). “Characterization and modelling of devices for surface plasma generation”. (9/10).
- 7) **BS thesis** (2017-2018). “Obtención de láminas delgadas y funcionalización de materiales con plasma a presión atmosférica”. A. Salas. Mark: 7/10.
- 8) **BS thesis** (2017-2018). “Técnicas de conversión de CO₂ por plasma”. A. García. Mark: 6/10.
- 9) **BS thesis** (2016-2017). “Técnicas de deposición usando descargas de barrera dieléctrica”. P. Navascués. (9/10).
- 10) **BS thesis** (2015/2016). “Control del flujo aerodinámico con descargas de barrera dieléctrica”. M. García. (9/10).
- 11) **BS thesis** (2015/2016). "Plasmas en descargas de barrera ferro-eléctrica". A. Martin (9/10).

C.5 Stays in foreign institutions.

1. Post-doctoral stay financed by Fundación Ramón Areces. Bayreuth University (Germany). 01/10/2012-31/09/2013.
2. Pre-doctoral stay (FPU). Laboratoire de Physique de la Matière Condensée. University of Nice-Sophia Antipolis - Centre National de la Recherche Scientifique (CNRS). Nice (France) (31/08/2009-31/10/2009).
3. Pre-doctoral stay (FPU). Laboratoire de Physique de la Matière Condensée. University of Nice-Sophia Antipolis - Centre National de la Recherche Scientifique (CNRS). Nice (France) (20/09/2008-20/12/2008).
4. Pre-doctoral stay. Laboratoire de Physique de la Matière Condensée. University of Nice-Sophia Antipolis - Centre National de la Recherche Scientifique (CNRS). Nice (France) (01/03/2008-30/04/2008)

C. 6 Awards

- 1) **PhD Extraordinary Award.** University of Granada. 2011.
- 2) Award from **LORD CORPORATION** for the Outstanding Student Paper in MR Fluids for the paper entitled “Magnetic and Magnetorheological Properties of Nanofiber Suspensions”. ERM 2010 Conference (Philadelphia, USA). 500 \$.
- 3) US (University of Sevilla) Plan Propio Travel Grant (2016). 600 €.
- 4) Certificate of Outstanding Contribution in Reviewing. Chemical Engineering Journal. 2018
- 5) "Scientific article of the month of September at the Institute of Materials Sciences of Seville". PhD candidate: Paula de Navascués Garvín. Winning Article: Large gap atmospheric pressure barrier discharges using ferroelectric materials. P. Navascués, A. R. González-Elipse, J. Cotrino and A Gómez-Ramírez. Plasma Sources Sci. Technol. 28, 7, 075002, 2019. IF: 4.1.
- 6) Co-director of the TFM "Atmospheric Plasmas of Ferroelectric Barrier for the Decomposition of CO₂", chosen by the Spanish Society of Materials among the 3 best of the year.
- 7) Scientific article of the month of September (2022) at the Faculty of Physics – University of Seville. Winning article: A. *ACS Sustainable Chemistry & Engineering*, 8, 14855-14866, 2020.

C.7 Peer Review Activity. Reviewer of the following international journals; *Soft Matter*, *Chemical Engineering Communications*, *Journal of Physics D: Applied Physics*, *RSC Advances*, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, *Journal of CO₂ utilization*.

C.8 Dissemination activities. 2014/15 and 2015/16, monitor at the Science Fair of Seville City. 2019/20. Participation in “Día internacional de la Mujer y la Niña en Ciencia. 2020/21 and 2022/23, talks within the activities of the “Noche Europea de los Investigadores” (Seville).



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

CV date	22 November 2022
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Part A. PERSONAL INFORMATION

First name	Modesto Torcuato		
Family name	López López		
e-mail	modesto@ugr.es	URL Web	
Open Research and Contributor ID (ORCID)(*)	0000-0002-9068-7795		

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	26/10/2019		
Institution	University of Granada		
Department/Center	Applied Physics / Faculty of Sciences		
Country	Spain	Teleph. number	+34 958243206
Key words	Rheology, Biomaterials, Hydrogels, Polymers, Composites, Nanoparticles, Magnetic Materials		

A.2. Previous positions (research activity interruptions, art. 45.2.c)

Period	Position/Institution/Country/Interruption cause
14/08/2012-25/10/2019	Associate Professor (“Profesor Titular de Universidad”) / University of Granada / Spain
01/06/2008-13/08/2012	Postdoctoral Researcher (Program of Incorporation of Doctors of the UGR) / University of Granada / Spain
01/06/2006-31/05/2008	Postdoctoral Researcher (Program for Postdoctoral Research of the Spanish Ministry of Education) / CNRS and University of Nice-Sophia Antipolis / France
01/01/2006-31/05/2006	Postdoctoral Researcher (Bridge Program of the UGR) / University of Granada / Spain
01/01/2002-31/12/2005	Predocctoral Researcher (FPU Program of the Spanish Ministry of Education) / University of Granada / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Physics	University of Granada / Spain	2005
Bachelor’s Degree in Physical Sciences	University of Granada / Spain	2001

Part B. CV SUMMARY (max. 5000 characters, including spaces)

My research was initially dedicated (2002-2012) mainly to the synthesis and physical characterization of ferrofluids and magnetorheological fluids. In 2012 I obtained the position of Associate Professor and started my **own line of research**, dedicated to the design and study of novel composite hydrogels by combination of magnetic particles and biopolymers for biomedical applications. Currently, my research interests involve the design of **composite polymeric hydrogels** and magnetic field-guided smart materials, spanning the synthesis and characterization of nanoparticles, the study of processes of self-assembly, and the **physicochemical characterization** (emphasis in microstructure and mechanical properties) of these materials. On this subject, since 2014, I have been PI of several projects financed by

the **Spanish National Plan** (see section C.3), co-author of more than 30 papers and inventor of two patents. Some of the most relevant contributions I have made in this field include the fabrication of **artificial magnetic tissues** prepared by cell culture in magnetic fibrin-agarose hydrogels, and the development of **injectable magnetic-responsive short-peptide supramolecular hydrogels** for *in vivo* applications through a minimally invasive route. In this field, I started and maintain active international collaborations with different research centers: Institut de Physique de Nice (France), MSC laboratory of the University Paris 7 (France), the Laboratory of Dynamics of Magnetic Fluids of the Technical University of Dresden (Germany), Department of Theoretical Chemistry of Maria Curie-Skłodowska University (Poland), etc. In total I have participated in 23 projects and contracts (national and international) with a total funding of about seven million euros. I am author of **110 publications in JCR journals (26 in the top 10%** of their respective area) and inventor of 5 patents (***h* index = 28**; total number of citations: 2645; average number of citations per year for the last five years (2017-2021): 255 —data from the WoS). I was awarded the 2021 **Andrew Keller Award** for Best European Paper for a work published in the journal *Polymer* (Elsevier). I have also been awarded with **3 periods of research activity (“sexenios”)**. I have **directed 8 PhD theses** (2 of them have been awarded with the Extraordinary Prize of Doctorate), and I am currently supervising 3 PhD theses in progress (including 1 **of the FPU program**). One of my former PhD students is Associate Professor (“Profesora Titular”) at the University of Seville, and another is Research Fellow “Juan de la Cierva Incorporación” at the University of Granada.

Part C. RELEVANT MERITS (last 10 years)

C.1. Publications

Comments: (i) A selection of **10 representative articles** in which I am **corresponding author** (CA) are listed. CAs are indicated with asterisk (*). (ii) **Impact Factors (IF)** and **Journal Ranks (J. Rank)** are from the *Journal Citation Reports (JCR)* of the year of publication.

1. M.C. Mañas-Torres; C. Gila-Vilchez; F.J. Vazquez-Perez, ...M. Alaminos*; L. Álvarez de Cienfuegos*; **M.T. Lopez-Lopez*** (position/number of authors: 14/14) (2021). Injectable Magnetic-Responsive Short-Peptide Supramolecular Hydrogels: Ex Vivo and In Vivo Evaluation. **ACS Applied Materials & Interfaces** 13, 49692-49704. **IF: 10.383**; J. Rank: 49/345 (top 25%).
2. F.J. Vazquez-Perez; C. Gila-Vilchez; J.D.G. Duran; A. Zubarev; L. Alvarez de Cienfuegos; L. Rodriguez-Arco; **M.T. Lopez-Lopez*** (2021). Composite polymer hydrogels with high and reversible elongation under magnetic stimuli. **Polymer** 230, 124093. **IF: 4.432**; J. Rank: 22/90 (top 25%).
3. M.C. Mañas-Torres; C. Gila-Vilchez; J.A. Gonzalez-Vera; ...; **M.T. Lopez-Lopez***; A. Orte*; L. Alvarez de Cienfuegos* (position/number of authors: 7/9) (2021). In situ real-time monitoring of the mechanism of self-assembly of short peptide supramolecular polymers. **Materials Chemistry Frontiers** 5, 5452-5462. **IF: 8.683**. J. Rank: 33/179 (top 25%).
4. F. Campos; A.B. Bonhome-Espinosa; R. Carmona; ...; **M.T. Lopez-Lopez***; I.A. Rodriguez*; V. Carriel (position/number of authors: 7/9) (2021). In vivo time-course biocompatibility assessment of biomagnetic nanoparticles-based biomaterials for tissue engineering applications. **Materials Science & Engineering C-Materials for Biological Applications** 118, 111476. **IF: 8.457**; J. Rank: 8/44 (top 25%).
5. M. Barczak*; P. Borowski; C. Gila-Vilchez; M. Alaminos; F. Gonzalez-Caballero, **M.T. Lopez-Lopez*** (2020). Revealing importance of particles' surface functionalization on the properties of magnetic alginate hydrogels. **Carbohydrate Polymers** 247, 116747. **IF: 9.381**; J. Rank: 3/88 (**top 5%**).
6. C. Gila-Vilchez; A.B. Bonhome-Espinosa; P. Kuzhir; A. Zubarev; J.D.G. Duran; **M.T. Lopez-Lopez*** (2018). Rheology of magnetic alginate hydrogels. **Journal of Rheology** 62, 1083-1096. **IF: 3.468**; J. Rank: 16/134 (top 25%).

