Rafael Palacios

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Research Interests

Computational methods in fluid-structure interaction, multidisciplinary design optimization, aeroelastic control of flexible air vehicles and wind turbines.

Employment History

02/23 – now	Director of the Brahmal Vasudevan Institute for Sustainable Aviation
08/18 – now	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 - Universidad Politécnica, Madrid**
Major: Aircraft design, *Average grade:* 92.2/100. Ranked #1.

Awards

2019	Associate Fellow, American Institute of Aeronautics and Astronautics
2018	Fellow, Royal Aeronautical Society
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 Aeronautical Society "Francisco Arranz" Graduation Award to the best student

Research Grants

2023-2027 HORIZON-MSCA-2021-DN-01, Project 101073558, *Modelling and control of flexible structures interacting with fluids* (8 partners coordinated by Wuppertal University)

2022-2025	Aerospace Technology Institute, *Next Wing* (9 partners coordinated by Airbus)
2022-2025	EPSRC ICASE Award (Airbus Operations Ltd.), *Numerical investigation of a variable sweep morphing wingtip*
2021-2024	EPSRC ICASE Award (Airbus Operations Ltd.), *Integration of nonlinear aeroelastics effects in the industrial loads and aeroelastic process*
2020-2023	*Imperial/COMAC Centre for Commercial Aircraft Wing Technologies* (PI of two subprojects)
2020-2023	EC H2020 Project 883670 *Robust- and sustainable-by-design ultra-high aspect ratio wing and airframe (RHEA)* (5 partners coordinated by TU Braunschweig)
2019-2021	EC H2020 Project 828799, *High-Performance Computing for Wind Energy (HPCWE)* (8 partners coordinated by Nottingham University)
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* (15 partners coordinated by Tel Aviv University)
2016-2019	Airbus Defence & Space, *Methods for aeroelastic analysis of solar-powered aircraft*
2016-2019	EPSRC, Grant EP/P51052X/1. *Assessment of geometrically nonlinear effects on aircraft loads* (ICASE Award with Airbus Group Innovations)
2015-2018	EPSRC Grant EP/N006224/1, *Maximizing Wind Farm Aerodynamic Resource via Advanced Modelling (MAXFARM)* (coordinated by Surrey)
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* (PI: Prof. Spencer Sherwin)
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 (Host to Prof. Moti Karpel, Technion)
2008-2011	EPSRC ICASE Award (QinetiQ), *Optimal Control Surfaces for Highly Flexible Aircraft*

ACADEMIC EXPERIENCE (Imperial College)

Administration:

2022-now	Interim Director, Brahmal Vasudevan Institute of Sustainable Aviation
2019-now	Director of Research, Aeronautics
2019-2021	Research Excellence Framework (REF2021) lead, Aeronautics
2018-2019	Deputy Director of Research, Aeronautics
2017-2022	Imperial College Energy Futures Lab, Theme Leader for Offshore Renewables
2014-2016	Member, College's Surveys Working Group

2012-2016 Director of Undergraduate Studies, Aeronautics

2010-2012 Final-year academic monitor and individual project coordinator, Aeronautics

2009-2019 Member, Department Teaching Committee, Aeronautics

Taught modules:

	Year	*Hours*	*Class size*	*Academic Years*
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-
Advanced Mechanics of Flight**	3/4	13	50-60	2013-2020
Structural Dynamics	4	14	85-120	2007-2021
Green Aviation Technologies	M.Sc.	6	50-60	2014-
Aeroelasticity/Aeroservoelasticity	M.Sc.	12	25-45	2007-

**these modules alternated in odd/even years between 2013-2020

Ph.D. supervision (main supervisor, unless otherwise stated*):

2021- Kelvin Cheng Geometrically nonlinear effects on aircraft loads

2021- Christian Ippel* Scale-resolving simulations on atmosphere / wind farm interactions (with S. Laizet)

2020- Stefanie Düssler Gust load alleviation methods for commercial transport aircraft

2019- Myriam Uhrham* Dragonfly sensory system characterization through FSI analysis (with Huai-Ti Lin)

2018-22 Norberto Goizueta Parametric Reduced-Order Aeroelastic Modelling for Analysis, Dynamic System Interpolation and Control of Flexible Aircraft (with Andy Wynn)

2018-21 Arturo Munoz Vortex-lattice-based nonlinear aeroservoelastic modelling and analysis of large floating wind turbines [hdl:10044/1/96986] (→ LM Wind Power)

