

Rodolfo Ostilla Mónico

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Gender: Male

Date of Birth: 01 August 1988

Nationality: Spanish

PROFESSIONAL EXPERIENCE

- 09/2017 - Assistant Professor, University of Houston, USA*
- 10/2015 – 09/2017 Postdoctoral researcher, Harvard University, USA*
- 05/2015 – 08/2015 360SportsIntelligence, Enschede, Netherlands (part-time)*
- 10/2010 – 04/2011 Trainee, European Space Astronomy Centre, Madrid, Spain*
- 09/2008 – 03/2009 Assistant, Department Fluid Mechanics, University of Seville, Spain*

EDUCATION & QUALIFICATIONS

- 05/2011 – 07/2015* PhD Thesis (“cum laude”) at the Physics of Fluids group at Twente University (Netherlands). Supervised by Prof. Detlef Lohse and Prof. Roberto Verzicco on “Turbulent Taylor-Couette flow: direct numerical simulations”.
- 09/2009 – 09/2010* Aerospace Dynamics MSc at Cranfield University (double degree), UK
Options: Aerodynamics. MSc Thesis: “Aerodynamic flow control through weak plasma interaction”. Grade: 86 (out of 100)
- 09/2005 – 09/2010* Aerospace Engineering (Ingeniería Aeronáutica) at Seville University, Spain. Options: Aircraft and Space Vehicles. GPA: 3.06 (out of 4)
- 10/2015 –* Part-time distance degree in Philosophy at the National Distance Education University (UNED), Spain.

PRIZES & HONOURS

- ERCOFTAC Da Vinci award finalist 2015.
- 2012 Wim Nieuwpoort award for best national (Netherlands) scientific code.
- Departmental prize for best MSc thesis (Cranfield University, UK)
- 1st prize academic record award at Seville University and 2nd at national level (Spain)
- Member of winning team in Royal Aeronautical Society (UK) Aerospace Challenge 2010.
- Second place in two (2002, 2005) math Olympiads at Canary Islands level.

LIST OF PUBLICATIONS

2017

- V. Spandan, V. Meschini, R. Ostilla-Monico, D. Lohse, G. Querzoli, M. D. de Tullio, R. Verzicco, “A parallel interaction potential approach coupled with the immersed boundary method for fully resolved simulations of deformable interfaces and membranes”, *Under review*.
- R. Ostilla Mónico, A. A. Lee, “Controlling turbulent drag across electric fields using electrolytes”, *Faraday Discussions*, *accepted (2017)*

2016

- R. Ostilla Mónico, D. Lohse, R. Verzicco, “The effect of roll number on the statistics of Taylor-Couette flow”. *Physical Review Fluids*, *1*, 054402.
- R. P. J. Kunnen, R. Ostilla Mónico, E. P. van der Poel, R. Verzicco, D. Lohse, “Geostrophic convective turbulence: The effect of boundary layers”. *Journal of Fluid Mechanics*, *799*, 413-432.
- R. Ostilla Mónico, R. Verzicco, D. Lohse. “Turbulent Taylor-Couette flow with stationary inner cylinder”, *Journal of Fluid Mechanics*, *799*, R1.
- V. Spandan, R. Ostilla Mónico, R. Verzicco, D. Lohse. “Numerical simulations of two-phase Taylor-Couette turbulence using an Euler-Lagrange approach”, *Journal of Fluid Mechanics*, *798*, 411-435.
- X. Zhu, R. Ostilla Mónico, R. Verzicco, D. Lohse, “Direct numerical simulation of Taylor-Couette flow with grooved walls: torque scaling and flow structure”, *Journal of Fluid Mechanics*, *794*, 746-774.
- R. Ostilla Mónico, R. Verzicco, S. Grossmann, D. Lohse, “The near-wall region of Taylor-Couette flow”, *Journal of Fluid Mechanics*, *768*, 95-117.
- V. Spandan, R. Ostilla Mónico, D. Lohse, R. Verzicco, Identifying coherent structures and vortex clusters in Taylor-Couette turbulence. *Journal of Physics: Conference Series*, *708(1)*, 012006.

2015

- E. P. van der Poel, R. Ostilla Mónico, R. Verzicco, S. Grossmann, D. Lohse, “Logarithmic mean temperature profiles and their connection to plume emissions in Turbulent Rayleigh-Bénard convection”. *Physical Review Letters*, *115*, 154501.
- R. Ostilla Mónico, Y. T. Yang, E. P. van der Poel, D. Lohse, R. Verzicco, “A multiple-resolution strategy for Direct Numerical Simulation of scalar turbulence”, *Journal of Computational Physics*, *301*, 308-321.
- E. P. van der Poel, R. Ostilla Mónico, J. Donners, R. Verzicco, “A pencil distributed finite difference code for strongly turbulent wall-bounded flow”, *Computers and Fluids*, *116*, 10-16.
- Y. Yang, E. P. van der Poel, R. Ostilla Mónico, C. Sun, R. Verzicco, S. Grossmann, D. Lohse. “Salinity transfer in bounded double diffusive convection”, *Journal of Fluid Mechanics*, *768*, 476-491.
- R. Ostilla Mónico, R. Verzicco, D. Lohse, “Effects of the computational domain size on DNS of Taylor-Couette turbulence with stationary outer cylinder”, *Physics of Fluids*, *27*, 025110.
- Y. Yang, R. Ostilla Mónico, J. Z. Wu, P. Orlandi, “Inertial waves and mean velocity profiles in a rotating pipe and a circular annulus with axial flow”, *Physical Review E*, *91*, 013015).

