

Part A. PERSONAL INFORMATION

CV date

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|-----------------------|--|---------------------|--|
| First and Family name | JOSE MANUEL GORDILLO ARIAS DE SAAVEDRA | | |
| | | | |
| Researcher codes | Open Researcher and Contributor ID (ORCID**) | 0000-0003-1431-3780 | |
| | SCOPUS Author ID (*) | 7003619096 | |
| | WoS Researcher ID (*) | A-6209-2008 | |

(*) *Optional*

(**) *Mandatory*

A.1. Current position

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|--------------------------------|--|--------|--|
| Name of University/Institution | UNIVERSIDAD DE SEVILLA | | |
| Department | INGENIERÍA AEROESPACIAL Y MECÁNICA DE FLUIDOS | | |
| Address and Country | CAMINO DE LOS DESCUBRIMIENTOS S/N, 41092, SEVILLA, SPAIN | | |
| Phone number | 954481185 | E-mail | jgordill@us.es |
| Current position | CATEDRÁTICO DE UNIVERSIDAD | From | 19/04/2016 |
| Key words | DROPS AND BUBBLES | | |

A.2. Education

| PhD, Licensed, Graduate | University | Year |
|-------------------------|------------|------|
| PHD | SEVILLA | 2001 |
| MECHANICAL ENGINEER | SEVILLA | 1997 |

A.3. General indicators of quality of scientific production (see instructions)

- 1.-Maximum number of sexenios, 4. Last one, awarded at 31/12/2021
- 2.-Number of theses advised or co-advised since 2009: 4. Currently co-advising one thesis.
- 3.-WoS, Gordillo, JM: Total number of citations, 2762, H-Index, 30,
- 4.-Scopus, Gordillo, J.M., Total number of citations, 2886, H-Index, 31,
- 5.- 62 published papers (WoS) 44.55 citations/paper.

Part B. CV SUMMARY (max. 3500 characters, including spaces)

I obtained my PhD degree at Universidad de Sevilla (US) in December 2001, got a MECD-Fulbright grant to perform a postdoc stay at Harvard University in 2002, taught Fluid Mechanics at Universidad Carlos III de Madrid (UC3M) during 2003 and got a permanent academic position at US in 2004. Since 2016 I am full profesor in Fluid Mechanics and Aerodynamics at US, where I received two teaching prizes from students: the Maese Rodrigo and the Gauss-Ostrogradskii prizes. I have published two textbooks and my research activities have been focused in the area of drops and bubbles, where I did contributions in the field of microfluidics, where I have coauthored well known papers, published in Physical Review Letters (PRL) in 2001, Lab Chip 2011, Ann Rev. Fluid Mech 2015 etc and where I have licensed patents. I am interested and actively working in the analysis of different hydrodynamic singularities (PRL 2005, 2007, Phys. Fluids 2008, etc), the ejection of Worthington jets (PRL 2009, JFM 2010, 2020, etc), the generation of aerosols (JFM 2019, 2020, etc), the spreading and splashing of drops (PRL 2014, JFM 2015, 2019 etc) and in the efficient generation of air bubbles and of hydrogen bubbles by electrolysis by means of intense pressure gradients (JFM 2015, 2018, etc). I organized in Sevilla the European Fluid Mechanics conference in 2016 and I am associate editor of the Journal of Fluid Mechanics (JFM), the leading journal in the field, since 2015. I have been selected as outstanding referee by the American Physical Society in 2018 and since 2022 I am a Fellow of the American Physical Society.

Part C. RELEVANT MERITS (sorted by typology)



C.1. Publications (Selection of 10 contributions in the period 2014-2020)

- 1.-P. García-Geijo, G. Riboux & **J. M. Gordillo**. 2020, Inclined impact of drops, *J. Fluid Mech.*, 897, A12:1-46. Q1.
- 2.- **JM Gordillo**, H Onuki, Y Tagawa, Impulsive generation of jets by flow focusing, *J Fluid Mech.*,894, A3 Q1
- 3.- F.J. Blanco-Rodríguez, **J.M. Gordillo**, 2020. On the sea spray aerosol generated by bubble bursting jets, *Journal of Fluid Mechanics Rapids*, Vol. 886, R2. Q1.
- 4- **J.M. Gordillo**, G. Riboux, 2019. A note on the aerodynamic splashing of droplets. *Journal of Fluid Mechanics Rapids*, Vol. 871, R3. Q1.
- 5.- **J.M. Gordillo**, G. Riboux, Enrique S. Quintero, 2019. A theory on the spreading of droplets. *Journal of Fluid Mechanics*, Vol. 866 10 May 2019, pp. 298-315. Q1.
- 6.- **J.M. Gordillo**, J. Rodríguez-Rodríguez, 2019. Capillary waves determine bubble bursting jets. *Journal of Fluid Mechanics*, Vol. 867, pp. 556-57. Q1.
- 7.- Enrique S. Quintero, G. Riboux, **J.M. Gordillo**. 2019. Splashing of droplets onto superhydrophobic substrates *Journal of Fluid Mechanics*, vol. 870, pp. 175–188. Q1.
- 8.- Evangelio, Alvaro; Del Campo-cortes, Francisco & **J.M. Gordillo**. 2016. Simple and double microemulsions via the capillary breakup of highly stretched liquid jets. *J. Fluid Mech.* 804: 550-577. Q1
- 9.- J. Rodríguez-Rodríguez, A. Sevilla, C.Martínez-Bazán & **J.M. Gordillo**. 2015 Generation of Microbubbles with Applications to Industry and Medicine, *Annual Review of Fluid Mechanics*, Vol. 47:405–29. Q1
- 10.- G. Riboux & **J. M. Gordillo**. 2014, “Experiments of drops impacting a smooth solid surface: a model of the critical impact speed for drop splashing”, *Phys. Rev Lett.*, 113, 024507, Editors’ suggestion and article in *Physics* by Philip Ball. Q1