2018-21 Marc Artola* Minimal nonlinear modal aeroelastic descriptions for highly flexible aircraft control [hdl:10044/1/93366] (→ Mercedes F1)

2018-21 Pedro Gomes A high performance open-source framework for multiphysics simulation and adjoint based shape and topology optimization [hdl:10044/1/95887] (→Luminary Cloud)

2016-21 Charanya Venkatesan-Crome A coupled discrete adjoint method for optimal design with dynamic non-linear fluid structure interactions [hdl:10044/1/91983] (→Mercedes F1)

2016-21 Alvaro Cea A Geometrically Nonlinear Approach for the Aeroelastic Analysis of Commercial Transport Aircraft [hdl:10044/1/89976] (→Imperial College)

2016-20 Alfonso del Carre Aeroelasticity of very flexible aircraft at low altitudes [hdl:10044/1/88269] (→Skydweller Aero)

2010-18 Alvaro Gonzalez Aeroelasticity of deformable wing turbine aerofoils in stalled conditions [hdl:10044/1/61470] (→CENER, National Renewable Energy Centre, Spain)

2014-17 Ruben Sanchez A Coupled Adjoint Method for Optimal Design in Fluid-Structure Interaction

		Problems with Large Displacements [hdl:10044/1/58882](→TU Kaiserslautern)
2013-17	Sal Maraniello	Optimal manoeuvres and co-design with very flexible wings [hdl:10044/1/49244] (→freelance data scientist)
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]
2011-15	Yinan Wang	Aeroelastic modelling and control of very flexible air vehicles using a nonlinear modal formulation [hdl:10044/1/25578] (→University of Warwick)
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] (with Silvestre Pinho →Computational Modelling Cambridge Ltd, UK)
2009-13	Sara Arbos*	Aeromechanical performance of compliant aerofoils [hdl:10044/1/28105] (with Barathram Ganapathisubramani →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](with Paul Goulart →University of Bristol, UK)
2008-12	Joseba Murua	Flexible aircraft dynamics with a geometrically-nonlinear description of the unsteady aerodynamics [hdl:10044/1/9756] (with Mike Graham →After graduation he became lecturer at University of Surrey, UK)

Postdoctoral assistants (as line manager):

2021-	Alvaro Cea (24+ months)
2020-22	Nikolaos Simiriotis (24 months)
2018-19	Yorgos Deskos (14 months)
2017-19	Salvatore Maraniello (24 months)
2017	Ruben Sanchez (3 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
ISAE-SUPAERO Toulouse (Romain, 2023)
Universidade da Coruña (Rodriguez-Segade, 2023)
INSA Lyon (Fournier, 2023)
TU Munich (Wang, 2021)
University of Liege (Thomas, 2021)
University of Cambridge (Pons, 2019)
University College London (Chen, 2019)
Sapienza Università di Roma (Riso, 2017)

Warwick University (Tong, 2017)
National University of Singapore (Lu, 2017)
University of Southampton (Kharlamov, 2020; Barbu, 2017)
Danish Technical University (Pavese, 2017)
University of Liverpool (Lambert, 2014)
ETH Zurich (Quack, 2014)
University of Bristol (Healy, 2023; Szczyglowski, 2019; Capuzzi, 2014)
Imperial College London (Hodgkin, 2023; Lian, 2022; Vizzaccaro, 2021; Imediegwu, 2020; Zufferey, 2019; Barbarossa, 2018; Al-Zubaidi, 2016; Hankin, 2014; Dimino 2012; Whiteside, 2012)

EXTERNAL SERVICE

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

Associate Editor:

2018-now	Progress in Aerospace Sciences
2016-now	Journal Aircraft
2016-2022	Journal of Fluids and Structures

Committees:

2025	Chair, AIAA Dynamic Specialists Conference, Orlando, Florida, USA, January
2022	Co-chair, AIAA Dynamic Specialists Conference, San Diego, California, USA, January
2021-now	AIAA Associate Fellows Selection Committee, Region VII
2018-now	Member of UK Fluids Network Numerical Optimization in Fluids Special Interest Group
2015-now	AIAA Structural Dynamics Technical Committee
2019	University of Southampton, Faculty of Engineering and Physical Sciences, External Advisor to Undergraduate Programme Review Committee (Aeronautics and Astronautics)
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"

Grant reviewer: EPSRC; RAEng; US Army Research Office; German Academic Exchange Service (DAAD); Spanish National Evaluation and Foresight Agency; Research Council of Norway; Natural Sciences and Engineering Research Council of Canada

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

2021 **Airbus Defence and Space, Farnborough, England**

Methods for aeroelastic derivatives on very flexible aircraft design.

