

Prof Rafael Palacios, FRAeS, AFAIAA

www.imperial.ac.uk/people/r.palacios
www.imperial.ac.uk/aeroelastics
orcid.org/0000-0002-6706-3220
[@aeroelastics](mailto:r.palacios@imperial.ac.uk)

Imperial College London, Department of Aeronautics
Room 338 CAGB, London SW7 2AZ, UK
Phone: +44 (0) 20 7594 5075
r.palacios@imperial.ac.uk

RESEARCH INTERESTS

Computational methods in fluid-structure interaction, aeroelastic control, optimization of dynamical systems, with applications to dynamics and control of flexible air vehicles and offshore horizontal-axis wind turbines.

EMPLOYMENT HISTORY

08/18 – Professor of Computational Aeroelasticity – Imperial College London
08/14 – 07/18 Reader in Aeronautics – Imperial College London
08/12 – 07/14 Senior Lecturer in Aerostructures – Imperial College London
07/07 – 07/12 Lecturer in Aerostructures – Imperial College London, Department of Aeronautics
01/06 – 06/07 Research Fellow – University of Michigan, Dept. of Aerospace Engineering
07/05 – 12/05 R&D Engineer – EADS-CASA, Structural Dynamics and Aeroelasticity Department
09/01 – 02/05 Research Assistant – University of Michigan, Department of Aerospace Engineering
10/98 – 08/01 R&D Engineer – EADS-CASA, Stress Analysis Methods and Aeroelasticity Departments

ACADEMIC QUALIFICATIONS

2005 **Ph.D. in Aerospace Engineering - University of Michigan**
“Asymptotic Models of Integrally-Strained Slender Structures for High-Fidelity Nonlinear Aeroelastic Analysis.” Thesis advisor: [Prof. C.E.S. Cesnik](#); *GPA: 4.0/4.0; Michigan GPA: 8.892/9 (9=A+)*

1998 **Aeronautical Engineer (6-year degree) - Universidad Politécnica, Madrid**
Major: Aircraft design, Average grade: 92.2/100. Ranked #1.

RESEARCH GRANTS

2017-2020 EPSRC Grant [EP/R007470/1](#), *Farming the Environment into the Grid: Big data in Offshore Wind (FENGBO-WIND)*

2017-2021 EC H2020-MSCA-ITN-2017, [Project 765579](#), *Control of flexible structures and fluid-structure interactions*

2016-2019 Airbus Defence & Space, *Methods for aeroelastic analysis of solar-powered aircraft*

2016-2019 EPSRC ICASE Award (Airbus Group Innovations), *Assessment of geometrically-nonlinear effects on aircraft loads*

2015-2018 EPSRC Grant [EP/N006224/1](#), *Maximizing Wind Farm Aerodynamic Resource via Advanced Modelling (MAXFARM)*

2014-2017 AFOSR/EOARD, Grant FA9550-14-1-0055, *Aeroservoelastic Optimization of Aircraft Wings with Load Alleviation Systems*

2013-2016 EPSRC, Grant [EP/K037536/1](#), *Vortex Induced Vibration and Structural Integrity of Deep Water Flexible Risers*

2013 EOARD, Window on Science, Grant 132047

- 2012-2016 EPSRC, Grant [EP/J002070/1](#), *Towards Biologically-Inspired Active-Compliant-Wing Micro-Air-Vehicles*
- 2012-2015 AFOSR/EOARD, Grant FA8655-12-1-2046, *Integrally-Actuated Membrane Wings*
- 2011-2015 EPSRC, Grant [EP/I014683/1](#), *Nonlinear Flexibility Effects on Flight Dynamics and Control of Next-Generation Aircraft*
- 2011 RAEng Distinguished Visiting Fellowship
- 2008-2011 EPSRC ICASE Award (QinetiQ), *Optimal Control Surfaces for Highly Flexible Aircraft*

AWARDS

- 2013 Winner, Best Supervision, Student Academic Choice Awards, Imperial College Union
- 2013 Finalist, Best Feedback, Student Academic Choice Awards, Imperial College Union
- 2011 Teaching Excellence Award, Imperial College London, Department of Aeronautics
- 2005 AIAA Foundation Orville and Wilbur Wright Graduate Award
- 2002-2004 François-Xavier Bagnoud Fellow at the University of Michigan
- 2001-2002 Fulbright Fellow at the University of Michigan
- 1998 Spanish Society of Aeronautical Engineers “Francisco Arranz” Graduation Award

ACADEMIC EXPERIENCE (Imperial College)

Administration:

- 2018- Deputy Director of Research, Department of Aeronautics
- 2014-2016 Member, College’s Surveys Working Group
- 2012-2016 Member, Teaching Committee, Faculty of Engineering
- 2012-2016 Director of Undergraduate Studies, Department of Aeronautics
- 2010-2012 Final-year academic monitor and individual project coordinator
- 2009- Member, Department Teaching Committee

Taught modules:

	<i>Year</i>	<i>Hours</i>	<i>Class size</i>	<i>Academic Years</i>
Foundation Mechanics	1	6	75	2008-2010
Manufacturing Processes	2	8	70	2007-2008
Finite Elements	3	13	85	2011-2012
Group Design Project	3	25	20	2009-2017
Computational Mechanics	3/4	16	50-70	2008-2018
Advanced Mechanics of Flight	3/4	13	50-60	2013-2018
Structural Dynamics	4	14	85-120	2007-2018
Green Aviation Technologies	M.Sc.	6	50-60	2014-2018
Aeroelasticity/Aeroservoelasticity	M.Sc.	12	25-45	2007-2018

Ph.D. supervision (as main supervisor):

- 2018- Norberto Goizueta Real-time nonlinear control strategies for flexible aircraft
- 2018- Arturo Munoz Aeroelastic control of floating wind turbines

2018-	Pedro Gomes	Topology optimization in fluid-structure interaction problems
2016-	Alfonso del Carre	Data fusion architectures for flexible aircraft dynamic simulation
2016-	Charanya Venkatesan-Crome	Optimization and Co-Design of Aeroservoelastic Systems
2016-	Alvaro Cea	Model-order reduction methods in nonlinear aeroelasticity
2014-17	Ruben Sanchez	A Coupled Adjoint Method for Optimal Design in Fluid-Structure Interaction Problems with Large Displacements (→Imperial College)
2010-17	Alvaro Gonzalez	Aeroelasticity of deformable wing turbine aerofoils in stalled conditions (→CENER, National Renewable Energy Centre, Spain)
2013-17	Salvatore Maraniello	Optimal manoeuvres and co-design with very flexible wings [hdl:10044/1/49244] (→Imperial College)
2012-15	Stefano Buoso	High-fidelity modelling and feedback control of bio-inspired membrane wings [hdl:10044/1/32832] (→University of Zurich, Switzerland)
2011-15	Robert Simpson	Unsteady aerodynamics, reduced-order modelling, and predictive control in linear and nonlinear aeroelasticity with arbitrary kinematics [hdl:10044/1/33327] (→Imperial College)
2011-15	Yinan Wang	Aeroelastic modelling and control of very flexible air vehicles using a nonlinear modal formulation [hdl:10044/1/25578] (→Red Bull Formula One Racing)
2010-14	Bing Feng Ng	Model-based aeroservoelastic design and load alleviation of large wind turbines [hdl:10044/1/24788] (→Nanyang Technological University, Singapore)
2009-14	Julian Dizy	Homogenisation of slender periodic composite structures [hdl:/10044/1/24732] (→Computational Modelling Cambridge Ltd, UK)
2009-13	Sara Arbos	Aeromechanical performance of compliant aerofoils [hdl:10044/1/28105] (→CNES, Poitiers, France)
2009-13	Henrik Hesse	Consistent aeroelastic linearization and ROM in the dynamics of manoeuvring flexible aircraft [hdl:10044/1/12258] (→ETH, Zurich)
2008-12	Robert Cook	Robust control of high-altitude long-endurance UAVs using novel lift effectors [hdl:10044/1/9998](→University of Bristol, UK)
2008-12	Joseba Murua	Flexible aircraft dynamics with a geometrically-nonlinear description of the unsteady aerodynamics [hdl:10044/1/9756] (→After graduation he joined University of Surrey, UK)

