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**I. GENERAL INFORMATION**

**A. Education**

**Virginia Polytechnic Institute and State University, Engineering Science and Mechanics Blacksburg, Virginia, USA**

01/99 – 02/01 Ph.D. Stage on Aeroelasticity at Virginia Polytechnic Institute and State University (Virginia Tech), Department of Engineering Science and Mechanics. Blacksburg, Virginia 24061.

**Politecnico di Torino, Torino, Italy**

**Doctor of Philosophy in Aerospace Engineering, December 2000<sup>1</sup>**

09/97 – 03/01 Ph.D.: Politecnico di Torino, Dipartimento di Ingegneria Aeronautica and Aerospaziale (Turin Polytechnic, Department of Aeronautical and Aerospace Engineering). Turin, Italy 10100

Dissertation: Studies on Linear and Nonlinear Aeroelasticity of Lifting Surfaces Approached Via New Techniques<sup>2</sup>

Thesis Advisor: Gianfranco Chiccochia

**Master of Science in Aeronautical Engineering, December 1996<sup>3</sup>**

09/94 – 12/96 M.S.: Aeronautical Engineering, Politecnico di Torino, Torino, Italy

Thesis: Realization of a wing box of 6 meters and experimental and theoretical analysis of structures in composite material for solar energy electrical gliding

Thesis Advisor: Giulio Romeo

09/91 – 09/94 Diploma-B.S.: Aeronautical Engineering, Politecnico di Torino, Torino, Italy<sup>4</sup>

**B. Employment**

08/03 – Present **Assistant Professor**, Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY, USA

12/05 – Present **Visiting Professor**, Delft University of Technology, Aerospace Structures, Delft, The Netherlands

<sup>1</sup> Under the Italian National Research Council (CNR) fellowship, 1997-2000.

<sup>2</sup> Project sponsored by CSDF-CNR (Center for Fluid Dynamics Studies of the National Research Council) and by the NASA Langley Research Center. Parts of dissertation were published in international journals (see references [1,2,6,9]).

<sup>3</sup> Awards "Antonio Bertolotti" Best MS Thesis 1996, (see reference 7, technical reports).

<sup>4</sup> Awards "Rotary & Lions Clubs", Best Diploma 1990.

- 09/04 – **Vento Tek Inc.**, President, CTO, Potsdam, NY
- 06/07 – 08/07 **Senior Faculty Fellow, Summer Faculty Research Program**, Naval Research Laboratory, Washington, DC
- 06/06 – 08/06 **Faculty Fellow, Summer Faculty Research Program**, Naval Research Laboratory, Washington, DC
- 08/01 – 08/03 **Visiting Assistant Professor**, Department of Engineering Science and Mechanics (ESM), Virginia Tech, Blacksburg, Virginia, USA
- 02/01 – 08/01 **Postdoctoral Fellow**, ESM, Virginia Tech, Blacksburg, Virginia, USA  
Postdoctoral Advisor: Liviu Librescu
- 01/99 – 02/01 **Research Assistant**, ESM, Virginia Tech, Blacksburg, Virginia, USA
- 09/00 – 12/00 **Assistant Professor under contract**, Department of Aeronautical and Aerospace Engineering, Politecnico di Torino, Torino, Italy
- 09/95 – **Research Assistant/Collaborator**, Department of Aeronautical and Aerospace Engineering, Politecnico di Torino, Torino, Italy. *HeliNet project*, a Solar Energy Electrical Airplane, <http://www.helinet.polito.it/heliplat.htm>. HeliNet is a telecommunication infrastructure based on HAVE (High Altitude Very long Endurance) unmanned solar aerodynamic platforms, named HELIPLAT (Helios Platforms) committed by ASI (Italian Space Agency) ESA (European Space Agency), EC (European Community). Aeronautical Project Manager: Prof. Giulio Romeo (Politecnico di Torino, Aeronautical and Aerospace Engineer Dept)<sup>5</sup>
- 06/01 – **Consultant Engineer**, CSA Engineering, Inc., California, USA
- 09/96 – **Consultant Engineer**, Archemide Advanced Composite, Torino, Italy
- 09/96 – 09/97 **Consultant Engineer**, MacNeal-Schwendler Corp. (MSC/NASTRAN, MSC/PATRAN) Italia, Torino, Italy
- 09/95 – 06/96 **Instructor**, Short Course for practicing automotive technicians and engineers, Electronics BEAR (Consulauto S.n.c., Torino, Italy).
- 09/86 – 09/91 **Designer**, The Associated Technical Office of Architecture and Engineering BLP, Pinerolo, Italy

### **C. Honors, Awards, Recognitions and Nominations**

- 01/08 **Associate Editor** of the Journal of Thermal Stresses
- 11/07 **Who's Who in America 2009**, <http://www.marquiswhoswho.com/>
- 09/07 SAE Recognition for significant contribution as Organizer for the SAE 2007 AeroTech Congress and Exhibition, 17-20 Sept. 2007, Los Angeles, CA
- 09/07 SAE 2007 Aerotech Congress and Exhibition. Recognition for substantial contribution to the Technical Program, Society of Automotive Engineers
- 06/07 **Who's Who Among America's Teachers**, Engineering top 1%, [www.whoswho-teachers.com](http://www.whoswho-teachers.com)
- 06/07 **Senior Summer Faculty, Office of Naval Research, Summer Faculty Research Program Fellowship**, American Society for Engineering Education, ASEE, Naval Research Laboratory, Washington, DC

<sup>5</sup> HeliNet project participants: Politecnico di Torino (Italy), Ecole Polytechnique Federal de Lausanne (Switzerland), Fastcom S.A. (Switzerland), Universitat Politècnica de Catalunya, (Spain), Technical University of Budapest (Hungary), Carlo Gavazzi Space S.p.a. (Italy), Institut Jozef Stefan (Slovenia) University of York United Kingdom EnigmaTEC (United Kingdom) Construcciones Aeronáuticas S.A. (Spain)

