| **CV date** | Nov. 2019 |
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## Part A. PERSONAL INFORMATION

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|---|---|---|---|
| First and Family name | Ramon Fernandez Feria | | |
| Social Security, Passport, ID number | 29758746N | Age | |
| Researcher codes | WoS Researcher ID | F-2206-2010 | |
| | SCOPUS Author ID | 6603895422 | |
| | Open Researcher and Contributor ID (ORCID) | 0000-0001-9873-1933 | |

### A.1. Current position

| | | | |
|---|---|---|---|
| Name of University/Institution | UNIVERSIDAD DE MALAGA | | |
| Department | INGENIERIA MECANICA, TERMICA Y DE FLUIDOS | | |
| Address and Country | ESI, DR ORTIZ RAMOS S/N, 29071 MALAGA, SPAIN | | |
| Phone number | 34-951952380 | E-mail | ramon.fernandez@uma.es |
| Current position | FULL PROFESSOR (CATEDRATICO DE UNIVERSIDAD) | From | 1993 |
| Key words | Fluid mechanics, aerodynamics, hydrodynamic instabilities, swirling flows, vortex interactions, kinetic theory of gases, plasma physics, buoyancy driven flows | | |

### A.2. Education

| | | |
|---|---|---|
| Ph. D. | YALE UNIVERSITY | 1987 |
| M. Phil. | YALE UNIVERSITY | 1986 |
| Industrial Engineer | UNIVERSIDAD DE SEVILLA | 1984 |

### A.3. JCR articles, h Index, thesis supervised…

68 JCR articles (49 Q1, 14 Q2, 4 Q3, 2 Q4), 27 as first or only author (70 publications in Scopus, 70 in WoS Researcher ID)
h index: 13 (Scopus), 12 (WoS/Researcher ID), 18 (Google Scholar)
9 doctoral theses supervised, 2 more in progress
3 college books
More than 75 conference presentations
17 Competitive Research Projects as PI (11 national, 4 regional, and 2 international)
5 ‘SEXENIOS DE INVESTIGACI0N’ from the CNEAI (last ending in 2013)

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

Industrial Engineer (Esp. Chemical Engineer) by the ETSII, University of Seville (1984). PhD by the School of Engineering and Applied Science at Yale University (1987); doctoral thesis awarded with the Henry Prentiss Becton Prize for ‘Excellence in Engineering and Applied Science’.

Academic positions after PhD: Postdoctoral fellow, Mechanical Engineering Department, Yale University (1987); Postdoctoral fellow, Aeronautical School, Polytechnical University of Madrid (1988); Associate Professor, ETSI Industriales, University of Seville (1989); Professor, ETSI Industriales, University of Málaga (1993 to present).

Director of the ETSI Industriales, University of Málaga, from 2004 to 2012 (two terms).
Currently my research interest is mainly focused on unsteady aerodynamics and vortical flows applied to the flapping propulsion of micro air vehicles and swimming robots, and to flapping-foil energy harvesters. Previously I have worked in kinetic theory of gases, plasma physics, hydrodynamic instabilities, swirling flows and vortex breakdown, combustion, buoyancy driven flows, etc., with applications mainly related to aeronautics and renewable energy systems.

## Part C. RELEVANT MERITS

**C.1.A Publications: selected JCR articles**

J. Alaminos-Quesada and **R. Fernandez-Feria** (2019). Propulsion of a foil undergoing a flapping undulatory motion from the impulse theory in the linear potential limit. *J. Fluid Mech.* (in press).

**R. Fernandez-Feria** and E. Sanmiguel-Rojas (2019). Comparison of aerodynamic models for two-dimensional pitching foils with experimental data. *Phys. Fluids*, **31,** 057104.

**R. Fernandez-Feria** and J. Alaminos-Quesada (2018). Unsteady thrust, lift and moment of a 2D flapping thin airfoil in the presence of leading edge vortices: A first approximation from linear potential theory. *J. Fluid Mech*., **851**, 344-373.

**R. Fernandez-Feria** (2017). Note on optimum propulsion of heaving and pitching airfoils from linear potential theory. *J. Fluid Mech.*, **826,** 781-796.