Postdoctoral assistants (as line manager):

2018-	Yorgos Deskos (18 months)
2017	Ruben Sanchez (3 months)
2017-19	Salvatore Maraniello (24 months)
2016	Stefano Buoso (6 months)
2015-16	Robert Simpson (14 months)
2015-16	Yinan Wang (18 months)
2013-14	Henrik Hesse (9 months)

Ph.D. examiner:

2018	Federico Barbarossa	Aerodynamic Optimization of Low-Pressure Stages in Turbomachinery (Imperial)
------	---------------------	--

2017	Cristina Riso	Modelling Methodologies for Nonlinear Aeroelasticity (U. Rome “La Sapienza”)
2017	Xin Tong	Control of Large Offshore Wind Turbines (Warwick University)
2017	Liu Lu	Nonlinear Structural and Aeroelastic Analysis of HALE Aircraft (NUS, Singapore)
2017	Alex Barbu	An Investigation into Electro-Active Membrane Wings (U. Southampton)
2017	Chistian Pavese	Implementation of Passive Control Methodologies in the Preliminary and Conceptual Design of Wind Turbine Blades (Danish Technical University)
2016	Jumaina Al-Zubaidi	Experimental Study of Vortex-Induced Vibrations of a Long Span Bridge (Imperial)
2014	Luke Lambert	Efficient probabilistic structural response prediction for aircraft turbulence and offshore wave loading (University of Liverpool)
2014	Manfred Quack	Aero-structural optimization of morphing airfoils for adaptive wings (ETH, Zurich)
2014	David Hankin	Wake Impacting on a Horizontal Axis Wind Turbine (Imperial)
2014	Marco Capuzzi	Aeroelastic Tailoring of Wind Turbine Blades for Power Enhancement and Load Alleviation (University of Bristol)
2012	Ignazio Dimino	Smart Panels for Active Noise Control in Aircraft Cabin (Imperial)
2012	Martin Whiteside	Stochastic Analysis of Composite Materials (Imperial)

EXTERNAL SERVICE

Membership: RAeS (Fellow), AIAA (Associate Fellow), Spanish Society of Aeronautical Engineers (COIAE), EPSRC Peer Review College

Associate Editor:

2018- Progress in Aerospace Sciences
2016- Journal of Fluids and Structures
2016- Journal Aircraft

Grant reviewer: EPSRC; US Army Research Office; Spanish National Evaluation and Foresight Agency; Research Council of Norway; Natural Sciences and Engineering Research Council of Canada

Committees:

2019 University of Southampton, Faculty of Engineering and Physical Sciences, External Advisor to Undergraduate Programme Review Committee (Aeronautics and Astronautics)

2018- Member of UK Fluids Network Numerical Optimization in Fluids Special Interest Group

2017- Imperial College Energy Futures Lab, Theme Leader for Offshore Renewables

2015- AIAA Structural Dynamics Technical Committee.

2016 City University London, Dept. Mechanical and Aerospace Engineering, External Advisor to Programme Approval and Review Committee

2015 5th EASN International Workshop on Aerostructures. September 2015, Manchester, UK. International Advisory Board

2015 Flutter-Free Flight Envelope Workshop. June 2015, Budapest. Scientific Advisory Board

2011-2013 Institute of Mechanical Engineers’ Aerospace Structures and Materials Technical Action Committee

- 2010-2012 Vice-chair in GARTEUR Flight Mechanics Action Group AG-19 “Flexible Aircraft Modelling for Flight Control System Design”
- Reviewer for: Journal of Fluids and Structures; AIAA Journal; Journal of Sound and Vibration; Wind Energy; Journal of Fluid Mechanics; Bioinspiration and Biomimetics; Structural and Multidisciplinary Optimization; Journal of Aircraft; Journal of the American Helicopter Society; Smart Materials and Structures; Aerospace Science and Technology; and others.

CONSULTING

- 2015-2016 **Airbus Defence and Space, Farnborough, England**
Aeroelastic and stability analysis of Zephyr solar-powered aircraft prototype.
- 2014-2015 **Facebook Ltd, Menlo Park, California**
Aeroelastic and stability analysis of Aquila solar-powered aircraft prototype.
- 2005-2009 **MSC Software Corporation, Santa Ana, California**
Technical consultant (with Prof. Carlos Cesnik) in the development of composite nonlinear beam modules in MSC Nastran. Started as application of results of doctoral research.

FULL LIST OF PUBLICATIONS (citation info in [Google Scholar](#))

Book

- [1] Palacios R., Cesnik C.E.S., *Flexible Aircraft Dynamics: Coupled Flight Mechanics, Aeroelasticity and Control*. Cambridge University Press, *In preparation*

Journal Papers

- [2] Bao Y., Sherwin S. J., Graham J.M.R. , Wang R., Palacios R., Zhu H., Han Z., Ping H., Zhou D. Numerical Prediction of Vortex-Induced Vibration of Flexible Riser with Thick Strip Method, *Journal of Fluids and Structures*, under review
- [3] Ng B.F., Ong J.G.E., New T.H., Palacios R., “Leading-Edge Protuberances for Improved Fatigue Life of Horizontal Axis Wind Turbine Blades.” *Wind Energy*, under review
- [4] Maraniello S., Palacios R., “State-space realizations and internal balancing in potential-flow aerodynamics with arbitrary kinematics.” *AIAA Journal*, In Print
- [5] Zhao X., Qi, P., Palacios R., “Autonomous Landing Control of Highly Flexible Aircraft based on Lidar Preview in the Presence of Wind Turbulence.” *IEEE Transactions in Aerospace and Electronic Engineering*, In Print [[doi:10.1109/TAES.2019.2892639](#)]
- [6] Palacios R., Cea A., “Nonlinear Modal Condensation of Large Finite-Element Models: An Application of Hodges’ Intrinsic Theory.” *AIAA Journal*, In Print [[doi:10.2514/1.J057556](#), [hdl:10044/1/65484](#)]
- [7] Qi P., Wang Y., Palacios R., Wynn A., Zhao X., “Aeroelastic and Trajectory Control of High Altitude Long Endurance Aircraft.” *IEEE Transactions in Aerospace and Electronic Engineering*, Vol. 54, No. 6, pp. 2992-3003, Dec 2018 [[doi:10.1109/TAES.2018.2836598](#)]
- [8] Wang Y., Wynn A., Palacios R., “Nonlinear Aeroelastic Control of Very Flexible Aircraft Using Model Updating.” *Journal of Aircraft*, Vol. 55, No. 4, pp. 1551-1563, April 2018 [[doi:10.2514/1.C034684](#)]
- [9] Broughton-Venner J., Wynn A., Palacios R., “Aeroservoelastic Optimisation of an Aerofoil with Active Compliant Flap via Re-parametrisation and Variable Selection.” *AIAA Journal*, Vol. 56, No. 3, pp. 1146-1157, March 2018 [[doi:10.2514/1.J056141](#)]

