Curriculum Vitae - Álvaro G. Marín

Personal Data

- **Name**: Álvaro
- **Surname**: Gómez Marín
- **Author name:** *Álvaro G. Marín / A. Marin*
- **Nationality**: Spanish

Education

- 2001- Diploma in Physics, University of Seville, Spain
- 2003- Master in Fundamental Physics, University of Seville, Spain
- 2008- Ph.D. in Engineering, Department of Aerospace Engineering and Fluid Mechanics, School of Engineering, University of Seville. Title: "*Generation and dynamics of electrified liquid jets: applications for emulsion synthesis*". Directors: Prof. Antonio Barrero and Prof. Ignacio G. Loscertales. Qualified as *Summa Cum Laude*. The committee counted with members as Professor John P. W. Stark from Queen Mary's University of London and Professor J. F. de la Mora from Yale University, U.S..

Language

- Spanish Native.
- English Fluent: written and spoken. Proficiency level.
- Dutch A2.
- German B2.

Professional Activity

- 2003-2006 Doctoral Fellowship Grant from the Spanish Research Ministry, reference FP-2001-1156 within the Project "Generation, stability and breakup of multi-component jets via electrohydrodynamics. Applications for particle, capsule production, aerosols and emulsions" (BFM2001-3860-C02-01).

- 2003 Collaboration Fellowship from the Spanish Research Ministry with Prof. Juan F. de la Mora, Department of Mechanical Engineering, Yale University, New Haven, Connecticut, USA.

- 2006- 2008 Research Contract within the Project PTA-2003-02-00427 for the Fluid Mechanics Group in the University of Seville and co-financed by YFLOW company (http://www.yflow.com).

- 2008-2011 Postdoctoral Fellow in the Physics of Fluids group at the University of Twente, under direct supervision from the head of the group Prof. Detlef Lohse. In charge of the microfluidics laboratory.

- 2012-present Researcher associate in the Institute of Fluid Mechanics and Aerospace Engineering at the Bundeswehr University Munich.

Teaching Activity

- 2002-2006 Assistance in Laboratory assignments in Physics of Fluids II, Department of Aerospace Engineering and Fluid Mechanics, Univ. Sevilla for 3 academic years.

- 2008-2011 Assistance in Lectures of Advance Fluid Mechanics in the Physics of Fluids group at the University of Twente for 2 academic semesters.

Publications

"Encapsulation and suspension of hydrophobic liquids via electro-hydrodynamics"
Juan E. Díaz Gómez, **Álvaro G. Marín**, Manuel Márquez, Antonio Barrero and Ignacio G. Loscertales. *Biotechnology Journal*, Vol. 1, (2006).

"Simple & double emulsions via coaxial jet electrosprays"
Álvaro G. Marín, Manuel Márquez, Ignacio G. Loscertales and Antonio Barrero.
Physical Review Letters, vol. 98, 14502, (2007).

"Conical tips inside cone-jet electrosprays"
Álvaro G. Marín, Ignacio G. Loscertales and Antonio Barrero.
Physics of fluids, 20, 042102 (2008).

"Generation of micron-sized drops and bubbles through viscous coflows"
Álvaro G. Marín, Fco. del Campo-Cortés, Jose M. Gordillo.
Colloids and Surfaces A: Physicochemical and Engineering Aspects 344, (2009).

"Building water bridges in air: Electrohydrodynamics of the floating water bridge"
Álvaro G. Marín and Detlef Lohse
Physics of Fluids **22**, 122104 (2010).

Hanneke Gelderblom, **Álvaro G. Marin**, Hrudya Nair, Arie van Houselt, Leon Lefferts, Jacco H. Snoeijer, Detlef Lohse
"How water droplets evaporate on a superhydrophobic substrate"
Physical Review E, 83, 026306 (2011).

Guillaume Riboux, **Álvaro G. Marín**, Ignacio G. Loscertales, and Antonio Barrero,
"Whipping instability characterization of an electrified visco-capillary jet"
Journal of Fluid Mechanics, 671 (1), 226-253, (2011).

"Order-to-disorder transition in ring-shaped colloidal stains"
Álvaro G. Marín, H. Gelderblom, D. Lohse, J.H. Snoeijer
Physical Review Letters 107 (8), 85502, (2011).

"Rush-hour in evaporating coffee drops"
Álvaro G. Marín, Hanneke Gelderblom, Detlef Lohse, and Jacco H. Snoeijer
Physics of Fluids 23, 091111 (2011)
[Milton Van Dyke Video Award Winner 2011, American Physics Society].

"Drop impact experiments of non-Newtonian liquids on micro-structured superhydrophobic surfaces"
Marine Guemas, **Álvaro G. Marín**, Detlef Lohse
Soft Matter, 8 (41), 10725 – 10731, (2012).