- 06/07 **TS2007 Travel Award**, to participate at the Thermal Stresses 2007, Congress on Thermal Stresses and Related Topics, Taipei, Taiwan, June 3-7, 2007
- 05/07 **Clarkson University Teaching Excellence**, Spring 2007, SOE, Clarkson University, Potsdam, NY
- 07/07 **2007 SAE Ralph R. Teetor Educational Award**, In recognition of significant contributions to teaching, research and student development, Society of Automotive Engineering, Washington, DC
- 12/06 **Clarkson University Teaching Excellence**, Fall 2006, SOE, Clarkson University, Potsdam, NY
- 10/06 **ICAST Scholarship Award**, the 17th International Conference on Adaptive Structures and Technology (ICAST 2006), October 13-17, 2006
- 06/06 **Summer Faculty, Office of Naval Research, Summer Faculty Research Program Fellowship**, American Society for Engineering Education, ASEE, Naval Research Laboratory, Washington, DC
- 05/06 **Clarkson University Teaching Excellence**, Spring 2006, SOE, Clarkson University, Potsdam, NY
- 04/06 **Clarkson University Outstanding New Teacher Award**, Clarkson University, Potsdam, NY
- 05/05 **Clarkson University Teaching Excellence**, Spring 2005, SOE, Clarkson University, Potsdam, NY
- 06/05 **6<sup>th</sup> ICTS Travel Award**, the organizing committee of the International Congress of Thermal Stresses, Vienna University of Technology, Vienna, Austria.
- 03/05 **"Fulbright Program"** Nomination, U.S. government's flagship program in international educational exchange promoting "mutual understanding between the people of the United States and the people of other countries of the world."
- 10/04, 05, 06 **Outstanding Reviewer Recognition**, American Institute for Aeronautics and Astronautics, Journal of Guidance, Control, and Dynamics.
- 09/04 **Sigma Gamma Tau Honor Society** for Aerospace Engineering, Elected Member.
- 07/04 **3<sup>d</sup> ECSC Travel Award**, the organizing committee of the European Congress of Structural Control, Vienna University of Technology, Vienna, Austria.
- 06/03 **Thermal Stresses 2003** Recognition for exceptional work, dedication and professionalism devoted to the successful accomplishment of the 5<sup>th</sup> International Congress on Thermal Stresses and Related Topics, The Organizing Committee of Thermal Stresses, Blacksburg, VA.
- 05/03 **"Engineering Sporn Award"** Nomination, (this award recognizes teaching excellence in undergraduate engineering subjects), Virginia Tech, Blacksburg, VA.
- 04/03 **Virginia Tech Travel Award**, to participate at the 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics, and Material Conference, Norfolk, VA.
- 09/02 **Virginia Tech Travel Award**, to participate at the 23rd ICAS CONGRESS of the International Council of the Aeronautical Sciences, Toronto, Canada.
- 04/02 **Virginia Tech Travel Award**, to participate at the 43rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Material Conference, Denver, CO.
- 05/02 **Center for Excellence in Undergraduate Teaching** Award, CEUT, Virginia Tech, Blacksburg, VA.

- 05/01 **Center for Excellence in Undergraduate Teaching** Award, CEUT, Virginia Tech, Blacksburg, VA.
- 09/97 **"Antonio Bertolotti"** Award for *"Best M.S."* master degree in Aeronautical Project.
- 09/97 – 03/01 **Italian National Research Council** PhD Fellowship, CNR, Rome, Italy
- 09/91 – 12/96 **"Top ten-percent"** Scholarship of Politecnico di Torino, Torino, Italy
- 06/90 **Rotary & Lions Clubs** Award, ranked first for the *"Best Diploma"* at the Technical College of Pinerolo, Italy.

#### **D. License**

09/97 – Present (PE) Italian Board of Professional Engineer, Torino, Italy

#### **E. Military Experience**

08/96 – 06/97 Smart Telecommunications, Italian Army

### **II. PUBLICATIONS**

*Copies of reprints are available. Please send request via Email: [pmarzocc@clarkson.edu](mailto:pmarzocc@clarkson.edu)*

#### **A. Edited Books**

1. L. LIBRESCU, P. MARZOCCA, *Thermal Stresses'03*, Virginia Polytechnic Institute and State University, Blacksburg, VA, Vol. 1, 500 pages, 2003, ISBN 0-9721257-2-8.
2. L. LIBRESCU, P. MARZOCCA, *Thermal Stresses'03*, Virginia Polytechnic Institute and State University, Blacksburg, VA, Vol. 2, 500 pages, 2003, ISBN 0-9721257-2-8.<sup>6</sup>

#### **B. Review Articles**

1. L. LIBRESCU, P. MARZOCCA, "Advances in the Linear/Nonlinear Control of Aeroelastic Structural Systems," *Acta Mechanica*, Vol. 178, No. 3-4, August 4, 2005, pp. 147-186.

#### **C. Refereed Journal Publications** (chronological order)<sup>7,8</sup>

1. P. MARZOCCA, L. LIBRESCU, G. CHIOCCHIA, "Aeroelastic Response of a 2-D Lifting Surfaces to Gust and Arbitrary Explosive Loading Signatures," *International Journal of Impact Engineering*, Vol. 25, No. 1, January 2001, pp. 41-65.
2. P. MARZOCCA, L. LIBRESCU, G. CHIOCCHIA, "Aeroelasticity of Two-Dimensional Lifting Surfaces Via Indicical Function Approach," *The Aeronautical Journal*, March 2002, pp. 147-153.
3. Z. QIN, P. MARZOCCA, L. LIBRESCU, "Aeroelastic Instability and Response of Advanced Aircraft Wings at Subsonic Flight Speeds," *Aerospace Science and Technology*, Vol. 6, No. 3, March 2002, pp. 195-208.
4. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Aeroelastic Response and Flutter of Swept Aircraft Wings," *AIAA Journal*, Vol. 40, No. 5, May 2002, pp. 801-812.