- [10] Sanchez R., Albring T., Palacios R., Gauger N.R., Economon T.D., Alonso J.J., "Coupled Adjoint-Based Sensitivities in Large-Displacement Fluid-Structure Interaction using Algorithmic Differentiation." *International Journal of Numerical Methods in Engineering*, Vol. 113, No. 7, pp. 1081-1107, February 2018 [doi:10.1002/nme.5700, hdl:10044/1/51023]
- [11] Buoso S., Dickinson B., Palacios R., "Bat-Inspired Integrally Actuated Membrane Wings with Leading-Edge Sensing." *Bioinspiration & Biomimetics*, Vol. 13, No 1, 016013, January 2018 [doi:10.1088/1748-3190/aa9a7b]
- [12] Maraniello S., Palacios R., "Optimal Rolling Manoeuvres with Very Flexible Wings." *AIAA Journal*, Vol. 55, No. 9, pp. 2964-2979, September 2017 [doi:10.2514/1.J055721, hdl:10044/1/47873]
- [13] Buoso S., Palacios R., "On-Demand Aerodynamics in Integrally Actuated Membranes with Feedback Control." *AIAA Journal*, Vol. 55, No. 2, pp. 377-388, February 2017 [doi:10.2514/1.J054888; hdl:10044/1/41932]
- [14] Ng B.F., Palacios R., Graham J.M.R., "Model-based Aeroelastic Design and Blade Load Alleviation of Offshore Wind Turbines." *International Journal of Control*, Vol. 90, No. 1, pp. 15-36, January 2017 [hdl:10044/1/23762; doi:10.1080/00207179.2015.1068456]
- [15] Wang Y., Wynn A., Palacios R., "A Nonlinear Modal Aeroservoelastic Analysis Framework for Flexible Aircraft." *AIAA Journal*, Vol. 54, No. 10, pp. 3075-3090, Oct 2016 [doi:10.2514/1.J054537; hdl:10044/1/32442]
- [16] Bao Y., Palacios R., Graham J.M.R., Sherwin S.J. "Generalized *Thick Strip* Modelling for Vortex-Induced Vibration of Long Flexible Cylinders." *Journal of Computational Physics*, Vol. 321, pp.1079-1097, 15 September 2016 [doi:10.1016/j.jcp.2016.05.062; hdl:10044/1/33432]
- [17] Maraniello S., Palacios R., "Optimal Vibration Control and Co-design of Very Flexible Actuated Structures." *Journal of Sound and Vibration*, Vol. 377, pp. 1-21, 1 September 2016 [doi:10.1016/j.jsv.2016.05.018, hdl:10044/1/32502]
- [18] Buoso S., Palacios R., "Viscoelastic Effects in the Aeromechanics of Actuated Elastomeric Membrane Wings." *Journal of Fluids and Structures*, Vol. 63, pp. 40-56, May 2016 [doi:10.1016/j.jfluidstructs.2016.01.003; hdl:10044/1/28861]
- [19] Hesse H., Palacios R., "Dynamic Load Alleviation in Wake Vortex Encounters." *Journal of Guidance, Control, and Dynamics*, Vol. 39, No. 4, pp. 801-813, April 2016 [doi:10.2514/1.G000715; hdl:10044/1/23599]
- [20] Ng B.F., New T.H., Palacios R., "Effects of Leading-Edge Tubercles on Wing Flutter Speeds." *Bioinspiration & Biomimetics*, Vol. 11, No. 3, 036003, 12 April 2016 [doi:10.1088/1748-3190/11/3/036003; hdl:10044/1/30940]
- [21] Ng B.F., Palacios R., Kerrigan E.C., Graham J.M.R., Hesse H., "Aerodynamic Load Control in HAWT with Combined Aeroelastic Tailoring and Trailing-Edge Flaps." *Wind Energy*, Vol. 19, No. 2, pp. 243-263, February 2016 [doi:10.1002/we.1830; hdl:10044/1/23403]
- [22] Buoso S., Palacios R., "Electro-aeromechanical Modelling of Actuated Membrane Wings." *Journal of Fluids and Structures*, Vol. 58, pp. 188-202, Oct 2015 [doi:10.1016/j.jfluidstructs.2015.08.010; hdl:10044/1/25858]
- [23] Wang Y., Palacios R., Wynn A. "A method for normal-mode-based model reduction in nonlinear dynamics of slender structures." *Computers & Structures*, Vol. 159, pp. 26-40, October 2015 [doi:10.1016/j.compstruc.2015.07.001;hdl:10044/1/25432]
- [24] Ng B.F., Hesse H., Palacios R., Graham J.M.R., Kerrigan E.C., "Aeroservoelastic State-Space Vortex-Lattice Modeling and Load Alleviation of Wind Turbine Blades." *Wind Energy*, Vol. 18, No. 7, pp. 1317-1331, July 2015 [doi:10.1002/we.1752]
- [25] Murua P., Martínez P., Climent H., van Zyl L., Palacios R., "T-Tail Flutter: Potential-Flow Modelling, Experimental Validation and Flight Tests." *Progress in Aerospace Sciences*, Vol. 71, pp. 54-84, November 2014 [doi:10.1016/j.paerosci.2014.07.002]
- [26] Cesnik C.E.S., Palacios R., Reichenbach E.Y., "Re-examined Structural Design Procedures for Very Flexible Aircraft." *Journal of Aircraft*, Vol. 51, No. 5, pp. 1580-1591, September-October 2014 [doi:10.2514/1.C032464]

- [27] Hesse H., Palacios R., "Reduced-Order Aeroelastic Models for Dynamics of Maneuvering Flexible Aircraft." *AIAA Journal*, Vol. 52, No. 8, pp. 1717-1732, August 2014 [doi:10.2514/1.J052684]
- [28] Hesse H., Palacios R., Murua J., "Consistent Structural Linearization in Flexible Aircraft Dynamics with Large Rigid-Body Motion." *AIAA Journal*, Vol. 52, No. 3, pp. 528-538, March 2014 [doi:10.2514/1.J052316; hdl:10044/1/11697]
- [29] Wynn A., Wang Y., Palacios R., Goulart P.J., "An Energy-Preserving Description of Nonlinear Beam Vibrations in Modal Coordinates." *Journal of Sound and Vibration*, Vol. 332, No. 21, pp. 5543-5558, 14 October 2013 [doi:10.1016/j.jsv.2013.05.021; hdl:10044/1/11126]
- [30] Simpson R.J.S., Palacios R., Murua J., "Induced Drag Calculations in the Unsteady Vortex Lattice Method." *AIAA Journal*, Vol. 61, No. 7, pp. 1775-1779, July 2013 [doi:10.2514/1.J052136; hdl:10044/1/11117]
- [31] Dizy J., Palacios R., Pinho S.T., "Homogenisation of Slender Periodic Composite Structures." *International Journal of Solids and Structures*, Vol. 50, No. 9, pp. 1473-1481, May 2013 [doi:10.1016/j.ijsolstr.2013.01.017; hdl:10044/1/13753]
- [32] Arbós-Torrent S., Ganapathisubramani B., Palacios R., "Leading- and Trailing-Edge Effects on the Aeromechanics of Membrane Aerofoils." *Journal of Fluids and Structures*, Vol. 38, pp. 107-126, April 2013 [doi:10.1016/j.jfluidstructs.2013.01.005]
- [33] Cook R., Palacios R., Goulart P.J., "Robust Gust Alleviation and Stabilization of Very Flexible Aircraft." *AIAA Journal*, Vol. 51, No. 2, pp. 330-340, February 2013 [doi:10.2514/1.J051697]
- [34] Hesse H., Palacios R., "Consistent Structural Linearisation in Flexible-Body Dynamics with Large Rigid-Body Motion." *Computers & Structures*, Vol. 110-111, pp. 1-14, Nov 2012 [doi:10.1016/j.compstruc.2012.05.011; hdl:10044/1/12924]
- [35] Murua J., Palacios R., Graham J.M.R., "Applications of the Unsteady Vortex-Lattice Method in Aircraft Aeroelasticity and Flight Dynamics." *Progress in Aerospace Sciences*, Vol. 55, pp. 46-72, November 2012 [doi:10.1016/j.paerosci.2012.06.001; hdl:10044/1/13765]
- [36] Murua J., Palacios R., Graham J.M.R., "Assessment of Wake-Tail Interference Effects on the Dynamics of Flexible Aircraft." *AIAA Journal*, Vol. 50, No. 7, pp. 1575-1585, July 2012 [doi:10.2514/1.J051543]
- [37] Palacios R., "Nonlinear Normal Modes in an Intrinsic Theory of Anisotropic Beams." *Journal of Sound and Vibration*, Vol. 330, No. 8, pp. 1772-1792, April 2011 [doi:10.1s016/j.jsv.2010.10.023; hdl:10044/1/6336]
- [38] Palacios R., Murua J., Cook R., "Structural and Aerodynamic Models in the Nonlinear Flight Dynamics of Very Flexible Aircraft." *AIAA Journal*, Vol. 48, No. 11, pp. 2648-2659, November 2010 [doi:10.2514/1.J050513]
- [39] Murua J., Palacios R., Peiró J., "Camber effects in the dynamic aeroelasticity of compliant airfoils." *Journal of Fluid and Structures*, Vol. 26, No. 4, pp. 527-543, May 2010 [doi:10.1016/j.jfluidstructs.2010.01.009]
- [40] Chimakurthi S.K., Tang J., Palacios R., Cesnik C.E.S., Shyy W., "Computational Aeroelasticity Framework for Analyzing Flapping Wing Micro Air Vehicles." *AIAA Journal*, Vol. 47, No. 8, pp. 1865-1878, August 2009 [doi:10.2514/1.38845]
- [41] Friedmann P.P., Glaz B., Palacios R., "A Moderate Deflection Composite Helicopter Rotor Blade Model with an Improved Cross-Sectional Analysis." *International Journal of Solids and Structures*, Vol. 46, No. 10, pp. 2186-2200, May 2009 [doi:10.1016/j.ijsolstr.2008.09.017]
- [42] Palacios R., Cesnik C.E.S., "A Geometrically-Nonlinear Theory of Active Composite Beams with Deformable Cross Sections." *AIAA Journal*, Vol. 46, No. 2, pp. 439-450, February 2008 [doi:10.2514/1.31620]
- [43] Palacios R., Cesnik C.E.S., "On the One-Dimensional Modeling of Camber Bending Deformations in Active Anisotropic Slender Structures." *International Journal of Solids and Structures*, Vol. 45, No. 7-8, pp. 2097-2116, July 2008 [doi:10.1016/j.ijsolstr.2007.11.011]
- [44] Palacios R., Cesnik C.E.S., "Cross-Sectional Analysis of Non-Homogeneous Anisotropic Active Slender Structures." *AIAA Journal*, Vol. 43, No. 12, pp. 2624-2638, December 2005 [doi:10.2514/1.12451]