7. R. Contreras-Montoya; A.B. Bonhome-Espinosa; A. Orte; ...; **M.T. Lopez-Lopez***; L. Alvarez de Cienfuegos* (position/number of authors: 8/9) (2018). Iron nanoparticles-based supramolecular hydrogels to originate anisotropic hybrid materials with enhanced mechanical strength. **Materials Chemistry Frontiers** 2, 686-699. **IF (JCR 2019): 6.788**. J. Rank (JCR 2019): 52/314 (top 25%).
8. A.B. Bonhome-Espinosa; F. Campos; I.A. Rodriguez; V. Carriel; J.A. Marins; A. Zubarev; J.D.G. Duran; **M.T. Lopez-Lopez*** (2017). Effect of particle concentration on the microstructural and macromechanical properties of biocompatible magnetic hydrogels. **Soft Matter** 13, 2928-2941. **IF: 3.709**; J. Rank: 10/78 (top 25%).
9. L. Rodriguez-Arco*; I.A. Rodriguez; V. Carriel; A.B. Bonhome-Espinosa; F. Campos; P. Kuzhir; J.D.G. Duran; **M.T. Lopez-Lopez*** (2016). Biocompatible magnetic core-shell nanocomposites for engineered magnetic tissues. **Nanoscale** 8, 8138-8150. **IF: 7.367**; J. Rank: 23/275 (**top 10%**).
10. **M.T. López-López***; G. Scionti; A.C. Oliveira; J.D.G. Duran; A. Campos; M. Alaminos; I.A. Rodríguez* (2015). Generation and Characterization of Novel Magnetic Field-Responsive Biomaterials. **PLOS ONE** 10, e0133878. **IF: 3.057**; J. Rank: 11/63 (top 25%).

C.2. Congress

1. Member of the International **Steering Committee on Magnetic Fluids** (since July 2019).
2. **Scientific Secretary** of the international conference "14th International Conference on Electrorheological Fluids and Magnetorheological Suspensions." Granada, Spain, 2014.
3. Author of approx. **50 oral presentations** at scientific conferences. The following stand out (**the lecturer is indicated: ***):
 - F.J. Vazquez-Perez; C. Gila-Vilchez, J.D.G. Duran; A. Zubarev; L. Alvarez de Cienfuegos; L. Rodriguez-Arco; **M.T. Lopez-Lopez***. Magneto-polymer hydrogels with large length changes in response to magnetic stimuli (**Invited Talk**). Conference: EPF European Polymer Congress 2022. Prague, Czech Republic, 2022.
 - **M.T. Lopez-Lopez***; L. Alvarez de Cienfuegos; J.D.G. Duran. Tailoring biocompatible hydrogels by embedded magnetic nanoparticles (**Invited Talk**). Conference: 15th International Conference on Magnetic Fluids. Paris, France, 2019.
 - **M.T. Lopez-Lopez***. Synthesis, Characterization and In Vivo Evaluation of Biocompatible Ferrogels (**Plenary Lecture**). Conference: 14th International Conference on Magnetic Fluids. Ekaterinburg, Russia (2016).
 - L. Rodríguez-Arco; **M.T. López-López***; F. González-Caballero; A. Zubarev; D. Chirikov. Effect of Particle Aggregation on the Rheological Properties of Novel Ionic Liquid Based Magnetic Fluids (**Key Note Lecture**). Conference: ICR 2012 – XVIth International Congress on Rheology. Lisbon, Portugal, 2012.

C.3. Research projects

C.3.1. Projects with participation as PRINCIPAL INVESTIGATOR

1. *Title:* Sustainable bioremediation of heavy metals and recovery of critical elements by encapsulated bacteria in hydrogels. *Reference:* TED2021-131099B-I00. *Funding agency:* Ministerio de Ciencia e Innovación (Spain) – Proyectos I+D+i 2020. *Principal Investigators:* Mohamed Larbi Merroun and **Modesto T. López López**, UGR. *Length:* 01/12/2022 – 30/11/2024. *Funding:* **253,000.00 euros**.
2. *Title:* Magnetically Programmable Biocompatible Hydrogel Machines. *Reference:* PID2020-118498GB-I00. *Funding agency:* Ministerio de Ciencia e Innovación (Spain) – Proyectos I+D+i 2020. *Principal Investigators:* **Modesto T. López López** and Luis Álvarez de Cienfuegos Rodríguez, UGR. *Length:* 01/09/2021 – 31/08/2024. *Funding:* **145,200.00 euros**.
3. *Title:* Micro-reactors inspired by artificial cells. Exploring its remote activation through force fields. *Reference:* A-FQM-258-UGR20. *Funding agency:* University of Granada (Spain) –

Proyectos I+D+i del Programa Operativo FEDER Andalucía 2020. *Principal Investigators:* Laura Rodríguez Arco and **Modesto T. López López**, UGR. *Length:* 01/07/2021 – 30/06/2023. *Funding:* **55,000.00 euros**.

- Title:* Supramolecular Magnetic Hydrogels for Regenerative Medicine. *Reference:* FIS2017-85954-R. *Funding agency:* Ministerio de Economía y Competitividad (Spain) – Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad. *Principal Investigators:* **Modesto T. López López** and Luis Álvarez de Cienfuegos Rodríguez, UGR. *Length:* 01/01/2018 – 30/09/2021. *Funding:* **133,100.00 euros**.
- Title:* Biological Tissues with Magnetic Field-Dependent Mechanical Properties. *Reference:* FIS2013-41821-R. *Funding agency:* Ministerio de Economía y Competitividad (Spain) – Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad. *Principal Investigators:* **Modesto T. López López** and Juan de Dios García López-Durán, UGR. *Length:* 01/01/2014 – 31/12/2017. *Funding:* **78,650.00 euros**.

C.3.2. Projects with participation as researcher (most relevant recent project)

- Title:* Supramolecular hydrogels based on small peptides to obtain new hybrid materials with technological applications. *Reference:* P18-FR-3533. *Funding agency:* Junta de Andalucía (Spain) – Convocatoria de Ayudas a «Proyectos de I+D+I» Universidades y Entidades Públicas de Investigación. *Principal Investigator:* Luis Álvarez de Cienfuegos Rodríguez, UGR. *Length:* 01/01/2020 – 31/03/2023. *Funding:* 109,750.00 euros.

C.4. Contracts, technological or transfer merits

- Patent.** *Inventors:* Carriel Araya, V.C.; Campos Sánchez, F.; **López López, M.T.**; Sánchez Quevedo, M.C.; Alaminos Mingorance, M.; Fernández Valadés, R. *Reference:* WO2018069563 and ES2667821. *Title:* Biomaterial used in artificial tissue comprises fibrinogen, antifibrinolytic agent, element i.e. coagulation factor, calcium source and/or thrombin, polysaccharide and substituted tetrahydro-cyclopenta-pyran-carboxylic acid. *Priority country:* Spain. *Type of Patent:* Spanish Patent and World Patent. *Priority date:* 14/10/2016. *Holder entity:* UGR and Servicio Andaluz de Salud.
- Patent.** *Inventors:* Iglesias Salto, G.R.; García López-Durán, J.D.; **López López, M.T.**; Ahualli, S.A.; Delgado Mora, Á.V.; Moral Muñoz, M. *Reference:* WO2014207268. *Title:* Magnetorheological fluid used as lubricant in manufacture of shock absorber, comprises carrier liquid and magnetic particle(s) chosen from magnetic nanoparticles and magnetic microparticles, dispersed in carrier liquid. *Priority country:* Spain. *Type of Patent:* PCT. *Date of publication:* 31/12/2014. *Holder entity:* UGR.
- Patent.** *Inventors:* **López López, M.T.**; García López-Durán, J.D.; Alaminos Mingorance, M.; Rodríguez, I.A.; Scionti, G. *Reference:* ES2574655; WO2016079366; EP3222711; US20180028661. *Title:* Use of multiple magnetic domain particles in the manufacture of a medicament for increasing, restoring or partially or completely replacing the functional activity of a diseased or damaged a tissue or organ. *Priority country:* Spain. *Type of Patent:* Spanish, PCT, EU and USA. *Priority date:* 21/11/2014. *Patent granted:* 11/04/2017. *Holder entities:* UGR, Servicio Andaluz de Salud and National University of Cordoba.
- Patent.** *Inventors:* Iglesias Salto, G.R.; García López-Durán, J.D.; **López López, M.T.**; Moral-Muñoz, M.; Berasategui Arostegui, J.; Agirre Olabide, I.; Elejabarrieta Olabarri, M.J.; Bou-Ali Saidi, M.M. *Reference:* ES2422804. *Title:* Friction damper for floating element in drum of e.g. washing machine, has magnetic coils generating magnetic field in magnetic elastomer, and plunger located in magnetic elastomer and provided with friction element. *Priority country:* Spain. *Type of Patent:* Spanish. *Patent granted:* 18/07/2014. *Holder entities:* UGR and Mondragon University.



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date	13/02/2023
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First name	SILVIA ALEJANDRA		
Family name	AHUALLI YAPUR		
e-mail	sahualli@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-7329-0817		

(*) Mandatory

A.1. Current position

Position	Associate Professor		
Initial date	01/11/2019		
Institution	University of Granada		
Department/Center	Department of Applied Physics		
Country	Spain	Teleph. number	958241000(20728)
Key words	Electrokinetics; Soft particles; Extraction of Energy based on Salinity Gradients; Capacitive Deionization; Mechanism of ion transport in nanoscale pores.		