<sup>6</sup> Thermal Stresses'03, Virginia Polytechnic Institute and State University, Blacksburg, VA, also published as multimedia CD-ROM, Vol. 1 and 2, 1000 pages, 2003.

<sup>7</sup> Manuscripts and reprints are available upon request.

Journals: References [1,2,4,6,29,31,32,36,37] are fundamental studies on linear aeroelasticity (flutter and aeroelastic response) of conventional aircraft structure (2D and 3D) in incompressible/compressible unsteady aerodynamic flow exposed to gust and arbitrary loading; [3,10] are related to aeroelasticity of advanced composite aircraft structure; [5,7,8,9] are related to nonlinear aeroelasticity (Hopf-Bifurcation, LCO) of conventional aircraft structure via Volterra functional series and Lyapunov first quantity; [11,13,14,15,17,18-24,26,28,30,33] are related to flutter and aero-servo-elasticity of lifting surfaces in various flight speed regimes; [12,25,38] are related to aero-thermo-elasticity; [16] is related to electromagnetoelasticity of spinning bodies; [27,35] are related to waves propagation; [34] is related to sensors development; [39-41] are related to system ID and damage detection.

<sup>8</sup> Graduate and undergraduate Clarkson University students are listed in italic.

5. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Aeroelastic Response of Nonlinear Wing Section by Functional Series Technique," *AIAA Journal*, Vol. 40, No. 5, May 2002, pp. 813-824.
6. P. MARZOCCA, L. LIBRESCU, G. CHIOCCHIA, "Aeroelastic Response of a 2-D Airfoil in Compressible Flight Speed Regimes Exposed to Blast Loadings," *Aerospace Science and Technology*, Vol. 6, No. 4, June 2002, pp. 259-272.
7. L. LIBRESCU, P. MARZOCCA, W.A. SILVA, "Supersonic/Hypersonic Flutter and Post-flutter of Geometrically Imperfect Circular Cylindrical Panels," *Journal of Spacecraft and Rockets*, Vol. 39, No. 5, September – October 2002, pp.802-812.
8. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Flutter, Post-Flutter and Control of a Supersonic 2-D Lifting Surface," *Journal of Guidance, Control, and Dynamics*, Vol. 25, No. 5, September – October 2002, pp. 962-970.
9. L. LIBRESCU, G. CHIOCCHIA, P. MARZOCCA, "Implications of Cubic Physical / Aerodynamic Nonlinearities on the Character of the Flutter Instability Boundary," *International Journal of Nonlinear Mechanics*, Vol. 38, March 2003, pp. 173-199.
10. Z. QIN, L. LIBRESCU, P. MARZOCCA, "Aeroelasticity of Composite Aerovehicle Wings in Supersonic Flows," *Journal of Spacecraft and Rockets*, Vol. 40, No. 2, March-April 2003, pp. 162-173.
11. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Nonlinear Open-/Closed Loop Aeroelastic Analysis of Airfoils via Volterra Series," *AIAA Journal*, Vol. 42, No. 4, April 2004, pp. 673-686.
12. L. LIBRESCU, P. MARZOCCA, W.A. SILVA, "Linear/Nonlinear Supersonic Panel Flutter in a High-Temperature Field," *Journal of Aircraft*, Vol. 41, No. 1, July – August 2004, pp. 918-924.
13. Y. YUAN, P. YU, L. LIBRESCU, and P. MARZOCCA, "Aeroelasticity of Time-Delayed Feedback Control of Two-Dimensional Supersonic Lifting Surfaces," *Journal of Guidance, Control, and Dynamics*, Vol. 27, No. 5, September – October 2004, pp. 795-803.
14. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Time-Delay Effects on Linear/Nonlinear Feedback Control of Simple Aeroelastic Systems," *Journal of Guidance, Control, and Dynamics*, Vol.28, No.1, January – February 2005, pp. 53-62.
15. L. LIBRESCU, P. MARZOCCA, W.A. SILVA, "Aeroelasticity of 2-D lifting surfaces with time-delayed feedback control," *Journal of Fluids and Structures*, Vol. 20, No. 2, February 2005, pp. 197-215.
16. A.J. MICHALEK, P. MARZOCCA, J. MOOSBRUGGER, D. HASANYAN, "Effects of an In-Plane Axisymmetric Magnetic Field on the Vibration of a Thin Conductive Spinning Disk," *Journal of Applied Physics*, Vol. 97, 10R509, 2005, doi:10.1063/1.1855463, PACS: 85.70.Li, 85.70.Ay, 75.80, pp. 3.
17. L. LIBRESCU , S. NA, P. MARZOCCA, C. CHUNG, M.K. KWAK, "Active aeroelastic Control of 2-D Wing-Flap Systems Operating in an Incompressible Flowfield and Impacted by a Blast Pulse," *Journal of Sound and Vibration*, Vol. 283, 2005, pp. 685-706.
18. P. MARZOCCA, L. LIBRESCU, D.H. KIM, I. LEE, S. SCHOBBER "Generalized Transonic Unsteady Aerodynamics via Computational-Fluid-Dynamics Indicial Approach," *AIAA Journal*, Vol. 43, No. 4, April 2005, pp.915-921.