Book chapters

- [45] Ng B.F., Palacios R. New T.H., “Aeroelasticity of configurations with leading-edge tubercles.” In Frank E. Fish. (Ed.), *Passive Flow Control Through Bio-Inspired Solutions: The Leading-Edge Tubercles of Humpback Whales*, Springer Verlag, Berlin (to appear)
- [46] Palacios R., “Invariant Manifolds in Beam Dynamics: Free Vibrations and Nonlinear Normal Modes.” In H. Altenbach, A. Ochsner (Eds.), *Encyclopaedia of Continuum Mechanics*, Springer Verlag, Berlin, 2018 [doi:10.1007/978-3-662-53605-6_56-1]
- [47] Bao Y., Palacios R., Graham M., Sherwin S., “A Strip Modelling of Flow Past a Freely Vibrating Cable.” In Grigoriadis D., Geurts B., Kuerten H., Fröhlich J., Armenio V. (Eds.), *Direct and Large-Eddy Simulation*, Vol. 10, pp 221-227 Springer Verlag, Berlin, 2017 [doi:10.1007/978-3-319-63212-4_27]
- [48] Palacios R., Karlsson A., Winzell B., Climent H., “Assessment of Strategies for Correcting Linear Unsteady Aerodynamics Using CFD or Experimental Results.” In Haase W., Selmin V. and Winzell B. (Eds.), *Progress in Computational Fluid-Structure Interaction*, Notes on Numerical Fluid Mechanics and Multidisciplinary Design, Vol. 81, pp. 209-224, Springer Verlag, Berlin, 2002

Refereed Conference Publications

- [49] Artola M., Wynn A., Palacios R., “A Nonlinear Modal-Based Framework for Low Computational-Cost Optimal Control of 3D Very Flexible Structures”, *European Control Conference*, 25-28 June 2019, Naples, Italy
- [50] Venkatesan-Crome C., Palacios R., Kattmann T., Sanchez R., Gauger N. R., Economon T. D., “Discrete Adjoint for Unsteady Incompressible Flows using a Density-based Formulation”. *AIAA Aviation*, 17-21 June 2019, Dallas, Texas, USA.
- [51] Qi P., Zhao X., Palacios R., “Preview-Based Altitude Control for a Very Flexible Flying Wing with Lidar Wind Measurements”, 2018 IEEE Conference on Decision and Control (CDC), December 17-19, 2018, Fontainebleau, Miami Beach, FL, USA
- [52] Qi P., Zhao X., Wang Y., Palacios R., Wynn A., “Automatic Landing Control of a Very Flexible Flying Wing”, *American Control Conference*, June 27–29, 2018, Wisconsin, Milwaukee, USA
- [53] Maraniello S., Palacios R., “State space realisation and model reduction of potential-flow aerodynamics for HAWT applications”, *The Science of Making Torque from Wind 2018, Journal of Physics: Conference Series*, June 20–22, 2018, Milano, Italy
- [54] Qi P., Wang Y., Zhao X., Palacios R., Wynn A., “Trajectory Control of a Very Flexible Flying Wing”, *American Control Conference*, 24-25 May 2017, Seattle, Washington, USA
- [55] Palacios R., Simpson R.J.S., Maraniello S. “State-space realizations of potential-flow unsteady aerodynamics with arbitrary kinematics.” *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 9-13 January 2017, Grapevine, Texas, USA [doi:10.2514/6.2017-1595]
- [56] Sanchez R., Palacios R., Economon T.D., Alonso J.J., Albring T., Gauger N.R. “Optimal Actuation of Dielectric Membrane Wings using High-Fidelity Fluid-Structure Modelling.” *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 9-13 January 2017, Grapevine, Texas, USA [doi:10.2514/6.2017-0857]
- [57] Maraniello S., Palacios R., “Geometrically-nonlinear effects in lateral manoeuvres with coupled flight dynamics and aeroelasticity.” *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 9-13 January 2017, Grapevine, Texas, USA [doi:10.2514/6.2017-1352]
- [58] Broughton-Venner J.J., Wynn A., Palacios R., “Aeroservoelastic Optimisation of an Aerofoil with Active Compliant Flap via Reparametrisation and Variable Selection” *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 9-13 January 2017 [doi:10.2514/6.2017-0572]
- [59] Ng B.F., New T.H., Palacios R., “Bio-inspired Leading-Edge Tubercles to Improve Fatigue Life in Horizontal Axis Wind Turbine Blades.” *35th Wind Energy Symposium*, 9-13 January 2017, Grapevine, Texas, USA [doi:10.2514/6.2017-1381]