A.2. Previous positions (research activity interruptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause
01/01/2016-31/10/2019	Contratado Investigador Doctor, University of Granada
03/12/2013 - 02/05/2015	Contratado Investigador Doctor, University of Jaén
01/05/2013-02/12/2013	Contratado Investigador Doctor (CAPMIX) University of Granada
01/01/2011-14/02/2013	Contratado Investigador Doctor, Junta de Andalucía, University of Granada
01/02/2009 - 31/01/2011	Postdoctoral research stay (University of Graz)
01/04/2008 - 31/01/2009	Beca Puente, University of Granada
01/01/2004 - 31/01/2008	FPU grant, University of Granada

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado Ciencias Físicas	Universidad de Tucumán, Argentina, homologado por el MEC el 13/03/2007	2001
Doctor en Física	University of Granada	2008

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I received my PhD degree from the University of Granada, in 2008 under financial support from the Spanish Ministry of Education and Science (FPU grant). My main contribution at this time involved electrokinetics of concentrated dispersions of nanoparticles in aqueous medium. At the end of this period, I had 9 published articles in journals of the first and second quartile. I also tried to keep an eye on technology transfer: I am co-author of several patent applications.

The electrokinetics of coated polymer particles or “soft particles” was a problem I solved for the first time in the case of concentrated systems. The published work coming from this study has 78 citations, including several from the most relevant researchers in the field, an invited talk and two book chapters. This approach allowed the international collaboration with several research groups and it led to 10 publications in journals of the first quartile.



My Postdoctoral stay at the University of Graz, under the supervision of Prof. Otto Glatter, a recognized expert in Small Angle X-Ray Scattering (SAXS), was extremely useful. I had the opportunity to learn the methodology established for the investigation of concentrated, interacting colloidal systems and complex fluids: experimental techniques of small-angle X-ray scattering and dynamic light scattering. I was in charge of a new project, where I supervised a Ph.D. student. The main publication derived from this study (2011) has 130 citations (GS).

I joined the University of Jaén in a coordinated research project regarding the study of thermoresponsive microgels by means of Monte Carlo simulations. This is a field, highly linked to soft particles, which has gained considerable interest for its potential applications in areas of biotechnology, such as drug delivery. Nine publications derived from this work in journals of the first quartile or decile.

I later joined the research group in Granada in a very innovative project financed by EU in the VII FP. The project, denominated CAPMIX, is a direct application of the properties of electrical double layers. My contribution to the project was very intense, since my background makes it possible the elaboration of models for the processes involved and their optimization. I have about a dozen papers published regarding this subject. I was the advisor of a PhD thesis dealing with electrokinetics of non-spherical particles concluded in 2016.

At the end of this period, I proposed a new original project, opening a new line of research in the group, about capacitive desalination based on mechanism of ion transport and ion selectivity in nanoscale pores and modeling approaches for understanding electrosorption phenomena. At present, I am principal investigator of three research projects, two of them financed with FEDER funds (regional level) for a total of 175,000 Euros related to the most fundamental aspects of this new research area. Recently, one project was funded considering the technological applications of this research line by Ministerio de Ciencia e Innovación in the frame of “Proyectos estratégicos orientados a la transición ecológica y digital, 2021”. Moreover, a project of a more fundamental nature in which I am participating as one of the principal investigators in recent years has been related to the formation of nanoparticle structures by the action of electric fields and their detection by electrical birefringence. This project is funded by Ministerio de Ciencia e Innovación. Currently, I am the advisor of two Ph.D thesis related with the properties of solid/liquid interfaces and their technological and environmental applications.

I am associate professor in University of Granada and I teach in the Physics Degree and in the Double Degree of Physics and Mathematics. I supervised a 4 master’s thesis and 11 minor theses. Some of these students are currently working as researchers in the projects I lead and they are currently obtaining his PhD Degree. I am the secretary of Physic’s Master Academic Committee and, also, teach in the graduate level. Every year, I participate in scientific dissemination activities organized by the University of Granada to promote the diffusion of science in the society and foster vocations among young people.

The international relevance of my research is demonstrated by the opportunity to be invited as Editorial Board Member of Scientific Reports, a journal from Nature. I am frequently collaborating with international researchers from different area of expertise, as can be seen in the co-authorships of my publications. Also, I was invited to write a book in the Interface Science and Technology Series from Elsevier Publishing group, about Charge and Energy Storage in Electrical Double Layer (S. Ahualli, A.V. Delgado, Charge and Energy Storage in Electrical Double Layers, ISBN 978-0-12-811370-7, Academic Press. Elsevier, London, 2018).

Part C. RELEVANT MERITS (sorted by typology)

- PhD thesis supervised: **1** (2016)
- Master thesis supervised: **4**
- Total citations: **1223** (Web of Science) and **1657** (Google Scholar)
- Average of citation/year during the last 5 years (Web of Science): **130.6**
- H Index (Web of Science): **19**
- H Index (Google Scholar): **23**
- JCR articles: **57** (*51 in the first tercile and 39 in the first quartile*)
- From **39** articles in the **first quartile**:
 - Articles in journals of the first decile: 11
 - Articles in journals of the first quartile: 28
- Editor of a book: **1**
- Current PhD tesis: **2** (2023)
- Minor thesis supervised: **11**
- Book chapter: **9**



C.1. Publications (see instructions) (* indicates corresponding author)

1. AV Delgado, **S Ahualli**, FJ Arroyo, ML Jiménez, Félix Carrique. **2021**, *Electrokinetic detection of the salt-free condition in colloids. Application to polystyrene latexes*. Advances in Colloid and Interface Science, in press (<https://doi.org/10.1016/j.cis.2021.102539>). IF: **12.984**; Posición de la revista: (16/162; **D1**).
2. A.V. Delgado, M.L. Jiménez, G.R. Iglesias, **S. Ahualli**. **2019**, *Electrical double layers as ion reservoirs. Applications to the deionization of solutions*. Current Opinion in Colloid & Interface Science, 44, 72 - 84. IF: **6.271**; Posición de la revista: (30/148; **Q1**).
3. G.R. Iglesias, **S. Ahualli**, M.M. Fernández, M.L. Jiménez, A.V. Delgado. **2019**, *Soft electrodes in water desalination: Application to multi-valent ions*. Environmental Science: Water Research & Technology, 5, 873 - 883. IF: **3.649**; Posición de la revista: (8/90; **D1**).
4. **S. Ahualli***, G.R. Iglesias, M.M. Fernández, M.L. Jiménez, A.V. Delgado. **2017**, *Use of soft electrodes in capacitive deionization of solutions*, Environmental Science & Technology, 51: 5326-5333. IF: **6.198**; Posición de la revista: Q1 (12/229; **D1**).
5. **S. Ahualli**, A. Martín-Molina, J.A. Maroto-Centeno, M. Quesada-Perez. **2017**, *Interaction between Ideal Neutral Nanogels: A Monte Carlo Simulation Study*, Macromolecules, 50: 2229-2238. IF: **4.233**; Posición de la revista: Q1 (5/86; **D1**).
6. M.A. González; A.V. Delgado; R.A. Rica; M.L. Jiménez; **S. Ahualli***. 2015, *Electric Permittivity and Dynamic Mobility of Dilute Suspensions of Platelike Gibbsite Particles*, Langmuir 3, 31: 7934 – 7942. IF: **4.457**, Posición de la revista: **Q1 (35/260)**
7. I. Adroher-Benítez; **S. Ahualli**; A. Martín-Molina; M. Quesada-Pérez; A. Moncho-Jorda. **2015**, *Role of Steric Interactions on the Ionic Permeation Inside Charged Microgels: Theory and Simulations*, Macromolecules 48: 4645 – 4656. IF: **5.8**; Posición de la revista: Q1 (3/82; **D1**)
8. **S. Ahualli***; M.L. Jiménez; M.M. Fernandez; G. Iglesias; D. Brogioli; A.V. Delgado. **2015**, *Polyelectrolyte-coated carbons used in the generation of blue energy from salinity differences*, Physical Chemistry Chemical Physics, 16, 46: 25241 – 25246. IF: **4.493**, Posición de la revista: **Q1 (6/34)**.
9. **S. Ahualli**; M.M. Fernández; G. Iglesias; A.V. Delgado; M.L. Jiménez. **2014**, *Temperature Effects on Energy Production by Salinity Exchange*. Environmental, Science and Technology, 48 – 20, 12378 - 12385. IF: **5.481**, Posición de la revista: Q1 (10/223; **D1**)
10. **S. Ahualli***, M.M. Fernandez, G. Iglesias, M.L. Jimenez, F. Liu, M. Wagterveld, A.V. Delgado. **2014**, *Effect of Solution Composition on the Energy Production by Capacitive Mixing in Membrane-Electrode Assembly*. Journal of Physical Chemistry C, 118, 15590 - 15599. IF: **4.772**, Posición de la revista: (32/260; **Q1**)

C.2. Congress

Title: Electrokinetics of porous, conducting particles. Effect of polyelectrolyte coating on concentration polarization

Authors: S. Ahualli, S. Orozco-Barrera, J.A. Lirio, A. Delgado

Conference: 14th International Symposium on Electrokinetics, TEL AVIV, ISRAEL

Type of participation: Oral presentation Date: 04/07/2022

Title: Use of Soft Electrodes for water purification by Capacitive Deionization (CDI)

Authors: S. Ahualli, A.V. Delgado, M.M. Fernández, G. Iglesias

Conference: 2016 Material Research Society Fall Meeting and Exhibit, BOSTON, UNITED STATES

Type of participation: Oral presentation Date: 27/11/2016

Title: Effect of multi-valent ions on capacitive water desalination by soft electrodes

Authors: S Ahualli; MM Fernández; GR Iglesias; ML Jiménez; AV Delgado

Conference: Membranes in Drinking and Industrial Water Production, LEEUWARDEN, NETHERLANDS.

Type of participation: Invited talk Date: 06/02/2017

Title: New materials as electrodes for capacitive energy production

Authors: A.V. Delgado; S. Ahualli; M.M. Fernández; G.R. Iglesias; M.L. Jiménez.