19. D.-H. KIM, I. LEE, P. MARZOCCA, L. LIBRESCU, S. SCHOBBER “Nonlinear Aeroelastic Analysis of an Airfoil Using CFD-Based Indicial Approach,” *Journal of Aircraft*, Vol. 42, No.5, September–October 2005, pp. 1340-1344.
20. S. NA, L. LIBRESCU, M.-H. KIM, I.-J. JEONG, P. MARZOCCA, “Aeroelastic Response of Flapped Wing Systems Using Robust Estimation Control Methodology,” *Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 1, January-February, 2006, pp. 199-201.
21. A. BEHAL, P. MARZOCCA, V.M. RAO, A. GNANN, “Nonlinear Adaptive Control of an Aeroelastic 2-D Lifting Surface,” *Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 2, March-April 2006, pp. 382-390.
22. S. NA, L. LIBRESCU, M.-H. KIM, I.-J. JEONG, P. MARZOCCA, “Robust Aeroelastic Control of Flapped Wing Systems Using a Sliding Mode Observer,” *Aerospace Science and Technology*, Vol. 10, No. 3, 2006, pp. 120–126.
23. A. BEHAL, V.M. RAO, P. MARZOCCA, M. KAMALUDEEN “Adaptive Control for a Nonlinear Wing Section with Multiple Flaps,” *Journal of Guidance, Control, and Dynamics*, Vol. 29, No. 3, May-June 2006, pp. 744-748.
24. V.M. RAO, A. BEHAL, P. MARZOCCA, C. RUBILLO, “Adaptive Aeroelastic Vibration Suppression of a Supersonic Airfoil with Flap,” *Aerospace Science and Technology*, Vol. 10, No. 4, May-June 2006, pp. 309-315.
25. O. SERESTA, M.M. ABDALLA, S.B. MULANIZ, P. MARZOCCA, “Stacking Sequence Design of Flat Composite Panel for Flutter and Thermal Buckling,” *AIAA Journal*, Vol. 44, No. 11, 2006, pp. 2726-2735.
26. C. RUBILLO, P. MARZOCCA, E. BOLLT, “Active Aeroelastic Control of Lifting Surfaces via Jet Reaction Limiter Control,” *International Journal of Bifurcation and Chaos*, Vol. 16, No. 9, 2006, 2559–2574.
27. M. BELUBEKYAN, K. GHAZARYAN, P. MARZOCCA, C. CORMIER, “Localized Bending Waves in a Rib-Reinforced Elastic Orthotropic Plate,” *ASME Journal of Applied Mechanics*, Vol. 74, No. 1, 2007, pp. 169-171.
28. S.S. NA, L. LIBRESCU, P. MARZOCCA, G.C. YOON, C. RUBILLO, K. BONG, Robust aeroelastic control of two-dimensional supersonic flapped wing systems, *Acta Mechanica*, Springer, Wien, Vol. 192, No. 1-4 , 2007, pp. 37-47.
29. L.K. ABBAS, Q. CHEN, K. O'DONNELL, D. VALENTINE, P. MARZOCCA, Numerical studies of a non-linear aeroelastic system with plunging and pitching freeplays in supersonic/hypersonic regimes, *Aerospace Science and Technology*, Vol. 11, No. 5, 2007, pp. 405-418.
30. P. YU, Z. CHEN, Z., L. LIBRESCU, P. MARZOCCA, “Implications of time-delayed feedback control on limit cycle oscillation of a two-dimensional supersonic lifting surface,” *Journal of Sound and Vibration*, Vol. 304, No. 3-5, 2007, pp. 974-986
31. P. MARZOCCA, L. LIBRESCU, D.-H. KIM, I. LEE, S. SCHOBBER, “Development of an Indicial Function Approach for the Two-Dimensional Incompressible/Compressible Aerodynamic Load Modeling,” *Journal of Aerospace Engineering, Part G, Proceedings of the Institution of Mechanical Engineers*, Vol. 221, No. 3, 2007, pp. 453-463.
32. I. TUZCU, P. MARZOCCA, E. CESTINO, G. ROMEO, G. FRULLA, “Stability and Control of a High-Altitude, Long-Endurance UAV” *Journal of Guidance, Control, and Dynamics*, Vol. 30, No. 3, May-June 2007.
33. K.K. REDDY, J. CHEN, A. BEHAL, P. MARZOCCA, “Multi-Input/Multi-Output Adaptive Output Feedback Control Design for Aeroelastic Vibration Suppression,” *Journal of Guidance, Control, and Dynamics*, Vol. 30, No. 4, July–August 2007, pp. 1040-1048.

34. M. HE, P. MARZOCCA, S. DHANIYALA, "A New High Performance Battery-Operated Electrometer," *Review of Scientific Instruments*, Vol. 78, October 2007, pp. 105103-1-5.
35. M. BELUBEKYAN, K. GHAZARYAN, P. MARZOCCA, C. CORMIER, "Localized Magnetoelastic Bending Vibration of an Electroconductive Elastic Plate," *ASME Journal of Applied Mechanics*, Vol. 74, No. 6, 2007, pp. 1071-1077.
36. L.K. ABBAS, Q. CHEN, P. MARZOCCA, A. MILANESE, "Non-linear Aeroelastic Investigations of Store(s)-Induced Limit Cycle Oscillations," *Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering*, Vol. 222, No. 1, 2008, pp. 63-80.
37. J.M. NICHOLS, P. MARZOCCA, A. MILANESE, "On the Use of the Auto-Bispectral Density for Detecting Quadratic Nonlinearity in Structural Systems," *Journal of Sound and Vibration*, Vol. 312, No. 4-5, 2008, pp. 726-735.
38. L.K. ABBAS, Q. CHEN, P. MARZOCCA, K. O'DONNELL, D. VALENTINE, "Aeroelastic Behavior of the Lifting Surfaces with Free-Play and Aerodynamic Stiffness and Damping Nonlinearities," *International Journal of Bifurcation and Chaos*, Accepted, (2008), In Press.
39. A. MILANESE, P. MARZOCCA, J.M. NICHOLS, M. SEAVER, S.T. TRICKEY, "Modeling and Detection of Joint Loosening Using Output Only Broad-Band Vibration Data," *Structural Health Monitoring, an International Journal*, Accepted, (2008), In Press.
40. L.K. ABBAS, Q. CHEN, P. MARZOCCA, Z. GÜRDAL, M. ABDALLA, "Active Aerothermoelastic Control of Hypersonic Double-Wedge Lifting Surface," *Chinese Journal of Aeronautics*, Accepted, (2008) In Press.
41. P. MARZOCCA, J.M. NICHOLS, M. SEAVER, S. TRICKEY, A. MILANESE, "Second Order Spectra for Quadratic Non-linear Systems by Volterra Functional Series: Analytical Description and Numerical Simulation," *Mechanical Systems and Signal Processing*, Accepted, (2008), In Press.
42. K. LI, D. AIDUN, P. MARZOCCA, "Modelling of the mixed weld zone of dissimilar metals joint by functionally graded materials," *STEEL GRIPS Journal of Steel and Related Materials*, Accepted, (2008), In Press.