"Absence of an evaporation-driven wetting transition on omniphobic surfaces"
Arturo Susarrey-Arce , **Álvaro. G. Marín** , H. Nair , L. Lefferts , J. G. E. Gardeniers , D. Lohse and A. van Houselt.
Soft Matter, 8, 9765-9770 (2012).
[*Cover of the issue*].

"Freezing singularities in water drops"
Oscar R. Enríquez, **Álvaro G. Marín**, Koen Winkels and Jacco H. Snoeijer
Phys. Fluids 24, 091102 (2012) .
[Milton Van Dyke Video Award Winner 2012, American Physics Society].

"Building microscopic soccer balls with evaporating colloidal fakir drops"
Álvaro G. Marín, Hanneke Gelderblom, Arturo Susarrey-Arce, Arie van Houselt, Leon Lefferts, Johannes G. E. Gardeniers, Detlef Lohse, and Jacco H. Snoeijer
Proc. Nat. Acad. Sci. 109(41),16455-16458 (2012).

"Surface tension effects on submerged electrosprays"
Álvaro G. Marín, Ignacio G. Loscertales and Antonio Barrero.
Biomicrofluidics 6, 044104 (2012).

"Capillary droplets on Leidenfrost micro-ratchets"
Álvaro G. Marín, Daniel Arnaldo del Cerro, G. Römer, B. Pathiraj,
A. Huis in 't Veld, Detlef Lohse.
Physics of fluids, 24, 122001 (2012).

"One-step sculpting of silicon microstructures from pillars to needles for water and oil repelling surfaces"
A Susarrey-Arce, **Álvaro G. Marín**, S Schlautmann, L Lefferts, JGE Gardeniers, A van Houselt.
Journal of Micromechanics and Microengineering, 23(2) 025004, (2012).

"Ultrasound-induced acoustophoretic motion of microparticles in three dimensions"
Peter B. Muller, Massimiliano Rossi, **Alvaro G. Marin**, Rune Barnkob, Per Augustsson, Thomas Laurell, Christian J. Kaehler, Henrik Bruus
Physical Review E 88(2), 023006 (2013).

"The Microfluidic Kelvin Water Dropper"
Álvaro G. Marín, Wim van Hoeve, Pablo García-Sánchez, Lingling Shui, Yanbo Xie, Marco A. Fontelos, Jan C. T. Eijkel, Albert van den Berg and Detlef Lohse.
Lab Chip 13 (23), 4503 - 4506 (2013).
[*Cover of the Issue*]

"Universality of Tip Singularity Formation in Freezing Water Drops"
Alvaro G. Marin, Oscar Enriquez, Philipe Brunet, Pierre Colinet, Jacco Snoeijer.
Physical Review Letters 113, 054301*, (*2014).

International Conferences

Since 2004, **Álvaro G. Marín** has assisted **every year** to the American Physics Society- Division of Fluid Dynamics Conference (APS-DFD), contributing with very different topics every year.
Apart from those, **Álvaro G. Marín** assists every year to many others, counting in total with more than 60 oral contributions to international conferences all over the world at date of today.

Invited Lectures and Seminars:

Since 2008, **Alvaro G. Marin** has been invited to give lectures and seminars in more than 20 occasions in Europe, South America and USA.

Thesis and Dissertations Committee

1. Member of Doctoral Committee for *Carmen L. Moraila Martínez*. July 27th, 2012. University of Granada, Spain.

2. Member of Doctoral Committee for *Florian Carle*. September 8th, 2014. Aix-Marseille University, France.

Patents

Spanish Patent - P200301536
"Procedimiento y dispositivo de electro-atomizacion de líquidos mediante inyector con múltiples fuentes de electrospray"
Owner: YFLOW S.L., Universidad de Sevilla, Universidad de Málaga.
Inventors: R. Bocanegra, **Alvaro Gómez Marín**, A. Barrero, I. G. Loscertales, and M. Márquez.

Spanish Patent - P200501192
"Dispositivo y Procedimiento para la Generación de Nanoemulsiones Vía Electrohidrodinámica".
Owner: University of Seville.
Inventors: **Álvaro Gómez Marín**, Antonio Barrero Ripoll, Ignacio González Loscertales.

Spanish Patent - P200700844
"Procedimiento de Generación de gotas y burbujas de tamaño micrométrico y nanométrico mediante coflujos viscosos."
Owner: University of Seville.
Inventors: **Álvaro Gómez Marín**, Francisco del Campo Cortes, Jose Manuel Gordillo Arias de Saavedra.

References

Prof. Detlef Lohse
Chair of Physics of Fluids Group,
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Prof. Sascha Hilgenfeldt
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