Conference: Interfaces Against Pollution, LLEIDA, SPAIN



Type of participation: Keynote

Date: 04/09/2016

C.3. Research projects

1. Title: Uso de la Técnica de Desalinización Capacitiva (CDI) para la Separación Selectiva de Iones

Name principal investigator: Silvia Ahualli Yapur, Guillermo Iglesias Salto

Funding entity: Ministerio de Ciencia e Innovación Code: TED2021-131855B-I00

Start-End date: 01/01/2023 – 31/12/2024 Total amount: 112.700 €

2. Title: Transporte de iones en nanoestructuras. aplicaciones a la desalinización de aguas y la captura de CO₂ atmosférico

Name principal investigator: Silvia Ahualli Yapur

Funding entity: Junta de Andalucía Code according to the funding entity: P20_00233

Start-End date: 04/10/2021 – 30/06/2023 Total amount: 119.236 €

3. Title: Desionización de aguas salobres basada en el estudio del transporte de iones en nanoestructuras

Name principal investigator: Silvia Ahualli Yapur y Guillermo Iglesias Salto

Funding entity: FEDER/Junta de Andalucía-Consejería de Transformación Económica, Industria, Conocimiento y Universidades Code according to the funding entity: A-FQM-492-UGR20

Start-End date: 01/07/2021 – 30/06/2023 Total amount: 55.000 €

4. Title: Nanopartículas en medios confinados: estructura de equilibrio y respuesta a campos externos

Name principal investigator: María Luisa Jiménez Olivares y Silvia Ahualli Yapur

Funding entity: Ministerio de Ciencia e Innovación. Code: PGC2018-098770-B-100

Start-End date: 01/01/2019 - 31/12/2021 Total amount: 96.800 €

5. Title: Nuevos sistemas para la obtención de energía azul mediante intercambio iónico debido a diferencias de salinidad

Name principal investigator: Silvia Ahualli Yapur

Funding entity: Universidad de Granada

Type of entity: Programa de Proyectos de Investigación para la Incorporación de Jóvenes

Doctores a Nuevas Líneas de Investigación en Grupos de la Universidad de Granada

Start-End date: 01/01/2016 - 31/01/2020 Total amount: 170.000 €

6. Title: Modelos teóricos de las propiedades eléctricas de interfases

sólido/disolución. aplicación a la obtención de energía eléctrica por cambio de salinidad

Name principal investigator: Ángel Delgado Mora

Funding entity: Ministerio de Educación, Política Social y Deporte. Code: FIS2013-47666-C3-1-R

Degree of contribution: Researcher.

Start-End date: 01/01/2014 - 31/12/2016 Total amount: 86.757 €

7. Title: CAPMIX. Capacitive mixing as a novel principle for generation of clean renewable energy from salinity differences

Name principal investigator: Ángel Delgado Mora

Funding entity: Unión Europea, VII Programa Marco. Code: FP7-ENERGY-2010-FET 256868

Degree of contribution: Researcher.

Start-End date: 01/10/2010 - 30/09/2014 Total amount: 2.404.750 €

C.4. Contracts, technological or transfer merits

1. Title: SISTEMA DE SEPARACIÓN IÓNICA POR MEDIO DE ELECTRODOS RECUBIERTOS CON POLÍMEROS IÓNICOS

Authors: S. Ahualli; G. Iglesias; A.V. Delgado; M.L. Jiménez; F. González-Caballero

Entity holder of rights: Universidad de Granada N° of application: P201731503

Country of inscription: Spain; Date of register: 29/12/2017

2. Title: DISPOSITIVO PARA MEDICIÓN DE ENERGÍA PRODUCIDA POR INTERCAMBIO IÓNICO

Authors: G. Iglesias; S. Ahualli; A.V. Delgado; M.L. Jimenez; F. Gonzalez-Caballero

Entity holder of rights: Universidad de Granada N° of application: PCT/ES2014/070722

Country of inscription: Spain; Date of register: 25/09/2014; PCT patent: Yes; EU Patent: Yes

CV date	01/11/2023
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Part A. PERSONAL INFORMATION

First name	María José		
Family name	Gálvez-Ruiz		
e-mail	mjgalvez@ugr.es		URL Web
Open Researcher and Contributor ID (ORCID) (*)	M-1528-2014	0000-0003-0080-7827	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	06/12/2011		
Institution	University of Granada (UGR)		
Department/Center	Applied Physics	Faculty of Sciences	
Country	Spain	Teleph. number	
Key words	Fluid interfaces, Langmuir monolayers, nanosystems, interactions in colloidal systems		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1983-1990	Teaching assistant, Teaching fellow, Associated teacher, UGR, Spain
1990-1990	Visiting Research Scientist, Agricultural University, Wageningen, The Netherlands (6 months)
1990-1992	Assistant professor, UGR, Spain
1992-2011	Associate professor, UGR, Spain
March 1995-September 1995	Maternity leave
1996-1997	Visiting Research Scientist, Royal School of Pharmacy, Copenhagen, Demark (12 months)
2011-	Full Professor, UGR, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Degree in Chemical Sciences	University of Granada/Spain	1983
PhD in Physical Sciences	University of Granada/Spain	1988

Part B. CV SUMMARY (max. 5000 characters, including spaces)

My research focuses on fluid interfaces (air/water and oil/water), Langmuir monolayers, and Langmuir-Blodgett films, in Colloid and Interface Science and Technology, and Nanotechnology with applications in Biology, Biomedicine, and Food. Topics covered: Cholelithiasis (Ph.D. Thesis) (PB87-0882), design of immunodiagnostic tests based on latex technology (MAT90-0695-C02-01, MAT96-1035-C03-02), lipid-protein (membrane) interactions (PR95-463, INTAS 96-1241), structured interfaces and lipid and protein digestibility (AGL2001-3843-C02-02, AGL2004-01531, MAT2007-66662-C02-01), design of nanoemulsions for transport of bioactive substances in food and anti-obesity drugs (P07-FQM-03099), design of oleogels and oleogel-based nanoemulsions with application in food and hydrophobic drug carriers (MAT2015-63644-C2-1-R), design of nanoparticles and biomimetic nanosystems as anticancer drug carriers (MAT2015-63644-C2-1-R, RTI2018-101309-B-C21), development of therapeutic foams (with sclerosant drug) (PI12/2956), anti-cancer drug-membrane interactions (RTI2018-101309-B-C21, FPU19/02045). I have 70 indexed scientific publications (50 Q1), 9 non-indexed scientific publications, and 20 book chapters (13 in



international publishers). I have attended 159 congresses and scientific meetings (132 international). I have participated in 7 local congress organization committees (6 international, 1 national) and I have been a member of the scientific committee of 2 international congresses. I have participated in 24 research projects, being PI in 10 (1 European, INTAS 96-1241) with a funding of 2,674,595 €. In 2009 I led the GREIB project (CEB09-0005) of the University of Granada (UGR) (Campus of International Excellence Program, R+D+i and transfer subprogram) with funding of 2,000,000 €. I have been a co-founder of the research group "Physics of Fluids and Biocolloids" (FQM-115 of the Andalusian PAIDI) and coordinated it for 16 years (2000-2016) obtaining funding of 500,000 €. I led and coordinated the Andalusian network of colloids and interfaces with the participation of 9 research groups and 50 PhDs between 2003 and 2004. I have been a vocal member (8 years) and vice-president (4 years) of the Board of Directors of the Specialized Group of Colloids and Interfaces (GECI) of the RSEF and RSEQ. I am a promoter and member of the Scientific Unit of Excellence Modeling Nature: From Nano to Macro (MNat) of the UGR. I have done 2 stays in foreign universities (Department of Physical and Colloid Chemistry, Agricultural University of Wageningen, Wageningen, The Netherlands, 6 months (1990) and Department of Physical Chemistry, Royal Danish School of Pharmacy, Copenhagen, Denmark, 12 months (1996-97)). I maintain close collaboration and have the direct support of the following companies: Biosearch S.A., Vircell, S.L., DOMCA, S.A., IKERLAT Polymers S.L., BioVolèa Sagl. I have been responsible for a research contract with the company Biosearch S.A. (94.111,11 €) in the framework of the CDTI project ITC-20131081, 2013. I am a co-inventor of 1 granted patent (2015), 1 patent license agreement (2015), 1 licensed patent (2015), and 2 applied patents (2014, 2022). I have been the PI of a proof-of-concept project funded by the OTRI of the UGR. I have participated in scientific dissemination forums: "Café con Ciencia", "La noche de los investigadores", "Trayectorias científicas", "Día Internacional de la Mujer", "Día Internacional de la Mujer y la Niña en Ciencia", exhibitions on cancer research and innovation conferences. I lead the SMARTNANOMAT project funded by the "Mancomunidad de los pueblos de la Alpujarra granadina" through the project "Solidarity between mountains". I have been responsible for 23 research contracts for young researchers. I have supervised 9 doctoral theses, 1 dissertation, 5 diplomas of advanced studies, and 6 TFG. I have been the tutor of 6 predoctoral fellowships, 4 grants to initiate research, 3 collaboration grants, 3 reinstatements of doctors, and 3 stays of foreign researchers. I have received 6 research awards, 2 collective awards to the research group for transfer, 2 for publications of articles with more citations in the UGR, and 2 as director of TFGs with a national award. I have held 3 unipersonal academic positions at the UGR: Director of the secretariat of the Vice-rectorate of Academic Planning (2000-2008), Secretary of University Coordination (2008-2011), and Member of the Commission of Guarantee and Monitoring (2010-2011). Author of the first equality plan of the University of Granada (2011). Member of the Technical Evaluation Committee of the call for "R+D+i Projects" 2019, area 15.MAT subarea MBM in the AEI. I count 5 six-year terms of research (the last one in 2017).