- [60] Gonzalez A., Aparicio M., Munduate X., Palacios R., Graham J.M.R. "A Computationally-Efficient Panel Code for Unsteady Airfoil Modelling Including Dynamic Stall." *35th Wind Energy Symposium*, 9-13 January 2017, Grapevine, Texas, USA [[doi:10.2514/6.2017-2000](https://doi.org/10.2514/6.2017-2000)]
- [61] Broughton-Venner J.J., Wynn A., Palacios R., "Aeroservoelastic Optimisation of an Aerofoil with Active Compliant Flap via Reparametrisation and Variable Selection" *AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, 13-16 June 2016, Washington, DC, USA [[hdl:10044/1/41928](https://hdl.handle.net/10044/1/41928), [doi:10.2514/6.2016-3511](https://doi.org/10.2514/6.2016-3511)]
- [62] Buoso S., and Palacios R., "High-fidelity simulation and reduced-order modelling of integrally-actuated membrane wings with feedback control." *SPIE 9799, Active and Passive Smart Structures and Integrated Systems*, 20-24 March 2016, Las Vegas, Nevada, USA [[doi:10.1117/12.2218348](https://doi.org/10.1117/12.2218348)]
- [63] Maraniello S., Simpson R.J.S., Palacios R., "Optimal Manoeuvres with Very Flexible Wings." *57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-8 January 2016, San Diego, California, USA [[hdl:10044/1/28847](https://hdl.handle.net/10044/1/28847); [doi:10.2514/6.2016-1223](https://doi.org/10.2514/6.2016-1223)]
- [64] Buoso S., and Palacios R., "Feedback Control of Integrally Actuated Membrane Wings: A Computational Study." *57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-8 January 2016, San Diego, California, USA [[hdl:10044/1/28846](https://hdl.handle.net/10044/1/28846); [doi:10.2514/6.2016-0714](https://doi.org/10.2514/6.2016-0714)]
- [65] Wang Y., Wynn A., Palacios R., "Model-Predictive Control of Flexible Aircraft using Nonlinear Reduced-Order Models." *57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-8 January 2016, San Diego, California, USA [[hdl:10044/1/28845](https://hdl.handle.net/10044/1/28845); [doi:10.2514/6.2016-0711](https://doi.org/10.2514/6.2016-0711)]
- [66] Sanchez R., Palacios R., Economon T.D., Kline H.L, Alonso J.J., Palacios F., "Towards a Fluid-Structure Interaction solver for Problems with Large Deformations within the Open-Source SU2 Suite." *57th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-8 January 2016, San Diego, California, USA [[hdl:10044/1/28633](https://hdl.handle.net/10044/1/28633); [doi:10.2514/6.2016-0205](https://doi.org/10.2514/6.2016-0205)]
- [67] Tantaroudas N.D., Da Ronch A., Badcock K.J., Wang Y., Palacios R., "Model Order Reduction for Control Design of Flexible Free-Flying Aircraft." *AIAA Atmospheric Flight Mechanics Conference*, 5-9 January 2015, Kissimmee, Florida, USA [[doi:10.2514/6.2015-0240](https://doi.org/10.2514/6.2015-0240)]
- [68] Simpson R.J.S., Palacios R., "Integrated Flight Dynamics and Aeroelasticity of Flexible Aircraft with Application to Swept Flying Wings." *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 5-9 January 2015, Kissimmee, Florida, USA [[doi:10.2514/6.2015-0183](https://doi.org/10.2514/6.2015-0183), [hdl:10044/1/26717](https://hdl.handle.net/10044/1/26717)]
- [69] Wang Y., Wynn A., Palacios R., "Nonlinear Aeroservoelastic Analysis of Flexible Aircraft Described by Large Finite-Element Models." *56th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 5-9 January 2015, Kissimmee, Florida, USA [[doi:10.2514/6.2015-0179](https://doi.org/10.2514/6.2015-0179), [hdl:10044/1/25432](https://hdl.handle.net/10044/1/25432)]
- [70] Buoso S., and Palacios R., "Electro-aeromechanical modelling and feedback control of actuated membrane wings." *23rd AIAA/AHS Adaptive Structures Conference*, 5-9 January 2015, Kissimmee, Florida, USA [[doi:10.2514/6.2015-0267](https://doi.org/10.2514/6.2015-0267), [hdl:10044/1/23720](https://hdl.handle.net/10044/1/23720)]
- [71] Tantaroudas N.D., Da Ronch A., Gai G., Badcock K.J., Palacios R., "An Adaptive Aeroelastic Control Approach by using Nonlinear Reduced Order Models." *AIAA Aviation and Aeronautics Forum and Exposition*, 16-20 June 2014, Atlanta, Georgia, USA [[doi:10.2514/6.2014-2590](https://doi.org/10.2514/6.2014-2590)]
- [72] Van Parys B.P.G., Ng B.F, Goulart P.J., Palacios R., "Optimal control for load alleviation in wind turbines." *32nd ASME Wind Energy Symposium*, 13-17 Jan 2014, National Harbor, Maryland, USA [[doi:10.2514/6.2014-1222](https://doi.org/10.2514/6.2014-1222)]
- [73] Ng B.F, Hesse H., Palacios R., Graham J.M.R., Kerrigan E.C., "Model-based Aeroservoelastic Design and Load Alleviation of Large Wind Turbine Blades." *32nd ASME Wind Energy Symposium*, 13-17 Jan 2014, National Harbor, Maryland, USA [[doi:10.2514/6.2014-0521](https://doi.org/10.2514/6.2014-0521), [hdl:10044/1/12916](https://hdl.handle.net/10044/1/12916)]

- [74] Da Ronch A., McCracken A. J., Tantaroudas N. D., Badcock K. J., Hesse H., Palacios R., "Assessing the Impact of Aerodynamic Modelling on Manoeuvring Aircraft." *AIAA Atmospheric Flight Mechanics Conference*, 13-17 Jan 2014, National Harbor, Maryland, USA [[doi:10.2514/6.2014-0732](https://doi.org/10.2514/6.2014-0732)]
- [75] Simpson R.J.S., Palacios R., Hesse H., Goulart P.J., "Predictive Control for Alleviation of Gust Loads on Very Flexible Aircraft." *55th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 13-17 Jan 2014, National Harbor, Maryland, USA [[doi:10.2514/6.2014-0843](https://doi.org/10.2514/6.2014-0843), [hdl:10044/1/12917](https://hdl.handle.net/10044/1/12917)]
- [76] Wang Y., Wynn A., Palacios R., "Nonlinear Model Reduction and Aeroelastic Control of Flexible Aircraft Described by Large Finite-Element Models." *55th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 13-17 Jan 2014, National Harbor, Maryland, USA [[doi:10.2514/6.2014-0842](https://doi.org/10.2514/6.2014-0842)]
- [77] Hesse H., Palacios R., "Model Reduction in Flexible-Aircraft Dynamics with Large Rigid-Body Motion." *54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 8-11 April 2013, Boston, Massachusetts, USA [[doi:10.2514/6.2013-1895](https://doi.org/10.2514/6.2013-1895), [hdl:10044/1/11078](https://hdl.handle.net/10044/1/11078)]
- [78] Simpson R.J.S., Palacios R., "Numerical Aspects of Nonlinear Flexible Aircraft Flight Dynamics Modeling." *54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 8-11 April 2013, Boston, Massachusetts, USA [[doi:10.2514/6.2013-1634](https://doi.org/10.2514/6.2013-1634), [hdl:10044/1/11077](https://hdl.handle.net/10044/1/11077)]
- [79] Wang Y., Wynn A., Palacios R., "Robust Aeroelastic Control of Very Flexible Wings using Intrinsic Models." *54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 8-11 April 2013, Boston, Massachusetts, USA [[doi:10.2514/6.2013-1485](https://doi.org/10.2514/6.2013-1485), [hdl:10044/1/11076](https://hdl.handle.net/10044/1/11076)]
- [80] Fogell N., Sherwin S.J., Cotter C.J., Iannucci L., Palacios R., Pope D., "Fluid-Structure Interaction Simulation of the Inflated Shape of Ram-Air Parachutes." *22nd AIAA Aerodynamic Decelerator Systems Technology Conf.*, 25-28 March 2013, Daytona Beach, Florida, USA [[Best Student Paper Award](#)] [[doi:10.2514/6.2013-1326](https://doi.org/10.2514/6.2013-1326)]
- [81] Gonzalez A., Munduate X., Palacios R., Graham J.M.R., "Aeroelastic Tools for 2D Airfoils with Variable Geometry for Wind Turbine Applications." *European Wind Energy Association Annual Event*, 4-7 Feb 2013, Vienna, Austria
- [82] Da Ronch A., Badcock K.J., Wang Y., Wynn A., Palacios R., "Nonlinear Model Reduction for Flexible Aircraft Control Design." *AIAA Atmospheric Flight Mechanics Conference*, 13-16 August 2012, Minneapolis, Minnesota, USA, AIAA Paper No 2012-4404 [cf4aircraft.com/pub_files/AIAA-2012-4404.pdf]
- [83] Dizy J., Palacios R., Pinho S.T., "Homogenization of slender periodic composite structures." *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 23-26 April 2012, Honolulu, Hawaii, USA [[Lockheed Martin Best Student Paper Award](#)], [[hdl:10044/1/9610](https://hdl.handle.net/10044/1/9610)]
- [84] Palacios R., Wang Y., Karpel M., "Intrinsic models for very flexible-aircraft dynamics using industrial finite-element and loads packages." *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 23-26 April 2012, Honolulu, Hawaii, USA [[hdl:10044/1/9569](https://hdl.handle.net/10044/1/9569)]
- [85] Hesse H., Murua J., Palacios R., "Consistent Linearization in flexible aircraft dynamics with large rigid-body motion." *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 23-26 April 2012, Honolulu, Hawaii, USA [[hdl:10044/1/9568](https://hdl.handle.net/10044/1/9568)]
- [86] Murua J., Palacios R., Graham J.M.R., "Open-Loop Stability and Closed-Loop Gust Alleviation on Flexible Aircraft Including Wake Modeling." *53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 23-26 April 2012, Honolulu, Hawaii, USA [[hdl:10044/1/9571](https://hdl.handle.net/10044/1/9571)]
- [87] Ng B.F., Palacios R., Graham J.M.R., Kerrigan E.C., "Robust control synthesis for gust load alleviation from large aeroelastic models with relaxation of spatial discretization." *European Wind Energy Association Annual Event*, 16-19 April 2012, Copenhagen, Denmark
- [88] Palacios R., Epureanu B.I., "An Intrinsic Description of the Nonlinear Aeroelasticity of Very Flexible Wings." *52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-7 April 2011, Denver, Colorado, USA [[hdl:10044/1/6823](https://hdl.handle.net/10044/1/6823)]

