

Wilfried Coenen

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EDUCATION

<i>PhD in Engineering Mathematics</i>	Universidad Carlos III de Madrid , Spain (May 2010) Dissertation: “Absolute instability in the near field of low-density jets” Advisor: Prof A Sevilla
<i>Master in Engineering Mathematics</i>	Universidad Carlos III de Madrid , Spain (June 2007) Courses in advanced fluid mechanics, hydrodynamic stability, turbulence, numerical methods, perturbation theory.
<i>Master of Science in Applied Physics</i>	Technische Universiteit Eindhoven , the Netherlands (August 2005) Master’s thesis at the Von Karman Institute for Fluid Dynamics in Brussels, Belgium: “Sound emission from an airfoil in a turbulent subsonic free jet” Tutors: Prof A Hirschberg (Tue) & J Anthoine (VKI)
<i>Batchelor of Science in Physics</i>	Universiteit Hasselt , Belgium (July 2002)

PROFESSIONAL EXPERIENCE

<i>Postdoctoral scholar</i>	University of California San Diego (2015 - present) Mechanical and Aerospace Engineering Dept Mentor: Prof A L Sánchez
<i>Lecturer</i>	Universidad Carlos III de Madrid , Spain (2010 - 2016) Dpto de Ingeniería Térmica y de Fluidos
<i>Postdoctoral scholar</i>	Universidad de Jaén , Spain (2010 - 2011) Dpto de Ingeniería Mecánica y Minera
<i>Graduate Research Fellow</i>	Universidad Carlos III de Madrid , Spain (2005 - 2010) Dpto de Ingeniería Térmica y de Fluidos
<i>Short-term research stays</i>	San Diego State University with Prof G Jacobs (2.5 months, summer 2010) University of Hawai’i at Manoa , Honolulu with Prof G Pawlak (2 months, fall 2009) University of East-Anglia , Norwich, UK with Prof N Riley (3 months, spring 2008) University of California San Diego with Prof FA Williams (2.5 months, summer 2007) University of California San Diego with Prof P Linden (3 months, spring 2004)

AWARDS & FELLOWSHIPS

Premio Extraordinario de Doctorado (Outstanding Doctorate Award), Universidad Carlos III de Madrid (2010)
Beca Formación de Personal Investigador (FPI), PhD fellowship, Spanish Ministry of Education (2006 - 2010)
Beca Formación de Doctores, PhD fellowship, Universidad Carlos III de Madrid (2005 - 2006)

JOURNAL PUBLICATIONS

Coenen W, Garnaud X, Lesshafft L & Sevilla A

On the linear eigenmode responsible for the global instability of low-density jets

Submitted to J Fluid Mech (currently in 2nd round of revision)

Weiss AD, Coenen W & Sánchez AL

Aerodynamics of planar counterflowing jets

Submitted to J Fluid Mech

Rajamanickam P, Coenen W & Sánchez AL

Non-Boussinesq stability analysis of natural-convection gaseous flow on inclined hot plates

Submitted to Int J Heat Mass Transfer

Coenen W

Steady streaming around a cylinder pair

Proc R Soc A 472, 20160522 (2016) <http://dx.doi.org/10.1098/rspa.2016.0522>

Moreno-Boza D, Coenen W, Sevilla A, Carpio J, Sánchez AL & Liñan A

Diffusion-flame flickering as a hydrodynamic global mode

J Fluid Mech 798, 997-1014 (2016) <http://dx.doi.org/10.1017/jfm.2016.358>

Coenen W

Oscillatory flow about a cylinder pair with unequal radii

Fluid Dyn Res 45, 055511 (2013) <http://dx.doi.org/10.1088/0169-5983/45/5/055511>

Coenen W & Sevilla A

The structure of the absolutely unstable regions in the near field of low-density jets

J Fluid Mech 713, 123-149 (2012) <http://dx.doi.org/10.1017/jfm.2012.441>

Coenen W, Sevilla A & Sánchez AL

Viscous stability analysis of jets with discontinuous base profiles

Eur J Mech B/Fluids 36, 128-138 (2012) <http://dx.doi.org/10.1016/j.euromechflu.2012.03.016>

Coenen W & Riley N

Oscillatory flow about a cylinder pair

Q Jl Mech Appl Math 62(1), 53-66 (2009) <http://dx.doi.org/10.1093/qjmam/hbn024>

Coenen W, Sevilla A & Sánchez AL

Absolute instability of light jets emerging from circular injector tubes

Phys Fluids 20, 074104 (2008) <http://dx.doi.org/10.1063/1.2952597>

CONFERENCE PROCEEDINGS

Moreno-Boza D, Coenen W, Sevilla A, Carpio J, Liñan A & Sánchez AL

Global linear instability analysis of diffusion-flame flickering

Proceedings of the 25th International Colloquium on the Dynamics of Explosions and Reactive Systems 218 (2015)