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. C. A. Palla, A. Aguilera-Garrido, M. E. Carrín, F. Galisteo-González, M. J. Gálvez-Ruiz (2022) Preparation of highly stable oleogel-based nanoemulsions for encapsulation and controlled release of curcumin. **Food Chemistry** 378: 132132-132140
<https://doi.org/10.1016/j.foodchem.2022.132132>
2. M. Pedrosa, J. Maldonado-Valderrama, M.J. Gálvez-Ruiz (2022) Interactions between curcumin and cell membrane models by Langmuir monolayers. **Colloids and Surfaces B: Biointerfaces** 217:112636-112646 <https://doi.org/10.1016/j.colsurfb.2022.112636>
3. T. del Castillo-Santaella, A. Aguilera-Garrido, F. Galisteo-González, M.J. Gálvez-Ruiz, J.A. Molina-Bolívar, J. Maldonado-Valderrama (2022) Effect of Hyaluronic Acid on the microstructure, interaction with mucin, and in vitro digestibility of Liquid Lipid Nanocapsules shelled with Human and Bovine Serum Albumin. **Food Chemistry** 383: 132330-132340
<https://doi.org/10.1016/j.foodchem.2022.132330>
4. A. Aguilera-Garrido, E. Arranz, M. J. Gálvez-Ruiz, J. A. Marchal, F. Galisteo-González, L. Giblin (2022) Solid lipid nanoparticles to improve bioaccessibility and permeability of orally administered maslinic acid. **Drug delivery** 19(1): 1971-1982
<https://doi.org/10.1080/10717544.2022.2086937>



5. A. Aguilera-Garrido, T. del Castillo-Santaella, F. Galisteo-González, M.J. Gálvez-Ruiz, J. Maldonado-Valderrama (2021) Investigating the role of hyaluronic acid in improving curcumin bioaccessibility from nanoemulsions. **Food Chemistry** 351: 129301-129311. <https://doi.org/10.1016/j.foodchem.2021.129301>
6. A. Aguilera-Garrido, T. del Castillo-Santaella, F. Galisteo-González, M.J. Gálvez-Ruiz, J.A. Molina-Bolívar, JA Holgado-Terriza, MA Cabrerizo-Vílchez, J. Maldonado-Valderrama (2021) Applications of Serum Albumins in delivery systems: differences in interfacial behaviour and interacting abilities with polysaccharides. **Advances in Colloid and Interface Science** 290: 102365-102381. <https://doi.org/10.1016/j.cis.2021.102365>
7. Teresa del Castillo-Santaella, Yan Yang, Inmaculada Martínez-González, M^a José Gálvez-Ruiz, Miguel Ángel Cabrerizo-Vílchez, Juan Antonio Holgado-Terriza, Fernando Selles-Galiana, Julia Maldonado-Valderrama (2020) Effect of Hyaluronic Acid and Pluronic-F68 on the Surface Properties of Foam as Delivery System for Polidocanol in Sclerotherapy. **Pharmaceutics** 12(11):1039-1055. <https://doi.org/10.3390/pharmaceutics12111039>
8. C.A. Palla, J. de Vicente, M. E. Carrín, M.J. Gálvez-Ruiz (2019) Effect of cooling temperature profile on the monoglycerides oleogel properties: a rheo-microscopic study. **Food Research International** 25: 108613-108624. <https://doi.org/10.1016/j.foodres.2019.108613>
9. J.A. Molina-Bolívar, C. Carnero-Ruiz, F. Galisteo-González, A. Aguilera-Garrido, M.J. Gálvez-Ruiz (2019) A spectroscopy analysis of the interaction between Mega 10 and Concanavalin A. **Journal of Molecular liquids** 275: 674-681. <https://doi.org/10.1016/j.molliq.2018.11.114>
10. María José Gálvez-Ruiz (2017) Different approaches to study proteins films at air/water interface, **Adv. Colloid and Interface Science** 247: 543-552. <http://dx.doi.org/10.1016/j.cis.2017.07.015>

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. M. Pedrosa, P. Graván, J. Peña-Martín, J. Maldonado-Valderrama, M. Kanduc, A. Moncho-Jordá, M. J. Gálvez-Ruiz. Biophysics approach in anticancer therapies: Studying anticancer drugs interactions with extracted and model cell membranes by Langmuir films and computer simulations. **Regional Biophysics Conference (rbc) 2022**, Pécs, Hungary, August 22-26 (2022) Oral presentation.
2. A. Aguilera-Garrido, E. Arranz, L. Giblin, J. A. Marchal, M. J. Gálvez-Ruiz, F. Galisteo-González. Solid lipid nanoparticles from natural plants-derived sources as drug nanocarriers for treatment of pancreatic cancer. **9th Iberian Meeting on Colloids and Interfaces (RICI9)**, Santiago de Compostela, Spain, July 10-13 (2022) Oral presentation.
3. J. Maldonado-Valderrama, A. Aguilera-Garrido, T. del Castillo Santaella, M. J. Gálvez-Ruiz, J. A. Molina-Bolívar, F. Galisteo-González. Encapsulation of curcumin in Liquid Lipid Nanocapsules, **Food Hydrocolloids Symposium at the 7th International Conference on Food Chemistry & Technology**, Cyberspace, November 8-10 (2021). Invited conference.
4. A. Aguilera-Garrido, T. del Castillo Santaella, F. Galisteo-González, M. J. Gálvez-Ruiz, J. Maldonado-Valderrama. Investigating the role of hyaluronic acid in improving curcumin bioaccessibility from nanoemulsions. **Virtual International Conference on Food Digestion (INFOGEST)**, Cyberspace, May 6-7 (2021). Oral presentation.
5. J. de Vicente Álvarez-Manzaneda, M. J. Gálvez-Ruiz, G. Camacho Villar, J. R. Morillas Medina. Enhancing magnetorheology under pulsed magnetic fields in saturation. **European Rheology Society, Nordic Rheology Society (AERC 2021)**, Cyberspace, April 13-15 (2021). Invited conference.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. Síntesis y caracterización de nanoghosts como sistemas novedosos de liberación de fármacos. GHOSTNANOMAT (RTI2018-101309-B-C21) Ministerio de Innovación, Ciencia y Universidades y AEI, Period 01/01/2019-12/31/2022, Funding: 127.000 €, Personal contribution: **Principal Investigator and Coordinator of both subprojects**.
2. Diseño de nanocasulas inteligentes de aceite de oliva para administracion oral: sintesis, caracterizacion fisico-quimica y digestion in-vitro. SMARTNANOMAT (MAT2015-63644-C2-1-R) Ministerio de Economía y Competitividad y AEI, Period: 01/01/2016-12/31/2018, Funding:



60.000 €, Personal contribution: **Principal Investigator and Coordinator of both subprojects.**

3. Granada Research of Excellence Initiative on Bio-Health (GREIB) (CEB09-0005) Subprograma de I+D+i y Transferencia, Programa Campus de Excelencia Internacional Ministerio de Ciencia e Innovación, Period: 12/18/2009-12/18/2010, Funding: 2.000.000 €, Personal contribution: **Scientific Coordinator**

4. Caracterización físico-química y biomédica de nanoemulsiones. Nuevos fármacos para el tratamiento de desórdenes alimenticios (P07-FQM-03099) Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía/Proyectos de Excelencia 2007, Period: 01/01/2008-12/31/2012, Funding: 197.701,92 €, Personal contribution: **Principal Investigator**

5. Propiedades funcionales de proteínas, polipéptidos y fosfolípidos y su aplicación en la mejora y optimización de formulaciones alimentarias y diseño de alimentos específicos (AGL2001-3843-C02-02), CICYT/ Plan Nacional 2001, Period: 12/28/2001-12/27/2004, Funding: 120.000 €, Personal contribution: **Principal Investigator**

C.4. Contracts, technological or transfer merits,

1. Patent: Inventors: Rodríguez de Fonseca, Fernando; Pavón Morón, Francisco Javier; Serrano Criado, Antonia; Romero Cuevas, Miguel; Wulff Pérez, Miguel; Gálvez Ruiz, María José; Martín Rodríguez, Antonio; de Vicente Álvarez-Manzaneda, Juan

Title: "Formulaciones basadas en nanoemulsiones y su uso para el tratamiento de la obesidad". N. Application: P201330233, Priority Country: Spain, February 15, 2015, Owner entities: Fundación Pública Andaluza para la Investigación de Málaga en Biomedicina y Salud (FIMABIS) and University of Granada (UGR).

2. Patent: Inventors: Rodríguez de Fonseca, Fernando; Pavón Morón, Francisco Javier; Serrano Criado, Antonia; Romero Cuevas, Miguel; Wulff Pérez, Miguel; Gálvez Ruiz, María José; Martín Rodríguez, Antonio; de Vicente Álvarez-Manzaneda, Juan, Title: Formulations based on nanoemulsions and their use for the treatment of obesity. N. Application: PCT/ES2014/070129 Internacional, February 20, 2014. Owner entities: Fundación Pública Andaluza para la Investigación de Málaga en Biomedicina y Salud (FIMABIS) and University of Granada (UGR)

3. License option agreement: of the patent P201330233 between the Swiss company Biovolèa Sagl, the Andalusian Health Service, and the University of Granada (UGR), April 7, 2015.

4. Patent license P201330233 of the Andalusian Health Service, and the University of Granada (UGR) by the company VIDIA HEALTH S.A., December 23, 2015.

5. Patent: Inventors: Galisteo González, Francisco; Marchal Corrales, Juan Antonio; Gálvez Ruiz, María José; Aguilera Garrido, Aixa María; Graván Jiménez, Pablo; Navarro Marchal, Saúl Abenhamar; Parra Sánchez, Andrés; Medina O'Donnell, Marta. Title: Maslinic acid solid lipid nanoparticles, procedure for their preparations and the use thereof. N. Application: P202230598. Priority Country: Spain, July 1, 2022. Owner entity: University of Granada.

6. Research contract: "Diseño y caracterización de emulsiones para su aplicación en alimentación. Estudios de digestibilidad *in vitro*", under the project "El aceite de oliva y otras grasas saludables. Aplicaciones tecnológicas para su transformación en productos de alto valor añadido" (ATENA). Programme FEDER- ININTERCONECTA, CDTI: ITC-20131081. Funding: 933.651,40€. Participating entities: UGR, BIOSEARCH S.A.. Period: 01/10/2013-31/03/2015. Personal contribution: **Principal Investigator**. Contract fundind: 94.111,11 €.

7. Financial aid for the Realization of Prototypes and Pilot Experiences: Design and preparation of nanoemulsions to encapsulate an anti-obesity drug (OEA). PR/14/006. Financing Entity: OTRI (UGR). Period: 05/11/2015-05/11/2016. Personal contribution: **Principal Investigator**.