C.2. Research projects, before 2020

- 1.- Title: Mecanismos de generación de microburbujas, microgotas y espumas con aplicaciones a procesos industriales I.
Financed by: Ministerio de Ciencia e Innovación Contract: DPI2008-06624-C03-01.
Participants: USE, UJA, UAL, From 2009 to 2011
144.000 Euros. PI, José Manuel Gordillo Arias de Saavedra.
- 2.- Title: Síntesis de Partículas de Estructura Compleja, Nanofibras, Microemeulsiones y Microespumas Mediante las Técnicas de Electro spray Compuesto, Electrospinning y Coflujo Viscoso de Corrientes Coaxiales.
Financed by: Junta de Andalucía Contract: P08-TEP-03997
Participants: USE, UMA. From 2009 to 2013
244.810,00 Euros. PI José Manuel Gordillo Arias de Saavedra.
- 3.- Title: Mecanismos de generación de gotas y burbujas de tamaño micrométrico con aplicación a procesos industriales, farmacología y medicina-I
Financed by: Ministerio de Ciencia e Innovación Contract: DPI2011-28356-C03-01.
Participants: USE, UJA, UC3M. From 2012 to 2015
214.170 Euros. PI José Manuel Gordillo Arias de Saavedra
- 4.- Title: Generación de gotas y burbujas: análisis de su dinámica colectiva en procesos naturales e ingenieriles con aplicaciones industriales y medioambientales-II
Financed by: MICINN (DPI) Contract: DPI2014-59292-C3-2-P
Participants: UC3M, UJA, USE, From 2015 to 2018
151.250 Euros. PI José Manuel Gordillo Arias de Saavedra
- 5.- Title: Dinámica de Interfases Complejas con Aplicaciones al Medio Ambiente, la Generación de Energía y Nuevos Materiales
Financed by: Ministerio de Economía y Competitividad, Contract DPI2017-88201-C3-1-R
Participants: US, UC3M, UJA, From 2018 to 2020



114.950 Euros PI 2 Guillaume Riboux PI 1 José Manuel Gordillo Arias de Saavedra

C.3. Contracts, technological or transfer merits

1.- Contract: Medida del caudal del ventilador 1ZBA466032-U, provided by Hitachi-ABB.

4000 Euros. PI José Manuel Gordillo Arias de Saavedra

2.- Contract: Medida de la resistencia aerodinámica de un modelo de camión.

3500 Euros. PI José Manuel Gordillo Arias de Saavedra

C.4. Patents

1.- **JM Gordillo**, Evangelio, A, Sánchez Quintero, E, Sistema agitador y difusor de un gas en líquidos, Spanish patent with examination ES2662693A1.

2.- **JM Gordillo**, del Campo-Cortés, F, Evangelio, A, Procedimiento y dispositivo de generación de emulsiones micrométricas simples y compuestas Spanish patent with examination ES2564893B2. European Patent 15836842.3 "METHOD AND DEVICE FOR PRODUCING SIMPLE AND COMPOUND MICROMETRE-SIZED EMULSIONS" Patent number 3187252, Awarded, to be published in the European Patent Bulletin on 31/12/2020

3.- **J.M. Gordillo**, E. Castro-Hernández, W. van Hoeve, M. Versluis, D. Lohse, Apparatus and method for mass producing a monodisperse microbubble agent, US Patent US9782733B2. Licensed patent to Tide Microfluidics

4.- **J.M. Gordillo** y A.M. Gañán Calvo, Nuevo Método de Generación de Micro-Corrientes Fluidas para la Producción de Micro-Burbujas, Micro-Espumas, Micro-Gotas, Micro-Emulsiones y Micro-Cápsulas. Spanish patent application, 200300169, Spanish patent with previous examination ES2264289B1.

C.5. Educational books

1.- **J.M. Gordillo** & G. Riboux, "Introducción a la Aerodinámica potencial" (Paraninfo, ISBN: 9788497329941, 2012).

2.- **J.M. Gordillo**, G. Riboux & J. M. Fernández García, "Introducción a la Mecánica de Fluidos" (Paraninfo. ISBN: 9788428339735, 2017).

C.6

1.- Since May 1st 2015 Associate Editor of the *Journal of Fluid Mechanics*

2.- I have been a member of the Euromech council from February 2013 to December 2018. I was also a member of the European Fluid Mechanics conference Committee during the same period of time.

3.- I was the organizer of the 11th Fluid Mechanics Conference in 2016. This was the first time this type of international conference was held in Spain.

4.- I have been invited as visiting professor at the following foreign universities: Paul Sabatier (Toulouse, France) and Pierre et Marie Curie (Paris, France) in 2010, and at TUAT (Tokio, Japan) in 2019. I have given invited conferences and seminars during the period 2010-2019 at the following foreign universities: Marseille (France), Paris (France), Noordwijk (The Netherlands), Leeds (England), Toulouse (France), Brussels (Belgium), Liege (Belgium), Twente (The Netherlands), Leiden (The Netherlands), London (England), Cambridge (England) and Tokyo (Japan). I was one of the invited speakers at the Complex Motion in Fluids Summer School organized at Cambridge University, England, by Eric Lauga in September 2017.

5.- I usually revise projects for ANEP and, occasionally, for the french agency ANR and the belgium agency FRS-FNRS. I am an usual reviewer of the Journal of Fluid Mechanics and of Phys. Rev. Fluids.

6.- I was Awarded in 2018 as a Outstanding Referee by the American Physical Society

7.- In 2022 I have been selected as a Fellow of the American Physical Society