- [89] Murua J., Hesse H., Palacios R., Graham J.M.R., "Stability and Open-Loop Dynamics of Very Flexible Aircraft Including Free-Wake Effects." *52nd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 4-7 April 2011, Denver, Colorado, USA [[hdl:10044/1/6824](https://doi.org/10.2514/6.2011-1882)]
- [90] Arbos-Torrent S., Pang Z.Y., Ganapathisubramani B., Palacios R., "Leading and trailing edge effects on the aerodynamic performance of compliant aerofoils." *49th AIAA Aerospace Sciences Meeting*, 4-7 Jan 2011, Orlando, Florida, USA [[hdl:10044/1/6833](https://doi.org/10.2514/6.2011-1882)]
- [91] Murua J., Palacios R., Graham J.M.R., "Modeling of Nonlinear Flexible Aircraft Dynamics Including Free-Wake Effects." *AIAA Atmospheric Flight Mechanics Conference*, 2-5 August 2010, Toronto, Canada
- [92] Glaz B., Palacios R., Friedmann P. P., "Improvement of a Comprehensive Rotorcraft Analysis Code by Incorporating VABS and Application to Minimum Vibration Composite Blade Design." *65th American Helicopter Society Annual Forum & Technology Display*, 27-29 May 2009, Grapevine, Texas, USA
- [93] Palacios R., Cesnik C.E.S., "Structural Models for Flight Dynamic Analysis of Very Flexible Aircraft." *50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 4-7 May 2009, Palm Springs, California, USA [[hdl:10044/1/1457](https://doi.org/10.2514/6.2009-1882)]
- [94] Thepvongs S., Cesnik C.E.S., Palacios R., Peters D.A. "Finite-State Aeroelastic Modeling of Rotating Wings with Deformable Airfoils." *64th American Helicopter Society Annual Forum and Technology Display*, 29 April - 1 May 2008, Montreal, Canada
- [95] Palacios R., Cesnik C.E.S., "Low-Speed Aeroelastic Modeling of Very Flexible Slender Wings with Deformable Airfoils." *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 7-10 April 2008, Schaumburg, Illinois, USA [[hdl:10044/1/1174](https://doi.org/10.2514/6.2008-1882)]
- [96] Chimakurthi S.K., Tang J., Palacios R., Cesnik C.E.S., Shyy W., "Development of a computational framework for the aeroelastic analysis of flapping wings." *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 7-10 April 2008, Schaumburg, Illinois, USA [[hdl:10044/1/1355](https://doi.org/10.2514/6.2008-1882)]
- [97] Tang J., Chimakurthi S., Palacios R., Cesnik C.E.S., and Shyy W., "Computational Fluid-Structure Interaction of a Deformable Flapping Wing for Micro Air Vehicle Applications." *46th AIAA Aerospace Sciences Meeting and Exhibit*, 7-10 January 2008, Reno, Nevada, USA [[invited paper](#)]
- [98] Palacios R., Cesnik C.E.S., "A Ritz Approximation to the Deformation of Anisotropic Slender Structures with Finite-Size Cross Sections." *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, 23-26 April 2007, Waikiki, Hawaii, USA [[hdl:10044/1/1356](https://doi.org/10.2514/6.2007-1882)]
- [99] Palacios R., Cesnik C.E.S., "On the application of asymptotic reduction methods of slender structures to fluid-structure interaction problems." In Bathe K.J. (Ed.), *Third M.I.T. Conference in Computational Fluid and Solid Mechanics*, Cambridge, Massachusetts, USA, June 2005, pp. 612-616
- [100] Palacios R., Cesnik C.E.S., "Static Nonlinear Aeroelasticity of Flexible Slender Wings in Compressible Flow." *46th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 18-21 April 2005, Austin, Texas, USA [[hdl:10044/1/1337](https://doi.org/10.2514/6.2005-1882)]
- [101] Palacios R., Cesnik C.E.S., "Reduced Structural Modeling of Integrally-Strained Slender Wings." *45th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, 19-22 April 2004, Palm Springs, California, USA
- [102] Cesnik C.E.S., Palacios R., "Modeling Piezoelectric Actuators Embedded in Slender Structures." *11th AIAA/ASME/AHS Adaptive Structures Conference*, 7-10 April 2003, Norfolk, Virginia, USA
- [103] Cesnik C.E.S., Park R.S., Palacios R., "Effective Cross-Section Distribution of Anisotropic Piezocomposite Actuators for Wing Twist." In Baz A.M. (ed), *Smart Structures and Materials 2003: Smart Structures and Integrated Systems*, Vol. 5056, pp. 21-32, August 2003. [[doi:10.1117/12.484656](https://doi.org/10.1117/12.484656)]