Fecha del CVA	26/01/2023
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Parte A. DATOS PERSONALES

Nombre	SANTIAGO		
Apellidos	PALANCO LOPEZ		
URL Web	https://www.uma.es/lasersensing		
Dirección Email	spalanco@uma.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-8246-7995		

A.1. Situación profesional actual

Puesto	Profesor Titular de Universidad		
Fecha inicio	2017		
Organismo / Institución	Universidad de Málaga		
Departamento / Centro	Física Aplicada I / Facultad de Ciencias		
País	España	Teléfono	
Palabras clave			

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Doctor en Química	Universidad de Málaga	2001
European Laser Engineer	Technische Universitat Wien / Austria	1998
Licenciado en Ciencias Químicas	Universidad del País Vasco	1996
Bachelor of Science	University of Greenwich / Reino Unido	1992

Parte B. RESUMEN DEL CV

Santiago graduated both from the University of Greenwich (UK) where he was awarded his BSc with Honour Degree in Applied Chemistry in 1992, and from the University of País Vasco (Spain, Licenciado in Chemical Science) in 1996. In 2001 he obtained his PhD from the University of Málaga (Spain). His PhD research versed on the applications of laser induced plasma spectrometry to industrial processes. During his post-doc research at the University of Málaga, he worked on the development and uses of LIBS for remote sensing. He demonstrated the feasibility of stand-off LIBS for the detection of energetic materials in the field for the first time in 2004 in a collaboration for the Army Research Laboratory (Department of Defense, US).

In 2006, he joined efforts with Martin Richardson and moved to the University of Central Florida (US) to take a faculty position at CREOL as a Senior Scientist. He was responsible for a program on fundamental laser spectroscopy funded by the Army Research Office (MURI) and put the foundations for the Laser Spectroscopy and Sensing Lab and the Laser Ignition Facility at the then-newborn Townes Laser Institute.

In 2009 he returned to the University of Málaga where he joined José Ramos-Barrado's Group at the Department of Applied Physics I and was appointed as a Ramón y Cajal Research Scientist between 2010 and 2016. From May 2016 he is an associate professor. Since his return to Spain he has started a new lab and his research interests include the generation of nanostructures from laser-induced plasmas of precursor microdroplets, the use of plasma lenses for surface nanopatterning and the characterization of complex single and multilayered PV materials and the integration of compact LIBS systems into unmanned vehicles.

Santiago has supervised two PhD theses (2006, 2013) and is the coauthor of 11 book chapters, 7 patents and 42 research papers in journals indexed in WoS/JCR. 33 out of these 40 papers belong to the first quartile in their respective categories. The h-index is 24/25 (WoS/Scopus) with ~1700 citations and 85 citations per year in the last five years (WoS). He holds the I3

excellence accreditation by ANEP and 3 research periods (sexenios) certified by CNEAI. He was appointed Secretary of the Department of Applied Physics I in October 2019 and resigned in January 2021 to become the Deputy Head of the School of Sciences of the University of Málaga, a position he has kept since.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con “peer review” y conferencias

AC: Autor de correspondencia; (n° x / n° y): posición firma solicitante / total autores. Si aplica, indique el número de citas

- 1 Artículo científico.** Santiago Palanco; Raúl Pérez López; Inés Galindo Jiménez; et al;. 2022. Field deployment of a man-portable stand-off laser-induced breakdown spectrometer: A preliminary report on the expedition to the Cumbre Vieja volcano (La Palma, Spain, 2021) Spectrochimica Acta. Part B, atomic spectroscopy. Elsevier. 190, pp.106391. ISSN 05848547. <https://doi.org/10.1016/j.sab.2022.106391>
- 2 Artículo científico.** Santiago Palanco; Sergio Aranda; Francisco Mancebo; María Cruz López Escalante; Dietmar Leinen; José R. Ramos Barrado. 2021. Towards airborne laser-induced breakdown spectroscopy: A signal recovery method for LIBS instruments subjected to vibration Spectrochimica Acta. Part B, atomic spectroscopy. Elsevier. 187, pp.106342. ISSN 05848547. <https://doi.org/10.1016/j.sab.2021.106342>
- 3 Artículo científico.** Santiago Palanco López; Salvatore Marino; Mercedes Gabás Pérez; Luis Ayala Montoro; José Ramos Barrado. 2015. Tailored Synthesis of Nanostructures by Laser Irradiation of a Precursor Microdroplet Stream in Open-Air NANOSCALE. RSC. 7-2, pp.492-499. ISSN 2040-3364. <https://doi.org/10.1039/c4nr04768k>
- 4 Artículo científico.** M. Gabas; E. Ochoa-Martinez; E. Navarrete-Astorga; et al; J.R. Ramos-Barrado. 2017. Characterization of the interface between highly conductive Ga:ZnO films and the silicon substrate Applied Surface Science. Elsevier. 419-10, pp.595-602. ISSN 01694332. <https://doi.org/10.1016/j.apsusc.2017.05.072>
- 5 Artículo científico.** VINCENZO ORLANDO; MERCEDES GABÁS; BEATRIZ GALIANA; et al;. 2017. Failure analysis on lattice matched GaInP/Ga(In)As/Ge commercial concentrator solar cells after temperature accelerated life tests Progress in Photovoltaics: Research and Applications. Wiley. 95-1, pp.97-112. ISSN 1062-7995. <https://doi.org/10.1002/pip.2818>
- 6 Artículo científico.** MARÍA CRUZ LÓPEZ ESCALANTE; MERCEDES GABÁS; IGNACIO GARCIA; ENRIQUE BARRIGÓN; IGNACIO REY STOLLE; CARLOS ALGORA; SANTIAGO PALANCO; JOSE RAMÓN RAMOS BARRADO. 2016. DIFFERENCES BETWEEN GaAs/GaInP AND GaAs/AlInP INTERFACES GROWN BY MOVPE REVEALED BY DEPTH PROFILING AND ANGLE-RESOLVED X-RAY PHOTOELECTRON SPECTROSCOPIES Applied Surface Science. Elsevier. 361. ISSN 0169-4332. <https://doi.org/10.1016/j.apsusc.2015.10.098>
- 7 Artículo científico.** Efraín Ochoa; Mercedes Gabás; Laura Barrutia; Amaia Pesquera; Alba Centeno; Santiago Palanco; Amaia Zurutuza; Carlos Algora. 2015. Determination of refractive index and extinction coefficient of standard production CVD-graphene NANOSCALE. RSC. 7-4, pp.1491-1500. ISSN 2040-3364. <https://doi.org/10.1039/c4nr06119e>
- 8 Artículo científico.** Salvatore Marino; Santiago Palanco López; Mercedes Gabás Pérez; Rocio Romero Pareja; José Ramos Barrado. 2015. Laser nano- and micro-structuring of silicon using a laser-induced plasma for beam conditioning NANOTECHNOLOGY. IOP. 26-5, pp.055303. ISSN 0957-4484. <https://doi.org/10.1088/0957-4484/26/5/055303>

- 9 **Artículo científico.** Palanco, Santiago; Marino, Salvatore; Gabas, Mercedes; Bijani, Shanti; Ayala, Luis; Ramos-Barrado, Jose R.2014. Particle formation and plasma radiative losses during laser ablation. Suitability of the Sedov-Taylor scaling OPTICS EXPRESS. 22-13, pp.16552-16557. ISSN 1094-4087. <https://doi.org/10.1364/OE.22.016552>
- 10 **Artículo científico.** Palanco, Santiago; Marino, Salvatore; Gabas, M.; Bijani, Shanti; Ayala, Luis; Ramos-Barrado, Jose R.2014. Micro- and nanoparticle generation during nanosecond laser ablation: correlation between mass and optical emissions OPTICS EXPRESS. 22-4, pp.3991-3999. ISSN 1094-4087. <https://doi.org/10.1364/OE.22.003991>