V. M. Ortega-Jimenez, A. Martin-Alcantara, **R. Fernandez-Feria** and R. Dudley (2017). On the autorrotation of animal wings. *J. R. Soc. Interface*, **14,** 20160870.

**R. Fernandez-Feria** (2016). Linearized propulsion theory of flapping airfoils revisited. *Phys. Rev. Fluids*, **1,** 084502.

**R. Fernandez-Feria** (2016). Heavy gas relaxation in a light gas shock wave at small Prandtl number. *Phys. Review E,* **94**, 033108.

**R. Fernandez-Feria** and F. Castillo-Carrasco (2016). Buoyancy effects in a wall jet over a heated horizontal plate. *J. Fluid Mech.*, **793,** 21-40.

J. Ortega-Casanova and **R. Fernandez-Feria** (2016). Analysis of the aerodynamic interaction between two plunging plates in tandem at low Reynolds number for maximum propulsive efficiency. *J. Fluids Structures*, **63**, 351-373.

A. Martín-Alcántara, **R. Fernandez-Feria** and E. Sanmiguel-Rojas (2015). Vortex flow structures and interactions for the optimum thrust efficiency of a heaving airfoil at different mean angles of attack. *Phys. Fluids,* **27,** 073602-1-23.

A. Martín-Alcántara, E. Sanmiguel-Rojas and R. **Fernandez-Feria** (2015). On the development of lift and drag in a rotating and translating cylinder. *J. Fluids Structures*, **54**, 868-885.

**R. Fernandez-Feria** and J. Alaminos-Quesada (2015). Purely pulsating ow of a viscoelastic fluid in a pipe revisited: The limit of large Womersley number. *J. Non-Newtonian Fluid Mech.* **217,** 32-36.

**R. Fernandez-Feria**, C. del Pino and A. Fernandez-Gutierrez (2014). Separation in the mixed convection boundary-layer radial flow over a constant temperature horizontal plate. *Phys. Fluids* **26,** 103603-1-18.

**R. Fernandez-Feria** and J. Ortega-Casanova (2014). A pseudospectral based method of lines for solving integro-differential boundary-layer equations. Application to the mixed convection over a heated horizontal plate. *Appl. Math. Comput.,* **242**, 388-396.

F. Fedoul, L. Parras, C. del Pino and **R. Fernandez-Feria** (2014). Experimental study of the aerodynamic characteristics of a low-aspect-ratio flat plate array in a configuration of interest for a tidal energy converter *J.Fluids and Structures,* **48**, 487-496.

D. Cebrian, J. Ortega-Casanova and **R. Fernandez-Feria** (2013). Lift and drag characteristics of a cascade of at plates in a configuration of interest for a tidal current energy

converter: Numerical simulations analysis. *J. Renewable Sustainable Energy* **5,** 043114-1-19.

K. Shrestha, L. Parras, C, del Pino, E. Sanmiguel-Rojas and **R**. **Fernandez-Feria** (2013). Experimental evidence of convective and absolute instabilities in rotating Hagen-Poiseuille flow. *J. Fluid Mech.,* **716**, R12-1-12.

C. del Pino, L. Parras, M. Felli and **R. Fernandez-Feria** (2011). Structure of trailing vortices: Comparison between particle image velocimetry measurements and theoretical models. *Phys. Fluids* **23,** 013602-1-12.

L. Parras and **R. Fernandez-Feria** (2007). Spatial stability and the onset of absolute instability of Batchelor's vortex for high swirl numbers. *J. Fluid Mech.*, **538,** 27-43.

**R. Fernandez-Feria** (2006). Dam-break ow for arbitrary slopes of the bottom. *J. Engng. Math.*, **54,** 319-331.

**R. Fernandez-Feria** and E. Sanmiguel-Rojas (2004). An explicit projection method for solving incompressible flows driven by a pressure difference. *Computers and Fluids*, **33,** 463-483.

**R. Fernandez-Feria** and C. del Pino (2002). The onset of absolute instability of rotating Hagen-Poiseuille flow: A spatial stability analysis. *Phys. Fluids*, **14,** 3087-3097.

**R. Fernandez-Feria** and E. Sanmiguel-Rojas (2000). On the appearance of swirl in a confined sink flow. *Phys. Fluids*, **12,** 3082-3085.