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 Aerospace Series, Number 52, Cambridge University Press, Cambridge, UK, June 2023, [https://www.cambridge.org/9781108420600]

Journal Papers

[2] Düssler S., Palacios R., "Enhanced Unsteady Vortex Lattice Aerodynamics for Nonlinear Flexible Aircraft Dynamic Simulation." *AIAA Journal,* submitted

[3] Simiriotis N., Palacios R., "A Numerical Investigation on Direct and Data-Driven Flutter Prediction Methods." *Journal of Fluids and Structures*, Vol. 117, No. 103835 Feb 2023 [doi:10.1016/j.jfluidstructs.2023.103835]

[4] Cea A., Palacios R., "Geometrically Nonlinear Effects on the Aeroelastic Response of a Transport Aircraft Configuration." *Journal of Aircraft*, Vol. 60, No. 1, pp. 205-220, Jan 2023 [doi:10.2514/1.C036740; hdl:10044/1/97813]

[5] Lahooti M., Bao Y., Scott D., Palacios R., Sherwin S. J., "LES/DNS Fluid-Structure Interaction Simulation of Non-linear Slender Structures in Nektar++ Framework", *Computer Physics Communications*, Vol. 282, No. 108528, Jan 2023 [doi:10.1016/j.cpc.2022.108528]

[6] Goizueta N., Wynn A, Palacios R., "Adaptive Sampling for Interpolation of Reduced-Order Aeroelastic Systems." *AIAA Journal*, Vol. 60, No. 11, pp. 6183-6202, Nov 2022 [doi:10.2514/1.J062050; hdl:10044/1/97960]

[7] Otsuka K., Wang Y., Palacios R., Makihara K., "Strain-Based Geometrically Nonlinear Beam Formulation for Rigid-Flexible Multibody Dynamic Analysis," *AIAA Journal*, Vol. 60, No. 8, pp. 4954-4968, August 2022 [doi:10.2514/1.J061516]

[8] Goizueta N., Wynn A, Palacios R., Drachinsky A., Raveh D., "Flutter Predictions for Very Flexible Wing Wind Tunnel Test." *Journal of Aircraft*, Vol. 59, No. 4, pp. 1082-1097, July 2022 [doi:10.2514/1.C036710; hdl:10044/1/94076]

[9] Artola M., Wynn A., Palacios R., "Modal-Based Nonlinear Model Predictive Control for 3D Very Flexible Structures." *IEEE Transactions in Automatic Control*, Vol. 67, No. 5, pp. 2145-2160, May 2022 [hdl:10044/1/89180; doi:10.1109/TAC.2021.3071326]

[10] Gomes, P., Palacios R., "Aerostructural Topology Optimization using High Fidelity Modeling." *Structural and Multidisciplinary Optimization*, Vol. 65, No. 137, April 2022 [doi:10.1007/s00158-022-03234-9, hdl:10044/1/96055]

[11] Otsuka K., Carre A., Palacios R., "Nonlinear Aeroelastic Analysis of High-Aspect-Ratio Wings with a Low-Order Propeller Model." *Journal of Aircraft*, Vol. 59, No. 2, pp. 293-306, March-April 2022 [doi:10.2514/1.C036285]

[12] Wang Y., Zhao X., Palacios R., Otsuka K., "Aeroelastic Simulation of High-Aspect Ratio Wings with Intermittent Leading-Edge Separation", *AIAA Journal*, Vol. 60, No. 3, pp. 1769-1782, March 2022 [doi:10.2514/1.J060909, hdl:10044/1/92921]

[13] Gomes P., Palacios R., "Pitfalls of Discrete Adjoint Fixed-Points based on Algorithmic Differentiation." *AIAA Journal*, Vol. 60, No. 2, pp. 1251-1256, February 2022 [doi:10.2514/1.J060735, hdl:10044/1/92923]

[14] Muñoz-Simón A., Palacios R., Wynn A., "Some modelling improvements for prediction of wind turbine rotor loads in turbulent wind." *Wind Energy,* Vol. 25, No. 2, pp. 333-353, February 2022 [doi:10.1002/we.2675, hdl:10044/1/90950] [data at hdl:10044/1/90965]

[15] Burghardt O., Gomes P., Kattmann T., Economon T. D., Gauger N. R., Palacios R., "Discrete adjoint methodology for general multiphysics problems." *Structural and Multidisciplinary Optimization*, Vol. 65, No. 28, Jan 2022 [doi:10.1007/s00158-021-03117-5]