C.3. Proyectos o líneas de investigación

- 1 **Proyecto.** High-speed environmental monitoring of abandoned mining waste facilities and evaluation of their potential for recovery of raw materials by chemical mapping with drone-borne laser-induced plasma spectrometry (REMINLASER).. Junta de Andalucía. Santiago Palanco López. (Universidad de Málaga). 01/12/2022-30/11/2025. 154.022,12 €.
- 2 **Proyecto.** Dispositivos con generacion y almacenamiento integrados de energia solar. Ministerio de Ciencia e Innovación. Francisco de Paula Marín Jiménez. (Universidad de Málaga). 01/09/2021-30/08/2025. 52.030 €.
- 3 **Proyecto.** CÓD. E3/01/19, PROTOTIPO DE ESPECTROMETRO LIBS/RAMAN CON SISTEMA ESTABILIZADOR DE SEÑAL PARA MEDIDAS ESPECTROMÉTRICAS DESDE VEHÍCULOS AÉREOS NO TRIPULADOS. Universidad de Málaga. Santiago Palanco. (Universidad de Málaga). 26/03/2019-26/06/2021. 20.000 €.
- 4 **Proyecto.** TEC2017-83447-P, Nitruros diluidos crecidos por MOVPE con propiedades fotovoltaicas mejoradas para células solares multiunión de alta eficiencia. Ministerio de Economía y Competitividad. Carlos Algora del Valle. (Universidad de Málaga). 01/01/2018-31/12/2020. Investigador principal.
- 5 **Proyecto.** PCIN-2015-181-C02-01, DILUTE NITRIDE BASED CONCENTRATOR MULTIJUNCTION SOLAR CELLS, WITH EFFICIENCIES OVER 46% / CÉLULAS SOLARES MULTIUNIÓN DE NITRUROS DILUIDOS DE CONCENTRACIÓN CON EFICIENCIAS SUPERIORES AL 46%. Ministerio de Economía y Competitividad. SANTIAGO PALANCO. (Universidad de Málaga). 01/12/2015-30/11/2018. 81.000 €. Investigador principal.
- 6 **Proyecto.** TEC2014-54260-C3-3-P, CARACTERIZACION ESTRUCTURAL, ESPECTROSCOPICA Y ESPECTROMETRICA DE MATERIALES PARA LA NUEVA GENERACION DE CELULAS SOLARES MULTIUNION QUE LOGREN EFICIENCIAS DEL 50%. Ministerio de Economía y Competitividad. Mercedes Gabás Pérez. (Universidad de Málaga). 01/01/2015-31/12/2017. 75.000 €.
- 7 **Proyecto.** RNM 1399, APLICACIÓN DE NUEVAS NANOESTRUCTURAS COMUNES A ELEMENTOS ACTIVOS EN ELECTRÓNICA INVISIBLE CON APLICACIONES ENERGÉTICAS. Consejería de Economía, Innovación, Ciencia y Empleo. José Ramos Barrado. (Universidad de Málaga). 01/01/2014-31/12/2016. 189.894 €.
- 8 **Proyecto.** MURI TOPIC25, ULTRAFast LASER INTERACTION PROCESSES FOR LIBS AND OTHER SENSING TECHNOLOGIES. US Department of Defense, Army Reseach Office. Martin Richardson. (University of Central Florida). 15/06/2006-14/09/2012. 4.600.000 €. Coordinador.
- 9 **Proyecto.** DURIP W911NF-07-R-0003, LASER IGNITION FACILITY FOR ENERGETIC MATERIALS. US Department of Defense, Army Research Office. SANTIAGO PALANCO LOPEZ. (University of Central Florida). 01/06/2008-30/11/2009. 2.300.000 €. Coordinador.
- 10 **Proyecto.** IEDI-2017-00828, AYUDAS PARA INCENTIVAR LA INCORPORACIÓN ESTABLE DE DOCTORES DE LA AGENCIA ESTATAL DE INVESTIGACIÓN. Ministerio de Economía, Industria y Competitividad. Santiago Palanco López. (Universidad de Málaga). Desde 14/11/2017. 100.000 €. Investigador principal.
- 11 **Contrato.** Experimental y monitorización remota mediante espectrometría de plasmas inducidos por láser para la determinación remota de la composición química de las coladas de la erupción volcánica de la Isla de La Palma (Islas Canarias) Universidad de Málaga; Instituto Geológico y Minero de España. Santiago Palanco. (Universidad de Málaga - Instituto Geológico y Minero de España (CSIC)). 15/10/2021-14/11/2021. 78.911 €.

- 12 **Contrato.** Convocatoria de ayuda a la actividad investigadora de anteriores beneficiarios del programa Ramón y Cajal con certificado I3 Universidad de Málaga. Santiago Palanco. (Universidad de Málaga). 22/11/2018-22/11/2023. 50.000 €.
- 13 **Contrato.** Caracterización de nanocapas de Grafeno Universidad Politécnica de Madrid. Mercedes Gabás Pérez. 01/01/2013-01/01/2015. 5.505,5 €.
- 14 **Contrato.** LIBS Analysis of Gases - Feasibility Study, UK Atomic Weapon Establishment. Andrew Whitehouse. (Applied Photonics Limited). 01/01/2008-01/01/2009.

C.4. Actividades de transferencia de tecnología/conocimiento y explotación de resultados

- 1 **Patente de invención.** Santiago Palanco López; José Ramón Ramos Barrado. 201930520. SISTEMA ÓPTICO DE ESTABILIZACIÓN Y MÉTODO PARA MEJORA DE LA SEÑAL EN MEDIDAS ESPECTROMÉTRICAS SOMETIDAS A FLUCTUACIÓN MECÁNICA España. 14/11/2022. Universidad de Málaga.
- 2 **Patente de invención.** Santiago Palanco López; Mercedes Gabás Pérez; Salvatore Marino; José Ramos Barrado; Rocío Romero. ES2559327. NANO- Y MICRO-ESTRUCTURACIÓN DE SILICIO CON LÁSER USANDO UN PLASMA INDUCIDO POR LÁSER PARA EL TRATAMIENTO DEL HAZ LÁSER DE PROCESADO España. 07/07/2016. Universidad de Málaga.
- 3 Santiago Palanco López; Mercedes Gabás Pérez; Luis Ayala Montoro; José Ramos Barrado; Shanti Bijani Chiquero; Salvatore Marino. ES2431266. PROCEDIMIENTO PARA LA PRODUCCIÓN DE NANOPARTÍCULAS MEDIANTE IRRADIACIÓN CON LÁSER DE PRECURSORES LÍQUIDOS DE TAMAÑO MICROSCÓPICO España. 08/09/2014. Universidad de Málaga.
- 4 **Patente de invención.** SANTIAGO PALANCO LOPEZ; JOSE JAVIER LASERNA VAZQUEZ; ANA MARIA ALISES CASTILLO. ES 2 234 373. INSTRUMENTO PORTÁTIL BASADO EN LÁSER PARA LA REALIZACIÓN DE ANÁLISIS QUÍMICO ELEMENTAL 06/07/2006. Universidad de Málaga.
- 5 **Patente de invención.** SANTIAGO PALANCO LOPEZ; JOSE JAVIER LASERNA VAZQUEZ. ES 2 119 678. SENSOR PARA LA PROTECCION DE GUIAS OPTICAS CONTRA ROTURAS POR TORSION 19/07/2000. Universidad de Málaga.
- 6 **Patente de invención.** SANTIAGO PALANCO LOPEZ; JOSE JAVIER LASERNA VAZQUEZ. ES 2 121 702. SENSOR PARA MONITORIZACION ON-LINE Y REMOTA DE PROCESOS AUTOMATIZADOS DE SOLDADURA CON LASER. 30/04/1999. Universidad de Málaga.
- 7 **Patente de invención.** SANTIAGO PALANCO LOPEZ; JOSE JAVIER LASERNA VAZQUEZ. ES 2 119 679. SENSOR PARA LA PROTECCION DE GUIAS OPTICAS CONTRA ROTURAS POR FLEXION. 26/03/1999. Universidad de Málaga.

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	María del Mar		
Family name	Ramos Tejada		
e-mail	mmramos@ujaen.es		URL Web
Open Researcher and Contributor ID (ORCID) (*)			0000-0001-6790-8732

(*) Mandatory

A.1. Current position

Position	Senior Lecturer		
Initial date	03/09/2019		
Institution	University of Jaen		
Department/Center	Department of Physics	Campus Científico Tecnológico de Linares	
Country	Spain	Teleph. number	
Key words	Rheology; Nanomaterials; Nanogels; Biomedicine; Magnetic hyperthermia		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
01/07/1999-31/10/2000	Research Assistant/University of Granada/Spain (16 months)
01/11/2000-31/10/2004	Predoctoral Fellow/University of Jaen/Spain (48 months)
12/01/2005-28/02/2006	Postdoctoral Fellow/University of Jaen/Spain (34 months)
01/03/2006-(*)-24/07/2011	Assistant Professor (Doctor) /University of Jaen/Spain (64 months*)
(*) 13/01/2010	Maternity leave
25/07/2011-02/09/2019	Associate Professor/University of Jaen/Spain (97 months)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctor in Physics	University of Granada	2001
Degree in Applied Physics	University of Granada	1996

(Include all the necessary rows)

Part B. CV SUMMARY (max. 5000 characters, including spaces)

My research is fundamentally linked to the field of colloids and interfaces. Most of it is related to the investigation of the electrokinetic, dielectric, surface thermodynamic and rheological properties of nanoparticles suspensions of environmental, technological or biomedical interest.

In last years, my research is focused on the study of ferrofluids and nanogels for biomedical purposes. I have been part of five projects in this field linked to the Sustainable Development Goal (SDGs): “ensure healthy lives and promote well-being for all at all ages”. I have



contributed, from an experimental point of view, to the study of magnetic nanoparticles as nanocarriers and magnetic hyperthermia agents. The influence of parameters such as size and surface treatment on the hyperthermia response of magnetic nanoparticles has been investigated. Moreover, we have synthesized multi-functionalized iron oxide nanoparticles and their behavior as therapeutic (drug and antibody) delivery carriers and hyperthermia agents has been studied. Additionally, I have collaborated in the simulations of nanogels to explore some of the factors that may influence the encapsulation and release of active principles. We have tried to shed light on the role that electrostatic and steric interactions play when nanoparticles are loaded in micro- or nanogels. Besides, the long-time diffusion of a solute in a chemically crosslinked and flexible hydrogel has been computed. As a relevant result, it can be highlighted that we have found a mathematical expression that can approximately predict the diffusivity in flexible gels if steric hindrance is the mechanism ruling diffusion. On the other hand, our study of the diffusion-controlled release of drugs housed in flexible nanogels suggest that the interpretation of drug release curves in terms of kinetic exponents (obtained generally from the Ritger–Peppas Equation) is a tricky question. Finally, I have collaborated in the investigation of thermo- and pH-sensitive hybrid microgels loaded with fluorescent dyes and ultra-small gold nanoparticles for theranostic. In summary, from a fundamental point of view, I carry out studies that aim to contribute to the understanding of the physical behaviour of systems of biomedical interest, and, from an applied point of view, provide information that allows better control of them with a view to possible medical applications as nanocarriers and theranostic agents.

My investigation has been carried out within the framework of nine projects I+D financed in competitive calls (five by National Plan, three by Junta de Andalucía and one by ERDF funds) and a postdoctoral contract in the Imperial College of London.

As result of this work I have published 31 papers in journals of recognized international prestige (12 in first quartile) and a book chapter, the total number of citations received have been 819 by 693 documents according to Scopus (738 by 631 documents according to Publons). I have a h-index of 15 according to Scopus (14 according to Publons).

