

# Rafael Palacios

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## RESEARCH INTERESTS

Computational methods in fluid-structure interaction and aeroelastic control and optimization, with applications to aeroelastic design, 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 - 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 Society of Aeronautical Engineers “Francisco Arranz” Graduation Award

## RESEARCH GRANTS

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 for [two subprojects](#))

2020-2023	EC H2020 <a href="#">Project 883670</a> <i>Robust- and sustainable-by-design ultra-high aspect ratio wing and airframe (RHEA)</i> (5 partners coordinated by TU Braunschweig)
2019-2021	EC H2020 <a href="#">Project 828799</a> , <i>High-Performance Computing for Wind Energy (HPCWE)</i> (8 partners coordinated by Nottingham University)
2017-2020	EPSRC Grant <a href="#">EP/R007470/1</a> , <i>Farming the Environment into the Grid: Big data in Offshore Wind (FENGBO-WIND)</i>
2017-2021	EC H2020-MSCA-ITN-2017, <a href="#">Project 765579</a> , <i>Control of flexible structures and fluid-structure interactions</i> (15 partners coordinated by Tel Aviv University)
2016-2019	Airbus Defence & Space, <i>Methods for aeroelastic analysis of solar-powered aircraft</i>
2016-2019	EPSRC ICASE Award (Airbus Group Innovations), <i>Assessment of geometrically nonlinear effects on aircraft loads</i>
2015-2018	EPSRC Grant <a href="#">EP/N006224/1</a> , <i>Maximizing Wind Farm Aerodynamic Resource via Advanced Modelling (MAXFARM)</i> (£1,477k, coordinated by Surrey)
2014-2017	AFOSR/EOARD, Grant FA9550-14-1-0055, <i>Aeroservoelastic Optimization of Aircraft Wings with Load Alleviation Systems</i>
2013-2016	EPSRC, Grant <a href="#">EP/K037536/1</a> , <i>Vortex Induced Vibration and Structural Integrity of Deep-Water Flexible Risers</i>
2013	EOARD, Window on Science, Grant 132047 (to attend AFOSR Review, July 2013)
2012-2016	EPSRC, Grant <a href="#">EP/J002070/1</a> , <i>Towards Biologically Inspired Active-Compliant-Wing Micro-Air-Vehicles</i>
2012-2015	AFOSR/EOARD, Grant FA8655-12-1-2046, <i>Integrally Actuated Membrane Wings</i>
2011-2015	EPSRC, Grant <a href="#">EP/I014683/1</a> , <i>Nonlinear Flexibility Effects on Flight Dynamics and Control of Next-Generation Aircraft</i>
2011	RAEng Distinguished Visiting Fellowship (Host to Prof. Moti Karpel, Technion)
2008-2011	EPSRC ICASE Award (QinetiQ), <i>Optimal Control Surfaces for Highly Flexible Aircraft</i>

## ACADEMIC EXPERIENCE (Imperial College)

### Administration:

2019-	Director of Research, Department of Aeronautics
2018-2019	Deputy Director of Research, Department of Aeronautics
2014-2016	Member, College's Surveys Working Group
2012-2016	Director of Undergraduate Studies, Department of Aeronautics
2010-2012	Final-year academic monitor and individual project coordinator
2009-2019	Member, Department Teaching Committee

### 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	2008-2021

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	2014-2021
Aeroelasticity/Aeroservoelasticity	M.Sc.	12	25-45	2007-2021

\*\*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 Duessler Gust load alleviation methods for commercial transport aircraft
- 2019- Myriam Uhrham Dragonfly sensory system characterization through FSI analysis (with Huai-Ti Lin\*)
- 2018- Norberto Goizueta Real-time nonlinear control strategies for flexible aircraft (with Andy Wynn)
- 2018- Marc Artola Nonlinear model predictive control of very flexible aircraft (with Andy Wynn\*)
- 2018- Arturo Munoz Aeroelastic control of floating wind turbines
- 2018-21 Pedro Gomes A high performance open source framework for multiphysics simulation and adjoint based shape and topology optimization (→[Luminary Cloud](#))
- 2016-21 Charanya Venkatesan-Crome Optimization and Dynamic Aeroelastic Systems (→[Mercedes F1](#))
- 2016-21 Alvaro Cea A Geometrically Nonlinear Approach for the Aeroelastic Analysis of Commercial Transport Aircraft (→Imperial College)
- 2016-20 Alfonso del Carre Aeroelasticity of very flexible aircraft at low altitudes [[hdl:10044/1/88269](https://hdl.handle.net/10044/1/88269)] (→[Skydweller Aero](#))
- 2010-18 Alvaro Gonzalez Aeroelasticity of deformable wing turbine aerofoils in stalled conditions [[hdl:10044/1/61470](https://hdl.handle.net/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](https://hdl.handle.net/10044/1/58882)](→TU Kaiserslautern)
- 2013-17 Sal Maraniello Optimal manoeuvres and co-design with very flexible wings [[hdl:10044/1/49244](https://hdl.handle.net/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](https://hdl.handle.net/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](https://hdl.handle.net/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](https://hdl.handle.net/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](https://hdl.handle.net/10044/1/24788)] (→ Nanyang Technological University, Singapore)
- 2009-14 Julian Dizi Homogenisation of slender periodic composite structures [[hdl:/10044/1/24732](https://hdl.handle.net/10044/1/24732)] (with Silvestre Pinho →[Computational Modelling Cambridge Ltd](#), UK)
- 2009-13 Sara Arbos Aeromechanical performance of compliant aerofoils [[hdl:10044/1/28105](https://hdl.handle.net/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](https://hdl.handle.net/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](https://hdl.handle.net/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](https://hdl.handle.net/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- 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 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 (Szczyglowski, 2019; Capuzzi, 2014)  
 Imperial College London (Vizzaccaro, 2021; Imediogwu, 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- [Progress in Aerospace Sciences](#)  
 2016- Journal of Fluids and Structures  
 2016- Journal Aircraft