Lesshafft L, Coenen W, Garnaud X & Sevilla A

Modal instability analysis of light jets

Procedia IUTAM 14, 137-140 (2015) <http://dx.doi.org/10.1016/j.piutam.2015.03.033>

Schram C, Coenen W, Anthoine J & Hirschberg A

Aerodynamic noise generated by an airfoil in a turbulent flow

Proceedings of the 12th International Congress on Sound and Vibration 715-722 (ISBN 9781627481496)

CONTRIBUTED CONFERENCE ABSTRACTS

- 2016 69th Annual Meeting of the APS Division of Fluid Dynamics, Portland, OR
11th EUROMECH European Fluid Mechanics Conference, Seville, Spain
24th International Congress of Theoretical and Applied Mechanics (ICTAM), Montréal, Canada
Spring Technical Meeting of the Western States Section of the Combustion Institute, Seattle, WA
- 2015 25th International Colloquium on the Dynamics of Explosions and Reactive Systems (ICDERS), Leeds, UK
6th International Symposium on Bifurcations and Instabilities in Fluid Dynamics (BIFD), Paris, France
- 2014 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA
10th EUROMECH European Fluid Mechanics Conference, Copenhagen, Denmark
IUTAM-ABCM Symposium on Laminar Turbulent Transition, Rio de Janeiro, Brasil
- 2013 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA
EUROMECH Colloquium 547 - Trends in Open Shear Flow Stability, Paris, France
- 2012 9th EUROMECH European Fluid Mechanics Conference, Rome, Italy
- 2011 64th Annual Meeting of the APS Division of Fluid Dynamics, Baltimore, MD
- 2010 8th EUROMECH European Fluid Mechanics Conference, Bad Reichenhall, Germany
- 2008 7th EUROMECH European Fluid Mechanics Conference, Manchester, UK
- 2007 60th Annual Meeting of the APS Division of Fluid Dynamics, Salt Lake City, UT
- 2005 12th International Congress on Sound and Vibration, Lisbon, Portugal

SERVICE

Peer review

Journal referee for the Journal of Fluid Mechanics, European Journal of Mechanics B/Fluids, Applied Mathematical Modelling, Journal of Engineering Mathematics

Conference organization

Member of the local arrangements committee of the 1st Meeting of the Spanish Section of the Combustion Institute (SEIC07) celebrated in May 2007 in León, Spain

Outreach activities

Representative of the Universidad Carlos III de Madrid in high-school outreach activities (2006-2009, approx. 6 visits/year to high schools in the Madrid urban area)

CONTRACTS & COURSES WITH PRIVATE COMPANIES

Experimental characterization of jet fuel atomization (2012-2013)

Research contract financed by Repsol SA

Co-PIs: Coenen W & Rodríguez-Rodríguez J

Computational Fluid Mechanics and Turbulence Modeling (2012)

One-week intensive course financed by Acciona Windpower SA

Co-PIs: Coenen W, Flores O & García-Villalba M

ACADEMIC TEACHING & MENTORING

University of California San Diego

Undergraduate *Introductory fluid mechanics* (MAE101A) (E) summer 2016

Universidad Carlos III de Madrid

Graduate *Hydraulic machines* (226-14268) (S) fall 2015

Undergraduate *Engineering fluid mechanics* (221-14196) (S/E) spring 2015, spring 2014, fall 2012, fall 2011
Introduction to fluid mechanics (272-16349) (S) fall 2015, fall 2014
Numerical simulation of industrial flows (221-14218) (S) spring 2015, spring 2014, spring 2013, spring 2012

Lab sessions *Introduction to fluid mechanics* (251-15329) (E) fall 2014, fall 2013, fall 2012, fall 2011
Fluid mechanics (251-15334) (E) spring 2014, spring 2013, spring 2012
Technological laboratory (S) spring 2010, spring 2006
Acoustics (S) fall 2008, fall 2009
Fluid mechanics (S) spring 2009
Fluid mechanics & turbomachines (S) fall 2008
Numerical simulation of industrial flows (S) fall 2008
Engineering fluid mechanics (S) fall 2005

(S) = course taught in Spanish / (E) = course taught in English

PhD students Daniel Gómez-Lendínez (co-advising with A Sevilla)
Stability and receptivity of variable density flows: the low-density jet and the Clarke-Riley boundary layer

Paula Consoli-Lizzi (co-advised with A Sevilla) (2016)
Break-up of liquid jets stretched by gravity

Master students Daniel Gómez-Lendínez (2014)
Analysis of the stability of low-density jets by direct numerical simulations

Bachelor students Advisor of 15 bachelor theses in Aerospace Engineering and Mechanical Engineering during 2010-2015