Other conference publications

- [104] Venkatesan-Crome C., Sanchez R., Palacios R., "Aerodynamic Optimization using FSI Coupled Adjoints in SU2" (Keynote lecture), *6th European Conference in Computational Mechanics*, June 11–15, 2018, Glasgow, UK
- [105] Sanchez R., Palacios R., "Design of non-linear structures immersed in viscous flows using coupled adjoint methods based on fixed-point iterators." *EUROGEN 2017, International Conference on Evolutionary and Deterministic Methods for Design Optimization*, 13-15 September 2017, Madrid, Spain
- [106] Maraniello S., Palacios R., "State-space realizations and model reduction of 3-D unsteady aerodynamics with arbitrary kinematics." *18th International Forum of Aeroelasticity and Structural Dynamics*, 25-28 June 2017, Como, Italy
- [107] Sanchez R., Palacios R., "Computing derivatives in nonlinear aeroelasticity using algorithmic differentiation." *18th International Forum of Aeroelasticity and Structural Dynamics*, 25-28 June 2017, Como, Italy
- [108] Bao Y., Palacios R., Sherwin S.J., Graham J.M.R., "DNS modelling of the vortex-induced vibrations of long flexible tensioned risers at high Reynolds numbers." *11th International Conference on Flow-Induced Vibration*, 4-6 July 2016, The Hague, The Netherlands
- [109] Sanchez R., Kline H.L., Thomas D., Variyar A., Righi M., Economon T.D., Alonso J.J., Palacios R., Terrapon V., Dimitriadis G., "Assessment of the fluid-structure interaction capabilities for aeronautical applications of the open-source solver SU2." *VII European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2016)*, 5-10 June 2016, Crete, Greece [[hdl:10044/1/48526](https://hdl.handle.net/10044/1/48526)]
- [110] Hesse H., Palacios R., "Dynamic load alleviation of flexible aircraft in wake vortex encounters." *17th International Forum of Aeroelasticity and Structural Dynamics*, 29 June – 2 July 2015, St Petersburg, Russia [[hdl:10044/1/24538](https://hdl.handle.net/10044/1/24538)]
- [111] Buoso S., Palacios R., "Reduced-order modelling and feedback control of integrally actuated membrane wings." *17th International Forum of Aeroelasticity and Structural Dynamics*, 29 June – 2 July 2015, St Petersburg, Russia [[hdl:10044/1/24537](https://hdl.handle.net/10044/1/24537)]
- [112] Maraniello S., Palacios R., "Co-design of very flexible actuated structures." *17th International Forum of Aeroelasticity and Structural Dynamics*, 29 June – 2 July 2015, St Petersburg, Russia [[hdl:10044/1/24536](https://hdl.handle.net/10044/1/24536)]
- [113] Bao Y., Sherwin S.J., Palacios R., Graham, J.M.R., "DNS modelling for VIV of long flexible cable using Fourier/HP method." *ERCOTAC Direct and Large-Eddy Simulation 10*, 27-29 May 2015, Limassol, Cyprus
- [114] Buoso S., Palacios R., "A Nonlinear Viscoelastic Model for Electroactive Inflated Membranes." *11th World Congress on Computational Mechanics*, 10-15 July 2015, Barcelona, Spain
- [115] Ng B. F., Hesse H., Palacios R., Kerrigan E.C., Graham J.M.R., "Efficient Aeroservoelastic Modeling for the Control of Trailing-Edge Flaps on Wind Turbines." *10th UKACC International Conference on Control*, 9-11 July 2014, Loughborough, UK [[doi:10.1109/CONTROL.2014.6915106](https://doi.org/10.1109/CONTROL.2014.6915106)]
- [116] Ng B.F., Palacios R., Graham J.M.R., Kerrigan E.C., "Aeroservoelastic Modelling and Active Control of Very Large Wind Turbine Blades for Gust Load Alleviation." *9th EAWC Research Seminar in Wind Energy in Europe*, 18-20 September 2013, Visby, Gotland, Sweden [[hdl:10044/1/12867](https://hdl.handle.net/10044/1/12867)]
- [117] Dizey J., Palacios R., Pinho S. "Shear Effects in the Homogenisation of Slender Composite Beams." *5th European Conference for Aerospace Sciences (EUCASS)*, 1-4 July 2013, Munich, Germany [[Astrium award to the best student paper](#)]
- [118] Murua J., Martinez P., Climent H., Palacios R., van Zyl L.H., "T-tail Flutter: Potential-Flow Modelling and Experimental Validation." *16th International Forum of Aeroelasticity and Structural Dynamics*, 24-27 June 2013, Bristol, UK [[hdl:10044/1/18229](https://hdl.handle.net/10044/1/18229)]
- [119] Hesse H., Palacios R., "Reduced-Order Aeroelastic Models for the Dynamics of Manoeuvring Flexible Aircraft." *16th International Forum of Aeroelasticity and Structural Dynamics*, 24-27 June 2013, Bristol, UK
- [120] Palacios R., Wang Y., Wynn A., Karpel M., "Condensation of Large Finite-Element Models for Wing Load Analysis with Geometrically-Nonlinear Effects." *16th International Forum of Aeroelasticity and Structural Dynamics*, 24-27 June 2013, Bristol, UK

- [121] Ng B.F., Hesse H., Palacios R., Graham J.M.R., Kerrigan E.C., "Aeroservoelastic Modelling and Robust Load Alleviation of Very Large Flexible Wind Turbine Blades." *American Wind Energy Conference WINDPOWER 2013 Conference & Exhibition*, 5-8th May 2013, Chicago, Illinois, USA
- [122] Ng B.F., Palacios R., Graham J.M.R., Kerrigan E.C., "Robust Control Synthesis for Gust Load Alleviation of Large Aeroelastic Wind Turbine Models." *8th EAWE Research Seminar in Wind Energy in Europe*, 12-14 September 2012, ETH Zurich, Switzerland
- [123] Gonzalez A., Munduate X., Palacios R., Graham J.M.R., "Aeroelastic Panel Code for Airfoils with Variable Geometry." *8th EWEA Research Seminar on Wind Energy in Europe*, 12-14 September 2012, Zurich, Switzerland
- [124] Palacios R., Hesse H., "Assessment of the mean axes approximation in flexible aircraft dynamics." *10th World Congress in Computational Mechanics*, 8-13 July 2012, Sao Paulo, Brazil
- [125] Murua J., Palacios R., Graham J.M.R., "A discrete-time state-space model with wake interference for stability analysis of flexible aircraft." *15th International Forum of Aeroelasticity and Structural Dynamics*, 26-30 June 2011, Paris, France
- [126] Cook R., Palacios R., Goulart P., Roberts I., "Robust Manoeuvring and Gust Alleviation of Very Flexible Aircraft using Novel Control Effectors." *15th International Forum of Aeroelasticity and Structural Dynamics*, 26-30 June 2011, Paris, France
- [127] Hesse H., Palacios R., "Consistent structural linearisation in flexible-body dynamics with large rigid-body motion." *15th International Forum of Aeroelasticity and Structural Dynamics*, 26-30 June 2011, Paris, France
- [128] Cook R., Palacios R., Roberts I., "Manoeuvre Efficiency of Unconventional Control Effectors on Very Flexible Aircraft." *2010 RAeS Aerodynamics Conference*, 27-28 July 2010, Bristol, UK
- [129] Murua J., Palacios R., Peiro, J., "Camber Effects in the Dynamic Aeroelasticity of Compliant Airfoils." *14th International Forum on Aeroelasticity and Structural Dynamics*, 21-25 June 2009, Seattle, Washington, USA
- [130] Cesnik C.E.S., Thepvongs S., Palacios R., "Low-Speed Aeroelasticity of Rotor Blades and Slender Wings with Adaptive Airfoils." *8th World Congress on Computational Mechanics*, 30 June - 5 July 2008, Venice, Italy
- [131] Palacios R., Cesnik C.E.S., Reichenbach E.Y., "Re-examined Structural Design Procedures for Very Flexible Aircraft." *13th International Forum on Aeroelasticity and Structural Dynamics*, 18-20 June 2007, Stockholm, Sweden [[hdl:10044/1/1175](https://hdl.handle.net/10044/1/1175)]
- [132] Palacios R., Chimakurthi S.K., Cesnik C.E.S., "Local deformation effects in transonic aeroelasticity of very flexible slender wings." *ECCOMAS Coupled Problems 2007: Computational Methods for Coupled Problems in Science and Engineering*, 21-23 May 2007, Ibiza, Spain
- [133] Palacios R., Cesnik C.E.S., "Cross-sectional analysis of piezoelectric composite slender structures." *15th International Conference of Adaptive Structures and Technologies*, 25-27 Oct 2004, Bar Harbor, Maine, USA
- [134] Palacios R., Cesnik C.E.S., "Structural dynamics of integrally-strained slender wings." *11th International Forum of Aeroelasticity and Structural Dynamics*, 4-6 June 2003, Amsterdam, The Netherlands
- [135] Palacios R., Climent H., Karlsson A., Winzell B., "Assessment of strategies for correcting linear unsteady aerodynamics using CFD or experimental results." *10th International Forum of Aeroelasticity and Structural Dynamics*, 5-7 June 2001, Madrid, Spain [[hdl:10044/1/1359](https://hdl.handle.net/10044/1/1359)]

Book reviews

- [136] Palacios, R "Book review of Introduction to Nonlinear Aeroelasticity, by Dimitriadis, G. John Wesley and Sons, 2017" *The Aeronautical Journal*, Vol. 122, No. 1258, pp. 2029-2068, Dec 2018 [[doi:10.1017/aer.2018.127](https://doi.org/10.1017/aer.2018.127)]

OTHER CONTRIBUTIONS

Invited talks and seminars (selected):