[16] Artola M., Goizueta N., Wynn A., Palacios R., "Aeroelastic Control and Estimation with a Minimal Nonlinear Modal Description." *AIAA Journal*, Vol. 59, No. 7, pp. 2697-2713, July 2021 [doi:10.2514/1.J060018, hdl:10044/1/86809]

[17] Cea A., Palacios R., "A Non-Intrusive Geometrically Nonlinear Augmentation to Generic Linear Aeroelastic Models." *Journal of Fluids and Structures*, Vol. 101, pp. 103222, February 2021, [hdl:10044/1/86554; doi:10.1016/j.jfluidstructs.2021.103222]

[18] Artola M., Wynn A., Palacios R., "Generalized Kelvin-Voigt Damping Model for Geometrically-Nonlinear Beams." *AIAA Journal*, Vol. 59, No. 1, pp. 356-365, January 2021 [doi:10.2514/1.J059767; hdl:10044/1/86805]

[19] Carre A., Palacios R., "Simulation and optimization of takeoff maneuvers of very flexible aircraft." *Journal of Aircraft,* Vol. 57, No. 6, pp. 1097-1110, November 2020 [doi:10.2514/1.C035901; hdl:/10044/1/80101]

[20] Gomes P., Palacios R., "Aerodynamic-Driven Topology Optimization of Compliant Airfoils." *Structural and Multidisciplinary Optimization*, Vol. 62, pp. 2117–2130, October 2020 [doi:10.1007/s00158-020-02600-9; hdl:10044/1/78812]

[21] Deskos G. Carre A., Palacios R. "Assessment of Low-Altitude Atmospheric Tturbulence Models for Aircraft Aeroelasticity" *Journal of Fluids and Structures*, Vol. 95, Paper 102981, May 2020 [hdl:10044/1/78956; doi:10.1016/j.jfluidstructs.2020.102981]

[22] Maraniello S., Palacios R., "Parametric Reduced-Order Modelling of the Unsteady Vortex-Lattice Method." *AIAA Journal*, Vol. 58, No. 5, pp. 2206-2220, May 2020 [doi:10.2514/1.J058894; hdl:10044/1/75485]

[23] Deskos G., Laizet S., Palacios R., "WInc3D: A novel framework for turbulence-resolving simulations of wind farm wake interactions." *Wind Energy*, Vol 23., No. 3, pp. 779-794, March 2020 [doi:10.1002/we.2458; hdl:10044/1/74913]

[24] Carre A., Muñoz-Simón A., Goizueta N., Palacios R., "SHARPy: A Dynamic Aeroelastic Simulation Toolbox for Very Flexible Aircraft and Wind Turbines." *Journal of Open Source Software*, Vol. 4, No. 44, pp. 1885, December 2019 [doi:10.21105/joss.01885]

[25] Palacios R., Cea A., "Nonlinear Modal Condensation of Large Finite-Element Models: An Application of Hodges' Intrinsic Theory." *AIAA Journal,* Vol. 57, No. 10, pp. 4255-4268, October 2019 [doi:10.2514/1.J057556, hdl:10044/1/65484]

[26] Qi, P., Zhao X., 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*, Vol. 55, No. 5, pp. 2543-2555, October 2019 [doi:10.1109/TAES.2019.2892639]

[27] Bao Y., Zhu H., Huan R., Wang R., Zhou D., Han Z. L., Palacios R., Graham J.M.R., Sherwin S. J., "Numerical Prediction of Vortex-Induced Vibration of Flexible Riser with Thick Strip Method." *Journal of Fluids and Structures*, Vol. 89, pp. 166-173, August 2019 [doi:10.1016/j.jfluidstructs.2019.02.010]

[28] Maraniello S., Palacios R., "State-space realizations and internal balancing in potential-flow aerodynamics with arbitrary kinematics." *AIAA Journal*, Vol. 57, No. 6, pp. 2308-2321, June 2019 [doi:10.2514/1.J058153, hdl:10044/1/67280]

[29] 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]

[30] 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, hdl:10044/1/54099]

[31] 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]

[32] 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]

[33] 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, hdl:10044/1/53420]

[34] 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]

[35] 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]

[36] 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]

[37] 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]

[38] 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]

[39] 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]

[40] 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]

[41] 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]

[42] 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]

[43] 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]

[44] 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]

[45] 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 [hdl:10044/1/25432, doi:10.1016/j.compstruc.2015.07.001]

[46] 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]

[47] 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]

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