#### **D. Book's Chapters and Other Book's Contributions**

1. W.A. SILVA, P. BERAN, C. CESNIK, R.E. GUENDEL, A.J. KURDILA, R.J. PRAZENICA, L. LIBRESCU, P. MARZOCCA, D. RAVEH, "Reduced-Order Modeling Research and Development at the NASA Langley Research Center" *International Forum on Aeroelasticity and Structural Dynamics 2001*, Madrid (Spain) June 5-7, 2001, Edited by: Alfasur, ISBN 84-931375-6-1.
2. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Nonlinear Stability and Response of Lifting Surfaces Via Volterra Series," *Proceeding of the 20<sup>th</sup> ICTAM - IUTAM - 2000*, August 27-September 2, Chicago, IL, Springer, 2001, Edited by: By A. Hassan, J.W. Phillips, 582 pp., ISBN 0792371569.
3. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Consideration of a Flutter Prediction Methodology Using a Combined Analytical-Experimental Procedure," Special Volume *Recent Advances In Experimental Mechanics*, In Honor of Isaac M. Daniel, Northwestern University, Evanston, IL, USA, Kluwer Academic Publishers, Dordrecht Hardbound, June 2002, 844 pp., Edited by: E.E. Gdoutos, ISBN: 1-4020-0683-7.
4. L. LIBRESCU, P. MARZOCCA, W.A. SILVA "Linear/Nonlinear Aeroelastic Behavior of Thermally Damaged Flat Panels in a Supersonic Flow Field," *Proceedings of the 5th International Congress on Thermal Stresses and Related Topics*, Blacksburg, VA, June

8-11, 2003, Vol. 2, WA-2-1-(1-4), 1000 pp., Edited by: L. Librescu, P. Marzocca, ISBN: 0-9721257-2-8.

5. P. MARZOCCA, L. LIBRESCU, D.-H. KIM, I. LEE, G. COPPOTELLI, "Unified Analytical/CFD Approach of Linear/Nonlinear Aeroelastic Response and Flutter via Aerodynamic Indicial Function Concept," *IFASD 2005, International Forum on Aeroelasticity and Structural Dynamics 2005*, June 28 – July 1, 2005, Munich, Germany, DGLR-Bericht 2005-04, ISBN 3-932-182-43-X.
6. D. HASANYAN, P. MARZOCCA, S. HARUTYUNYAN, "Propagation of Gap Waves in Ferromagnetoelastic materials," *Computational Fluid and Solid Mechanics, Proceedings of The Third MIT Conference on Computational Fluid and Solid Mechanics*, Massachusetts Institute of Technology, Cambridge, June 14-17, 2005. Edited by: K.-J. Bathe, ISBN: 0080444814.
7. P. MARZOCCA, L. LIBRESCU, M. PEREIRA, "Flutter/Postflutter and Active Control of Thermally Degraded Supersonic Panels," *6th International Congress of Thermal Stresses and Related Topics*, TS2005, Vienna, Austria, 26-29 May 2005, Edited by: F. Ziegler, R. Heuer, C. Adam, pp. 1 - 4, ISBN: 3-901167-12.
8. G. BAGHDASARYAN, M. MIKILYAN, P. MARZOCCA, "Buckling of Ferromagnetic Cylindrical Shell Under the Action of Thermal and Magnetic Fields of Constant Electric Current," *6th International Congress of Thermal Stresses and Related Topics*, TS2005, Vienna, Austria, 26-29 May 2005, Edited by: F. Ziegler, R. Heuer, C. Adam, pp. 1 - 4, ISBN: 3-901167-12.
9. E. CROSBIE, T. CALDER, C. CHANG, P. MARZOCCA, Z. GÜRDAL, J. HOL, "Computational Aerodynamics and Experimental Investigations of an Inflatable Wing," The Eighth International Conference on Computational Structures Technology, The Fifth International Conference on Engineering Computational Technology, XXVIII Computational Fluid Dynamics, 712 pp., Las Palmas de Gran Canaria, Spain, 12-15 September 2006, Civil-Comp Press, Edited by: B.H.V. Topping, G. Montero, R. Montenegro, ISBN: 1-905088-08-6.
10. K. LI, D. AIDUN, P. MARZOCCA, "Functionally graded material modeling of a thermally affected dissimilar metals joint," *7th International Congress of Thermal Stresses and Related Topics*, TS2007, Taipei, Taiwan, 4-7 June 2007, Edited by: C.K. Chao, C.Y. Lin pp. 1 - 4, ISBN: 978-986-00-9556-2.
11. L.K. ABBAS, Q. CHEN, P. MARZOCCA, Z. GÜRDAL, M. ABDALLA, "Non-linear aerothermoelastic modeling and behavior of a double-wedge lifting surface," *7th International Congress of Thermal Stresses and Related Topics*, TS2007, Taipei, Taiwan, 4-7 June 2007, Edited by: C.K. Chao, C.Y. Lin, pp. 1 - 4, ISBN: 978-986-00-9556-2.
12. K. GHAZARYAN, P. MARZOCCA, A. MILANESE, "Selected Vibration Problems of a Conductive Plate Exposed to a Magnetic Field" In the book "*Problems of Mechanics of Deformable Solid Body*" dedicated to the 85th anniversary of academician of NAS RA Sergej A. Ambartsumian, Yerevan, NAS, Armenia, 2007, pp. 118-127.