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (*see instructions*)

- 1 Artículo científico.** Quesada-Pérez, Manuel; Pérez-Mas L.; Carrizo-Tejero D.; Maroto-Centeno J.A.; Ramos-Tejada, María del Mar; 0000-0001-8023-8665; Alberto Martín-Molina. (5/6). 2022. Coarse-Grained Simulations of Release of Drugs Housed in Flexible Nanogels: New Insights into Kinetic Parameters *Polymers*. 14-21, pp.4760. <https://doi.org/10.3390/polym14214760>
- 2 Artículo científico.** Quesada-Pérez M.; Maroto-Centeno J.A.; Ramos-Tejada M.D.M.; Martín-Molina A.(3/4). 2022. Coarse-Grained Simulations of Solute Diffusion in Crosslinked Flexible Hydrogels *Macromolecules*. 55, pp.1495-1504. ISSN 00249297. WOS (5), SCOPUS (6) <https://doi.org/10.1021/acs.macromol.1c02178>
- 3 Artículo científico.** Xiao Y.; Pandey K.; Nicolás-Boluda A.; et al; Del Mar Ramos-Tejada M.; 0000-0002-9817-3262. (11/14). 2022. Synergic Thermo- and pH-Sensitive Hybrid Microgels Loaded with Fluorescent Dyes and Ultrasmall Gold Nanoparticles for Photoacoustic Imaging and Photothermal Therapy *ACS Applied Materials and Interfaces*. 14, pp.54439-54457. ISSN 19448244. <https://doi.org/10.1021/acsami.2c12796>
- 4 Artículo científico.** Quesada-Pérez M.; Maroto-Centeno J.A.; Ramos-Tejada M.d.M.; Martín-Molina A.(3/4). 2021. Universal description of steric hindrance in flexible polymer gels *Physical Chemistry Chemical Physics*. 23, pp.14997-15002. ISSN 14639076. WOS (4), SCOPUS (4) <https://doi.org/10.1039/d1cp02113c>
- 5 Artículo científico.** Ramos-Tejada, Maria del Mar; Quesada-Perez, Manuel. (1/2). 2019. Coarse-Grained Simulations of Nanogel Composites: Electrostatic and Steric Effects *MACROMOLECULES. AMER CHEMICAL SOC.* 52-6, pp.2223-2230. ISSN 0024-9297. WOS (2), SCOPUS (2) <https://doi.org/10.1021/acs.macromol.8b02657>
- 6 Artículo científico.** Guillermo Iglesias Salto; Angel V. Delgado Mora; Fernando



- Gonzalez Caballero; Maria del Mar Ramos Tejada. (4/4). 2017. Simultaneous hyperthermia and doxorubicin delivery from polymer-coated magnetite nanoparticles Journal of Magnetism and Magnetic Materials. Elsevier. 431, pp.294-296. ISSN 0304-8853. WOS (16), SCOPUS (17) <https://doi.org/10.1016/j.jmmm.2016.08.023>
- 7 **Artículo científico**. Guillermo Iglesias Salto; Angel V. Delgado Mora; Marta Kujda; Maria del Mar Ramos Tejada. (4/4). 2016. Magnetic hyperthermia with magnetite nanoparticles electrostatic and polymeric stabilization Colloid and Polymer Science. Elsevier. 294-10, pp.1541-1550. ISSN 0303-402X. WOS (18), SCOPUS (20) <https://doi.org/10.1007/s00396-016-3918-3>
 - 8 **Artículo científico**. Luchkam, Paul; Ramos-Tejada, Maria Del Mar (AC). (2/ 1). 2015. Shaken but not stirred: The formation of reversible particle-polymer gels under shear Colloids and Surfaces. A. Physicochemical and Engineering Aspects. Elsevier. 471, pp.164-169. ISSN 0927-7757. WOS (8) <https://doi.org/10.1016/j.colsurfa.2015.02.021>
 - 9 **Artículo científico**. M.M. Ramos-Tejada; J.L. Viota; K Rudzka; A. V. Delgado. 2015. Preparation of multi-funcionalized Fe₃O₄/Au nanoparticles for medical purposes Colloids and Surfaces B-Biointerfaces. Elsevier B. V.. 128, pp.1-7. ISSN 0927-7765. WOS (16), SCOPUS (20) <https://doi.org/10.1016/j.colsurfb.2015.02.002>
 - 10 **Capítulo de libro**. Delgado-Mora, Angel Vicente; López-Viota-Gallardo, Julián; Ramos-Tejada, Maria Del Mar; Arias-Mediano, Jose Luis. (3/4). 2014. Particle geometry, charge, and wettability: The fate of nanoparticle based drug vehicles Colloid and Interface Science in Pharmaceutical Research and Development. Elsevier B.V. pp.443-467. ISBN 978-0-444-62614-1. SCOPUS (8)

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

- 1 María Luisa Jiménez Olivares. Anomalous rotational diffusion of non-spherical particles in viscoelastic fluids. 36th Conference of the European Colloid and Interface Society (ECIS-2022). Hellenic Polymer Society. 2022. Grecia. Participativo - Ponencia oral (comunicación oral).
- 2 María del Mar Ramos Tejada; Guillermo Iglesias Salto; Angel V Delgado Mora. Electrorheological properties of clay nanoparticles: influence of size and shape. 31th Conference of European Colloid and Interface Society. 2017. España. Participativo - Póster.
- 3 Guillermo Iglesias Salto; Angel V. Delgado Mora; Fernando Gonzalez-Caballero; María del Mar Ramos Tejada. Applications of magnetic particles in hyperthermia and drug release. 14th International Conference on Magnetic Fluids. Ural Federal University. 2016. Rusia. Participativo - Ponencia oral (comunicación oral).
- 4 María del Mar Ramos Tejada; Julian López-Viota Gallardo; Katarzyna Rudzka; Angel Delgado Mora. Preparation of superparamagnetic Fe₃O₄/Au nanocomposites as drug carriers. 14th International Conference on Electrorheological Fluids and Magnetorheological Suspensions. Universidad de Granada. 2014. España. Congreso. Participativo - Póster.
- 5 María del Mar Ramos Tejada; Cecilia Galindo Gonzalez; Modesto López López; Juan de Dios García López-Durán. Magnetorheology of Aqueous Suspensions of Magnetite-Covered Sepiolite Particles. 14th International Conference on Electrorheological Fluids and Magnetorheological Suspensions. Universidad de Granada. 2014. España. Participativo - Póster.
- 6 Maria Del Mar Ramos Tejada; Katarzyna Rudzka; Julián López-Viota Gallardo; Rafael Perea Carpio; Angel Vicente Delgado Mora. Preparation of multi-funcionalized Fe₃O₄/Au nanocomposites for medical purposes. International Soft Matter Conference 2013. Sapienza. 2013. Italia. Participativo - Póster. Congreso.
- 7 Luckham, Paul; Chevalier, Ann-Sophie; MARIA DEL MAR RAMOS TEJADA; Martínez-Boza, Francisco José. The Rheology of Shake Gels. 27th Conference of European Colloid and Interface Society. Bulgariam Academy of Science. 2013. Bulgaria. Participativo Ponencia oral (comunicación oral).



- 8 Perea-Carpio, R; Ramos-Tejada, M.M; Luckam, P. Shake induced gelation of particle-polymer dispersions. 5th Iberian Meeting on Colloids and Interfaces. Universidad del País Vasco. 2013. España. Participativo - Póster. Congreso.
- 9 Rafael Perea Carpio; María del Mar Ramos Tejada; Katarzyna Rudzka; Angel Vicente Delgado Mora. Stability of the polymer layers formed by the layer-by-layer method. 5th Iberian Meeting on Colloids and Interfaces. Universidad del País Vasco. 2013. España. Participativo - Póster. Congreso.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

- 1 **Proyecto.** "Brownian dynamics of drug delivery through gels and nanogels" (P20_00138). Junta de Andalucía. Manuel Quesada Pérez. (Universidad de Jaén). 04/10/2021- 31/12/2022. 30200 €.
- 2 **Proyecto.** "Nanoparticles in confined media: equilibrium structure and response to external fields" (PGC2018-098770-B-I00). Agencia Estatal de Investigación adscrito al Ministerio de Ciencia, Innovación y Universidades. María Luisa Jiménez Olivares. (Universidad de Granada). 26/04/2019-26/04/2022. 96.800 €.
- 3 **Proyecto.** "Nanostructures based on non-spherical particles, synthesis and applications in the diagnosis and treatment of cancer" (FQM694), Proyecto de investigación de Excelencia. Programa de Incentivos a los Agentes del Sistema Andaluz del Conocimiento. 25/11/2013-30/01/2018. 102.625 €.
- 4 **Proyecto.** "Electrical properties of the solid/solution interface. Theoretical models and applications to obtain electrical energy by salinity change" (FIS2013-47656-C3-1-R). Ministerio de Economía y Competitividad. ÁNGEL VICENTE DELGADO MORA 01/01/2014- 31/12/2016. 71.700 €.
- 5 **Proyecto.** "Study of the electrokinetic properties of biofunctionalized colloidal particle suspensions"(FIS2010-19493). OTROS PROGRAMAS DEL PLAN NACIONAL I+D, MINISTERIO DE CIENCIA Y TECNOLOGÍA. José Horno Montijano. Desde 01/01/2011. 36.300 €.
- 6 **Proyecto.** " Suspensions of functionalized nanoparticles. Biomedical applications" (FQM-3993). PROYECTOS DE EXCELENCIA, JUNTA DE ANDALUCÍA. Ángel Vicente Delgado Mora. Desde 13/01/2009. 206.483,68 €.
- 7 **Proyecto.** " Preparation and interfacial characterization of colloidal dielectric materials" (FIS20225-06860-C02-02). OTROS PROGRAMAS DEL PLAN NACIONAL I+D, MINISTERIO DE CIENCIA Y TECNOLOGÍA. Francisco José Arroyo Roldan. Desde 31/12/2005. 42.840 €.
- 8 **Proyecto.**"Colloidal magnetic fluids for technological and biomedical applications"(MAT2004-00866). OTROS PROGRAMAS DEL PLAN NACIONAL I+D, MINISTERIO DE CIENCIA Y TECNOLOGÍA. JUAN DE DIOS GARCÍA LÓPEZ-DURÁN. Desde 13/12/2004. 23.000 €.
- 9 **Proyecto.** "Formulation of specific liquid detergents for the industrial agri-food and hospitality sector" (1FD97-0931). Fondo europeo de desarrollo regional (FEDER), comisión europea. ENCARNACIÓN JURADO ALAMEDA. Desde 01/01/2001. 128.391,36 €