2014

- R. Ostilla Mónico, E. P. van der Poel, R. Verzicco, S. Grossmann, D. Lohse, “Exploring the phase diagram of fully turbulent Taylor-Couette flow”, *Journal of Fluid Mechanics*, 761, 1-26.
- R. Ostilla Mónico, R. Verzicco, S. Grossmann, D. Lohse, “Turbulence decay towards the linearly-stable regime of Taylor-Couette flow”, *Journal of Fluid Mechanics*, 748, R3.
- R. Ostilla Mónico, S. G. Huisman, T. J. G. Jannink, D. P. M. van Gils, R. Verzicco, S. Grossmann, C. Sun, D. Lohse, “Optimal Taylor-Couette flow: radius ratio dependence”, *Journal of Fluid Mechanics*, 747, 1-29
- E. P. van der Poel, R. Ostilla Mónico, R. Verzicco, D. Lohse, “Effect of velocity boundary conditions on the heat transfer and flow topology in two-dimensional Rayleigh-Bénard convection”, *Physical Review E*, 90, 013017.
- R. Ostilla Mónico, E. P. van der Poel, R. Verzicco, S. Grossmann, D. Lohse. “Boundary layer dynamics at the transition between the classical and the ultimate regime of Taylor-Couette flow”. *Physics of Fluids*, 26, 015114.

2013

- R. Ostilla, R.J.A.M. Stevens, S. Grossmann, R. Verzicco, D. Lohse. “Optimal Taylor-Couette flow: direct numerical simulations”. *Journal of Fluid Mechanics*, 719, 14-46.

INVITED TALKS

- “Large scale DNS of Taylor-Couette flow”, International conference on Computational Methods in Marine Engineering, Rome, June 2015.
- “The effect of Taylor rolls on highly turbulent Taylor-Couette flow”, Flowing Matter across the scales, Rome, March 2015.
- “Towards the ultimate state of turbulence”, SurfSARA booth at SC'13, Denver, November 2013.
- “Towards the ultimate state of turbulence”, inauguration of Cartesius supercomputer, SurfSARA, Amsterdam, 14th June 2013.

INVITED SEMINARS

- “Direct numerical simulation of head-on vortex ring collisions”, Houston University, 26th January 2017
- “Direct numerical simulation of head-on vortex ring collisions”, Kids Seminar, Harvard, 29th November 2016
- “Direct numerical simulations of Vortex Ring collisions”, University of Twente, 19th September 2016
- “Highly turbulent Taylor-Couette flow: direct numerical simulations”, Notre Dame University, 23rd April 2015
- “Highly turbulent Taylor-Couette flow: direct numerical simulations”, Swiss federal institute of Technology (ETH) in Zürich, 13th April 2015
- “Exploring the phase space of Taylor-Couette flow”, Polytechnical school of Madrid (UPM), 13th May 2014
- “Optimal Taylor-Couette flow: direct numerical simulations”, Cottbus University, 16th November 2012

CONTRIBUTED TALKS

- “Direct numerical simulations of Vortex Ring collisions”, American Physical Society: Division of Fluid Dynamics meeting, Portland, November 2016
- “Direct numerical simulations of Vortex Ring collisions”, European Fluid Mechanics Conference, Sevilla, September 2016
- “The near-wall region of Taylor-Couette flow”, American Physical Society: Division of Fluid Dynamics meeting, Boston, November 2015
- “Direct numerical simulations of Taylor-Couette up to $Re=400,000$ ”, American Physical Society: Division of Fluid Dynamics meeting, San Francisco, November 2014
- “Turbulence decay towards the linearly stable regime of Taylor–Couette flow”, FOM Meeting, Veldhoven, January 2014
- “Turbulence decay towards the linearly stable regime of Taylor–Couette flow”, American Physical Society: Division of Fluid Dynamics meeting, Pittsburgh, November 2013
- “Towards ultimate turbulence”, ESAC Trainee Meeting, Madrid, September 2013
- “The effect of velocity boundary conditions on 2D Rayleigh-Benard Turbulence”, 14th European Turbulence Conference, Lyon, August 2013
- “Transition to the Ultimate Regime in Turbulent Taylor-Couette Flow: Numerical Simulations”, International Couette-Taylor Workshop, Enschede, June 2013
- “Transition to the Ultimate Regime in Turbulent Taylor-Couette Flow: Numerical Simulations” - International Conference on Rayleigh-Bénard Turbulence, Hong Kong, December 2012
- “Optimal Taylor-Couette flow: direct numerical simulations”, European Fluid Mechanics Conference, Rome, August 2012
- “Optimal Taylor-Couette flow: direct numerical simulations”, International Conference of Theoretical and Applied Mechanics, Beijing, August 2012