- 21.02.2018 “Apparent Wing Stiffness using Load Control: Aeroservoelastic methods for very flexible aircraft design”, Dynamics Research Group, University of Sheffield, UK
- 29.09.2017 “High-Fidelity Design Optimisation and Control of Very Flexible Aerostructures,” School of Engineering and Materials Science, Queen Mary University London, UK
- 19.09.2017 Invited speaker at the International Workshop on Robust Modelling, Design and Analysis, University of Bristol, UK
- 14.09.2017 Invited speaker at the workshop “Reshaping the academic environment for future aerospace engineers”, at Universidad Politecnica, Madrid, Spain
- 16.01.2017 “Integrally-actuated membrane wings: Modelling, control and optimization”, Department of Mechanical Engineering, Imperial College London, UK
- 31.05.2016 “Nonlinear aeroservoelasticity of very flexible vehicles,” Institute of Aeroelasticity, DLR, Göttingen, Germany
- 25.09.2015 “Apparent stiffness in very lightweight vehicles via aeroelastic control,” Department of Aeronautics & Astronautics, Stanford University, USA
- 20.04.2015 “Flexible aircraft dynamics and control”. Institute of System Dynamics and Control, DLR, Oberpfaffenhofen-Wessling, Germany
- 14.04.2015 “Apparent Stiffness via Active Aeroelastic Control – Enabling flight in power-constrained vehicles”, Department of Mechanical Engineering, University of Bath, UK
- 13.04.2015 “Upscaling Computational Methods for Dynamics and Control of Very Flexible Aircraft”, Department of Aerospace Engineering, Politecnico di Milano, Italy
- 06.09.2014 “Aerodynamic Load Control in Lightweight Air Vehicles and Wind Turbines”, Automatic Control Laboratory, ETH Zurich, Switzerland
- 30.06.2014 Invited speaker in workshop on “Control Theory Applied in Renewable Energy”, University of Warwick, UK
- 30.04.2014 “Load Control in Highly-Deforming Aeroelastic Systems”, Department of Mechanical Engineering, Imperial College, London, UK
- 25.07.2013 Invited speaker at AFOSR Flow Interactions and Control Program Review, Arlington, Virginia, USA
- 19.06.2013 “Apparent Stiffness via Load Control: A Hamiltonian Approach”, Imperial College, London, UK
- 26.06.2012 “Enabling Very Efficient Air Vehicle Concepts through Aeroelasticity”, TU Delft, The Netherlands
- 06.03.2012 “Dynamics and Control of Flexible Air Vehicles”, Stirling Dynamics, Bristol, UK
- 18.05.2011 “Ever larger and lighter planes?”, University of Southampton
- 24.01.2011 “Ever larger and lighter planes?”, Technion - Israel Institute of Technology
- 29.09.2010 “Aeroelasticity of solar-powered airplanes”, University of Sheffield
- 13.09.2010 Invited speaker in “Nonlinear Aeroelastic Simulation for Certification”, U. Liverpool
- 25.11.2009 Invited speaker in “Recent Developments & Advances in Aeroelasticity”, RAeS, London
- 05.11.2008 “Aeroelasticity of Very Flexible Aircraft”, University of Liverpool
- 01.10.2008 “Aeroelasticity of Very Flexible Aircraft”, Airbus UK, Filton

M.Eng. theses supervision:

2016	Omar Fahmy	Characterization and Robust Control of Aeroelastic Instabilities
	Daim Kham	Gust-response of Solar-Powered Aircraft
	Robin Spinks	Aeroelastic Characterization of Solar-Powered Aircraft

	Carmen Lopez	Interpolation of Parametric ROM of Aeroelastic Problems
2015	Mikkel Kranker	Bio-Inspired Actuated Wing for Micro-Air-Vehicles Applications
	Kelvin Lee	Shape control on highly flexible wind turbine blades
	Ignacio Doval	Analysis of the Performance of Time-Domain Unsteady Aerodynamic Models
2014	Charanya Ravi	Virtual Flutter Test Using Flight Simulation
	Aron Jóhannesson	Aeroelastic Characterization of Solar-Powered Aircraft
2013	Jieru Chia	Energy Harvesting by a Flexible Flapping Aerofoil
	Nicholas Sinthunont	Load Alleviation Methods for Off-Shore Wind Turbines
2012	Bhavash Vaghela	Aeroelastic Optimization of Flapping Wing Kinematics in Forward Flight
	Xiao Ang	Gust Alleviation Mechanisms on Large Wind Turbines
2011	Sam Dennis	Response of a Flexible UAV to Atmospheric Turbulence
	Dan Fowler	Robust Control of Aeroelastic Instabilities on a Tailored Composite Wing
	Kristian Roberts	Demonstration of Aeroelastic Instabilities in Very Thin Wings
	Jairaj Kanadia	Active Vibration and Control of a Smart Structure
2010	Nicholas Thornton	Gradient-Based Optimization of Flapping Wing Kinematics in Forward Flight
	Elizabeth McAuliffe	FSI Algorithms for the Aeroelastic Analysis of Very Flexible Aircraft
	Javed Miah	Reduced-Order Models in the Nonlinear Dynamics of Wind Turbine Blades
	Abiel Neo	Wind-Tunnel Demonstration of Aeroelastic Instabilities on Composite Wings
2009	Robert Poon	Experimental Investigation on the Ditching Characteristics of High-wing Airplanes
	Julian Dizi	Methodologies for Time-Domain Unsteady Aerodynamics on Aerofoils
	Yu Lim	Modelling Guidelines for Composite Fuselage Windows in Full-Aircraft Models
	Marc Bolinches	Design of an Experiment for Dynamic Stall Study
2008	Marwan Bin Ma'son	Experimental Investigation on the Emergency Ditching of High-wing Airplanes
	Anshul Patel	Piezoactuators in Smart Rotor Blades for Improved Aeroelastic Performance

M.Sc. theses supervision:

2017	Christian Chazo Paz	Dynamic response of high-aspect-ratio wings to atmospheric turbulence
	Joel Ho Mun Onn	Spatial Interpolation in Fluid-Structure Interaction with Radial-Basis Functions
	Giacomo Sammons	Aerodynamic Shape Optimisation using Algorithmic Differentiation
	Charlie Muir	Bio-inspired Actuated Wing for Micro-Air-Vehicle Applications
2016	Douglas Tan	Non-Stationary Lift Response of a Flapping 2-D Membrane Wings
	Cedric Mahe	Interpolation Method for Reduced-Order Dynamic Model
	Xabier Romero	Aeroelastic Characterization of a Wing Using High-Fidelity FSI Modelling
	Julien Ravet-Bailey	Continuous Turbulence Response of Thin Wings
2014	Sapna Patel	Characterization of aeroelastic instabilities
	Zhao Wang	Demonstration of Wing Flutter Suppression in Virtual Flight Simulator
2013	Mazen Abou Gamrah	Nonlinear Dynamics of Fluttering Panels
	Mary-Caroline Carlin	Uncertainty Quantification in Composite Wing Flutter
	Emmanuel Sablone	Optimization of an Aeroelastic Energy Harvesting Device
2012	Ferhat Oezdogan	Partitioned Solver for the Aeroelastic Analysis of a Human-Powered Ornithopter
	Yandong Chu	Flutter of Composite Wings

2011	Faisal Chowdury Yanis Kerdjana Jayant Yerrapragada	Flight Simulation of Flexible Aircraft Using a Partitioned Aeroelastic Solver Aeroelastic Optimisation of Flapping Wings Kinematics in Forward Flight Spoilerons for Aircraft Control
2010	Tobias Plaumann Ricci Kurniawan Yinan Wang	A Partitioned Solver for Aeroelastic Analysis of Flapping Flight Robust Flutter Analysis Spoilerons for Aircraft Control
2009	Ziyu Huang Fan Jiang Srisai Sivakumar	Optimal Piezoactuation for Vibrations Reduction on Composite Beams Coupled Electro-Mechanical Effects in Smart Wings Load Alleviation of a 3-DoF Aerofoil System
2008	Alex Paternoster Joseba Murua	Identification of Macro-Fibre Composite Characteristics for Smart Wing Design Camber Effects in the Dynamic Aeroelastic Analysis of a Typical Aerofoil Section