## **E. Patents**

1. Jet Reaction Torquer / Morphing Control: Application to Highly Flexible UAV Wings, Wind turbine concepts, Small Inflatable Unmanned-Air-Vehicle, (provisional patent: 60/556,529). Co-applicant: E. Boltt.
2. Energy Harvesting Device from Accelerated Air Flow near Bridges and other Civil Structures. Co-applicant: C. Cetinkaya.

3. In-place-Deployable Wind Barrier for a Group of Light Frame Buildings, Co-applicants: E.F. Thacher, J.S. Schrader.

## **F. Conferences Proceedings**<sup>9</sup>

***All conference proceedings and abstracts are peer-reviewed at national or international meetings***

1. G. ROMEO, P. MARZOCCA, "Confronto Numerico-Sperimentale di Pannelli in Graphite-Epoxy con Aperture Rettangolari Soggette a Carichi Uniassiali, Biassiali e Taglio. Determinazione del Carico di Buckling – Numerical-Experimental Comparison of Graphite-Epoxy Panels with Rectangular Hole Under Uniaxial, Biaxial and Shear Loads. Determination of the Buckling Load," *Proceedings of the 25<sup>th</sup> Conference of MacNeak-Schwendler User's - 25a Conferenza degli Utenti MacNeal - Schwendler*, Sez. 28, Torino, Italy, October 15-16, 1998, in Italian, summary in English.
2. P. MARZOCCA, L. LIBRESCU, "Aeroelasticity of Two-Dimensional Lifting Surfaces via Indicial Function Approach: Compressible Flight Speed Regime," *Virginia Journal of Science*, Summer 2000, Vol. 51, No. 2.
3. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Aerodynamic Indicial Functions and Their Use in Aeroelastic Formulation of Lifting Surfaces," AIAA-2000-WIP, *41<sup>st</sup> AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, April 3-6, 2000, Atlanta, GA.
4. P. MARZOCCA, L. LIBRESCU, G. CHIOCCHIA, "Unsteady Aerodynamics in Various Flight Speed Regimes for Flutter/Dynamic Response Analyses," AIAA-2000-4299, *Proceeding of the 18<sup>th</sup> AIAA Applied Aerodynamic Conference*, August 14-17, 2000, Denver, CO.
5. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Aeroelastic Response of Swept Aircraft Wings in a Compressible Flow Field," AIAA-2001-0714, *39<sup>th</sup> AIAA Aerospace Sciences Meeting*, January 8-11, 2001, Reno, NV.
6. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Volterra Series Approach for Nonlinear Aeroelastic Response of 2-D Lifting Surfaces," AIAA-2001-1459, *42<sup>nd</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 16-19, 2001, Seattle, WA, Vol. 3, pp. 2047-2057.
7. P. MARZOCCA, L. LIBRESCU, "Hopf-Bifurcation of Sectional Wing with Cubic Aerodynamic and Physical Nonlinearities," *Virginia Journal of Science*, Summer 2001, Vol. 52, No. 2.
8. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Aeroelastic Response of Aircraft Wings to Explosive Pressure Signatures in Subsonic/Supersonic Flow Field," Seventh International Conference on Structures Under Shock and Impact, 27-29 May, 2002, Montreal, Canada, Accepted for publication in a Special Volume.
9. L. LIBRESCU, P. MARZOCCA, W.A. SILVA, "Time Delay Feedback Aeroelastic Control of 2-D Lifting Surfaces," IMECE-2002-32971, *5<sup>th</sup> International Symposium on Fluid-Structure Interaction, Aeroelasticity, Flow-Induced Vibration & Noise 2002 ASME Int'l Mechanical Engineering Congress & Exposition*, 17-22 November 2002, New Orleans, Louisiana.
10. L. LIBRESCU, S. NA, P. MARZOCCA, C.-H. CHUNG, M.K. KWAK, "Flutter Instability and Aeroelastic Response of Aircraft Wing Section with a Flap in an Incompressible Flow", IMECE-2002-32983, *5<sup>th</sup> International Symposium on Fluid-Structure Interaction, Aeroelasticity, Flow-Induced Vibration & Noise 2002 ASME Int'l Mechanical Engineering Congress & Exposition*, 17-22 November 2002, New Orleans, Louisiana.

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<sup>9</sup> List does not include submitted abstracts. Only full conference proceeding papers are listed.

11. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Supersonic Flutter and Post-Flutter Active Control of Cross-Sectional Aircraft Wings," ICAS-2002-452, *23<sup>rd</sup> Congress of the International Council of the Aeronautical Sciences*, ICAS, Sept. 8-13, 2002, Toronto, Canada.
12. P. MARZOCCA, W.A. SILVA, L. LIBRESCU, "Open/Closed-Loop Cross Sectional Nonlinear Wing Aeroelasticity via Volterra Series Approach," AIAA-2002-1484, *43<sup>rd</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 22-25, 2002, Denver, CO.
13. Y. YUAN, P. YU, L. LIBRESCU, P. MARZOCCA, "Analysis of a 2-D Supersonic Lifting Surface with Time Delayed Feedback Control," AIAA-2003-1733, *44<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 7-10, 2003, Norfolk, VA.
14. P. MARZOCCA, L. LIBRESCU, D.-H. KIM, IN LEE, "Linear/Nonlinear Unsteady Aerodynamic Modeling of 2-D Lifting Surfaces via a Combined CFD/Analytical Approach," AIAA-2003-1925, *44<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 7-10, 2003, Norfolk, VA.
15. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Nonlinear Time Delayed Feedback Control of Aeroelastic Systems: A Functional Approach," AIAA-2003-1867, *44<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 7-10, 2003, Norfolk, VA.
16. L. LIBRESCU, S. NA, P. MARZOCCA, C. CHUNG, M.K. KWAK, "Active Aeroelastic Control of 2-D Wing-Flap Systems in an Incompressible Flowfield," AIAA-2003-1414, *44<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, April 7-10, 2003, Norfolk, VA.
17. L. LIBRESCU, S. NA, P. MARZOCCA, C.-H. CHUNG, I.-J. JEONG, "Active Aeroelastic Control of 2-D Wing-Flap Systems in a Compressible/Incompressible Flow Field and Exposed to Blast Pulses," IMECE-2003-43392, *2003 ASME Int'l Mechanical Engineering Congress & Exposition*, 15-21 November 2003, Washington D.C.
18. L. LIBRESCU, and P. MARZOCCA, Y. YUAN, P. YU, "Supersonic Aeroelasticity of 2-D Lifting Surfaces With Time Delays in the Linear/Non-linear Control," IMECE-2003-43700, *2003 ASME Int'l Mechanical Engineering Congress & Exposition*, 15-21 November 2003, Washington D.C.
19. P. YU, Y. YUAN, L. LIBRESCU, P. MARZOCCA, "Single/Double Hopf Bifurcation and Aeroelastic Instability of a 2-D Supersonic Lifting Surface with Time Delayed Feedback Control," AIAA-2004-1752, *45<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, California, 19-22 April 2004.
20. S. NA, L. LIBRESCU, P. MARZOCCA, C.-H. CHUNG, "Aeroelastic Response of Flapped Wing System Using Robust Control Methodology," AIAA-2004-1673, *45<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, California, 19-22 April 2004.
21. D. KIM, I. LEE, P. MARZOCCA, L. LIBRESCU, "Linear/Nonlinear Aeroelastic Computation of 2- D Lifting Surfaces Using a Combined CFD/Analytical Approach," AIAA-2004-1756, *45<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, California, 19-22 April 2004.
22. P. MARZOCCA, R. LAZZARO, L. LIBRESCU, "Flutter/Aeroelastic Response of Panels via a Combined Galerkin-Volterra Series Approach." AIAA-2004-1855, *45<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Palm Springs, California, 19-22 Apr 2004.

23. A. BEHAL, P. MARZOCCA, D.M. DAWSON, A. LONKAR, "Nonlinear Adaptive Model Free Control of an Aeroelastic 2-D Lifting Surface," AIAA-2004-5227, *AIAA Guidance, Navigation, and Control Conference and Exhibit*, Providence, Rhode Island, 16-19 Aug 2004.
24. P. MARZOCCA, A. BEHAL, A. GNANN, "Adaptive Control Based Structural Health Monitoring Technique," CANSMART 2004, 7th CANSMART Meeting International Workshop on Smart Materials and Structures, October 21-22, 2004, Montreal, Quebec, Canada.
25. D. HASANYAN, P. MARZOCCA, S. HARUTYUNYAN, "Gap Waves in Ferro-Magneto-Elastic Materials," CANSMART 2004, 7th CANSMART Meeting International Workshop on Smart Materials and Structures, October 21-22, 2004, Montreal, Quebec, Canada.
26. S. NA, C. PARK, M.-H. KIM, L. LIBRESCU, P. MARZOCCA, I.-J. JEONG "Aeroelastic Response of Flapped Wing Systems Using Multiobjective State Feedback Methodology," ICAST 2004, 15th International Conference on Adaptive Structures and Technologies, October 25-27 2004, Bar Harbor, Maine.
27. A.J. MICHALEK, P. MARZOCCA, J. MOOSBRUGGER, D. HASANYAN, "Effects of an In-Plane Axisymmetric Magnetic Field on the Vibration of a Thin Conductive Spinning Disk," MMM 2004, 49th Conference on Magnetism and Magnetic Materials, November 7-11 2004, Jacksonville, Florida.
28. L. LIBRESCU, P. MARZOCCA, M. PEREIRA "Flutter and Post-Flutter Control of Geometrically Nonlinear Panels Operating in a Supersonic/Hypersonic Flow Field," Paper IMECE2004-61373: IMECE 2004, *2004 ASME Int'l Mechanical Engineering Congress & Exposition*, Session: AMD-10 B Multi-field Coupling in Dynamic Systems and Control, 14-19 November 2004, Anaheim, CA, USA.
29. D.-H. KIM, P. MARZOCCA, I. LEE, L. LIBRESCU, "Efficient Nonlinear Aeroelastic Computation of 2-DOF Airfoil Using Combined CFD/Analytical Approach," 2004 Korean Society for Aeronautical and Space Sciences Autumn Conference, 2004 KSAS, Seoul, South Korea, November 18-19, 2004.
30. S. NA, I. JEONG, L. LIBRESCU, P. MARZOCCA, "Aeroelastic Response and Control of an Airfoil in a Subsonic Compressible Flow," AIAA-2005-1992, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
31. C. RUBILLO, P. MARZOCCA, E. BOLLT, "Active Aeroelastic Control of Lifting Surfaces via Jet Reaction Limiter Control," AIAA-2005-2076, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
32. G. COPPOTELLI, P. MARZOCCA, A. BEHAL, "Comparison Among Structural Health Monitoring Techniques," AIAA-2005-2227, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
33. A. MICHALEK, P. MARZOCCA, D. HASANYAN, J. MOOSBRUGGER, "Vibration and Critical Speed of Spinning Disks Under an In-Plane Axisymmetric Magnetic Field: Analytical Predictions and Experimental Verification," AIAA-2005-2256, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
34. P. MARZOCCA, L. LIBRESCU, D. KIM, I. LEE, "Supersonic Flutter and LCO of Airfoils via CFD/Analytical Combined Approach," AIAA-2005-2298, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.