Committees:

- 2022 Co-chair, AIAA Dynamic Specialists Conference, San Diego, California, USA, January
- 2021 AIAA Associate Fellows Selection Committee, Region VII

- 2018-now Member of UK Fluids Network Numerical Optimization in Fluids Special Interest Group
- 2017-now Imperial College Energy Futures Lab, Theme Leader for Offshore Renewables
- 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 5<sup>th</sup> 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

- 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](#))

### Journal Papers

- [1] 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*, minor corrections
- [2] Goizueta N., Wynn A, Palacios R., Drachinsky A., Raveh D., "Preparatory studies for flutter tests of a very flexible wing." *AIAA Journal*, minor corrections

- [3] Muñoz-Simón A., Palacios R., Wynn A., “Some modelling improvements for prediction of wind turbine rotor loads in turbulent wind.” *Wind Energy*, minor corrections
- [4] Artola M., Wynn A., Palacios R., “Modal-Based Nonlinear Model Predictive Control for 3D Very Flexible Structures.” *IEEE Transactions in Automatic Control*, in print [[doi:10.1109/TAC.2021.3071326](https://doi.org/10.1109/TAC.2021.3071326)]
- [5] Artola M., Goizueta N., Wynn A., Palacios R., “Aeroelastic Control and Estimation with a Minimal Nonlinear Modal Description.” *AIAA Journal*, in print [[doi:10.2514/1.J060018](https://doi.org/10.2514/1.J060018), [hdl:10044/1/86809](https://hdl.handle.net/10044/1/86809)]
- [6] 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](https://hdl.handle.net/10044/1/86554); [doi:10.1016/j.jfluidstructs.2021.103222](https://doi.org/10.1016/j.jfluidstructs.2021.103222)]
- [7] 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](https://doi.org/10.2514/1.J059767)]
- [8] del 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](https://doi.org/10.2514/1.C035901); [hdl:10044/1/80101](https://hdl.handle.net/10044/1/80101)]
- [9] 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](https://doi.org/10.1007/s00158-020-02600-9); [hdl:10044/1/78812](https://hdl.handle.net/10044/1/78812)]
- [10] Deskos Y., del Carre A., Palacios R., “Assessment of Low-Altitude Atmospheric Turbulence Models for Aircraft Aeroelasticity.” *Journal of Fluids and Structures*, Vol. 95, Paper 102981, May 2020 [[doi:10.1016/j.jfluidstructs.2020.102981](https://doi.org/10.1016/j.jfluidstructs.2020.102981); [hdl:10044/1/78956](https://hdl.handle.net/10044/1/78956)]
- [11] 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](https://doi.org/10.2514/1.J058894); [hdl:10044/1/75485](https://hdl.handle.net/10044/1/75485)]
- [12] Deskos Y., 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](https://doi.org/10.1002/we.2458); [hdl:10044/1/74913](https://hdl.handle.net/10044/1/74913)]
- [13] del 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](https://doi.org/10.21105/joss.01885)]
- [14] 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](https://doi.org/10.2514/1.J057556), [hdl:10044/1/65484](https://hdl.handle.net/10044/1/65484)]
- [15] 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](https://doi.org/10.1109/TAES.2019.2892639)]
- [16] 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](https://doi.org/10.1016/j.jfluidstructs.2019.02.010)]
- [17] 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](https://doi.org/10.2514/1.J058153), [hdl:10044/1/67280](https://hdl.handle.net/10044/1/67280)]
- [18] 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](https://doi.org/10.1109/TAES.2018.2836598)]
- [19] 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](https://doi.org/10.2514/1.C034684), [hdl:10044/1/54099](https://hdl.handle.net/10044/1/54099)]

- [20] 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]
- [21] 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]
- [22] 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]
- [23] 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]
- [24] 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]
- [25] 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]
- [26] 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]
- [27] 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]
- [28] 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]
- [29] 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]
- [30] 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]
- [31] 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]
- [32] 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]
- [33] 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]
- [34] 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]
- [35] 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]
- [36] 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]

- [37] 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]
- [38] 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]
- [39] 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]
- [40] 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]
- [41] 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]
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