**R. Fernandez-Feria** (2000). Axisymmetric instabilities of Bodewadt flow. *Phys. Fluids*, **12,** 1730-1739.

**R. Fernandez-Feria** (1999). Nonparallel linear stability analysis of Long's vortex. *Phys. Fluids*, **11,** 1114-1126.

**R. Fernandez-Feria** (1996). Viscous and inviscid instabilities of non-parallel selfsimilar axisymmetric vortex cores. *J. Fluid Mech.*, **323,** 339-365.

**R. Fernandez-Feria**, J. Fernandez de la Mora and A. Barrero (1995). Solution breakdown in a family of selfsimilar nearly-inviscid axisymmetric vortices. *J. Fluid Mech.*, **305,** 77-91.

### C.1.B Publications: Selected books

R. Fernandez-Feria. Mecánica de Fluidos. SPICUM, Universidad de Málaga (ISBN: 84-7496-897-6). 2001.

R. Fernandez-Feria and C. del Pino. Introducción a la Combustión. SPICUM, Universidad de Málaga (ISBN: 84-9747-133-4). 2006.

### C.2. Research projects and grants (last 10 years)

Reference: UMA18-FEDERJA-047
Título: Application of flapping-foil hydrodynamic models to the design of an energetically efficient submarine vehicle.
Principal Investigators (PIs): R. Fernandez-Feria and E. Sanmiguel-Rojas
Dates: 15/11/2019-14/11/2021
Financed by: FEDER Andalucía 2014-2020, Andalusian Government (71,803.52 €)

Reference: ADG 2017, action 788247

Título: General compliant aerial Robotic manipulation system Integrating Fixed and Flapping wings to Increase range and safety (GRIFFIN)
PI: A. Ollero
Participation as investigator
Dates: 01/11/2018-31/10/2023
Financed by: ERC, European Union (2,500,000.00 €)

Reference: DPI2016-76151-C2-1-R
Título: Forward-flight aerodynamics of a MAV with two pairs of flapping wings
PI: R. Fernandez-Feria
Dates: 01/01/2017-30/09/2020
Financed by: Ministerio de Economía y Competitividad, Spanish Government (99,220.00 €)

Reference: DPI2013-40479-P
Título: Aerodynamic study of flapping wings like in a dragonfly for use in micro air vehicles
PI: R. Fernandez-Feria
Dates: 01/01/2014-31/12/2017
Financed by: Ministerio de Economía y Competitividad, Spanish Government (108,900.00 €)

Reference: ENE2010-16851
Título: Hydrodynamic study of the wakes behind airfoils and sails applied to the optimization of tidal energy systems, and the reduction of their environmental impact.
PI: R. Fernandez-Feria
Dates: 1/10/2010-30/6/2014
Financed by: Ministerio de Ciencia e Innovación, Spanish Government (102,850.00 €)

Reference: P08-TEP-3867
Título: Eperimental study on the stability of the flow along rotating cylindrical bodies
PI: R. Fernandez Feria
Dates: 15/04/2009-14/04/2012
Financed by: Junta de Andalucía (Andalusian Government), Spain (235,500.00 €)

Reference: FIS2007-60161
Título: 3D structure of intense swirling jets: applications to seabed excavation and combustion.
PI: R. Fernandez-Feria
Dates: 01/10/2007-30/09/2010
Financed by: Ministerio de Educación y Cultura, Spanish Government (98,615.00 €)

Reference: P05-TEP-170
Título: Experimental measurements of wing tip vortices by PIV and its comparison with theoretical models
PI: R. Fernandez-Feria
Dates: 01/04/2006-31/03/2009
Financed by: Junta de Andalucía (Andalusian Government), Spain (206,000.00 €)

**C.5, C.6, C.7… (e. g., Institutional responsibilities, memberships of scientific societies…)**

Director of the Industrial Engineering School (ETS de Ingeniería Industrial), University of Malaga: 2 terms (2004-2012).

President of the Panel for Production Technologies of the Andalusian Research Plan, Junta de Andalucía (Andalusian Government): 1999-2003.

Award: Henry Prentiss Becton Prize for 'Excellence in Engineering and Applied Science', Yale University, 1988.