35. M. BORGHINI LILLI, M. PECORA, P. MARZOCCA, "Aeroservoelastic Control of a High Aspect-Ratio Wing for an HALE Aircraft," AIAA-2005-2075, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
36. P. YU, Z. CHEN, L. LIBRESCU, P. MARZOCCA, "Implications of Time-Delayed Feedback Control on LCO of Supersonic Lifting Surfaces," AIAA-2005-2375, *46<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Austin, Texas, 18-21 April 2005.
37. M. BELUBEKYAN, K. GHAZARYAN P. MARZOCCA, "Localized Bending Waves in a Rib-Reinforced Elastic Orthotropic Plate," 16th AeroMat Advanced Aerospace Materials & Processes Conference and Exposition, AeroMat 2005, Orlando, Florida, June 6-9, 2005.
38. C. RUBILLO, E. BOLLT, P. MARZOCCA, "Limiter Control of a Nonlinear Wings," *SIAM Conference on Applications of Dynamical Systems*, Snowbird Ski and Summer Resort, Snowbird, Utah, May 22-26, 2005.
39. V.M. RAO, A. BEHAL, P. MARZOCCA, Adaptive Aeroelastic Control of a Supersonic Wing Section with Flap," AIAA 2005-6250, *AIAA Guidance, Navigation, and Control Conference and Exhibit*, San Francisco, California, August 16-19, 2005.
40. P. YU, Z. CHEN, L. LIBRESCU, P. MARZOCCA "Stability, Bifurcation and Jumping Phenomenon in a 2-D Model of Supersonic Lifting Surfaces," DETC2005-85312, *The 5th ASME International Conference on Multibody Systems, Nonlinear Dynamics and Control*, Long Beach, CA, September 24-28, 2005.
41. M. BELUBEKYAN, K. GHAZARYAN P. MARZOCCA, "Flat Plate Planar and Bending Vibration Modeling in the Presence of Localized Magnetoelastic Waves" *5th International Conference "The Problems of Dynamics of Interaction of Deformable Media"* Goris, Armenia, October 1-7, 2005.
42. P. MARZOCCA, L. LIBRESCU, M. PEREIRA, "Aeroelasticity of Supersonic Panels in High Temperature Environment: Flutter, Post-Flutter and Their Control," IMECE2005-80573, IMECE 2005, *2005 ASME Int'l Mechanical Engineering Congress & Exposition, Session: Instability in Solids and Structures*, November 5-11, 2005, Orlando, FL, USA.
43. I.-J. JEONG, S.S. NA, L. LIBRESCU, P. MARZOCCA, "Robust Aeroelastic Response Control of Flapped Wing Systems," IMECE2005-80650, IMECE 2005, *2005 ASME Int'l Mechanical Engineering Congress & Exposition, Session: Instability in Solids and Structures*, November 5-11, 2005, Orlando, FL, USA.
44. V.M. RAO, A. BEHAL, P. MARZOCCA, "Hierarchical Adaptive Controller for a Nonlinear Aeroelastic Wing Section with Multiple Control Surfaces," Paper 2608, CDC-ECC'05, *44th IEEE Conference on Decision and Control and European Control Conference ECC 2005*, Seville, Spain, December 12-15, 2005.
45. S. SCHOBER, P. MARZOCCA, V. VITI, M. ABDULLA "Steady and Unsteady Aerodynamic and Aeroelastic Control via Synthetic Jet Actuators," AIAA-2006-1062, *44th AIAA Aerospace Sciences Meeting and Exhibit*, 9 - 12 Jan 2006, Reno, Nevada.
46. V. VITI, P. MARZOCCA, "Indicial Aerothermoelastic Modeling of a 2D Hypersonic Lifting Surface via Computational Fluid Dynamics," AIAA-2006-442, *44th AIAA Aerospace Sciences Meeting and Exhibit*, 9 - 12 Jan 2006, Reno, Nevada.
47. V. VITI, P. MARZOCCA, G. COPPOTELLI, "Aerodynamics and Aeroelasticity of Wind Turbine Blades," AIAA-2006-783, *44th AIAA Aerospace Sciences Meeting and Exhibit*, 9 - 12 Jan 2006, Reno, Nevada.

48. I. TUZCU, P. MARZOCCA, E. CESTINO, G. ROMEO, G. FRULLA, "Stability, Control, and Simulation of High-Altitude-Long-Endurance UAVs," AIAA-2006-1641, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
49. T. RENDALL, C. CORMIER, P. MARZOCCA, R. JHA, "Static, Buckling and Dynamic Behavior of Inflatable Beams," AIAA-2006-1701, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
50. P. MARZOCCA, Z. GÜRDAL, J. HOL, C. CHANG, E. CROSBIE, T. CALDER, "Design and Shape Optimization of Inflatable Wings," AIAA-2006-1823, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
51. P. MARZOCCA, L. LIBRESCU, S. NA, C. RUBILLO, Y. CHAN, "Non Linear Aeroelastic Response and Control of Supersonic Flapped 2-D Lifting Surfaces," AIAA-2006-1832, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
52. Z. CHEN, P. YU, P. MARZOCCA, L. LIBRESCU, "Nonlinear Flutter and Time-Delayed Feedback Control of a 2-D Supersonic Flapped Wings," AIAA-2006-1835, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
53. S. NA, L. LIBRESCU, P. MARZOCCA, G. YOON, C. RUBILLO, "Robust Aeroelastic Control of 2-D Supersonic Flapped Lifting Surfaces," AIAA-2006-1836, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
54. S. SCHOBBER, P. MARZOCCA, R. DE BREUKER, M. ABDALLA, "Development of Reduced Order Models for Synthetic Jet Actuators on a Lifting Surface for Optimization and Control," AIAA-2006-1906, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
55. G. COPPOTELLI, P. MARZOCCA, F. ULKER, F. NITZSCHE, J. CAMPBELL, "SHARCS Project: Modal Parameters Identification of Smart Spring/Helicopter Blade System," AIAA-2006-2035, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
56. M. BELUBEKYAN, K. GHAZARYAN, P. MARZOCCA, C. CORMIER, "Localized Magnetoelastic Bending Vibration of an Electroconductive Elastic Plate," AIAA-2006-2110, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
57. T. RENDALL, C. CHANG, P. MARZOCCA, E. BOLLT, P. ZAMANKHAN, "Aeroelastic Behavior of a Non-Rigidizable Inflatable UAV Wing," AIAA-2006-2161, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
58. G. ROMEO, G. FRULLA, E. CESTINO, P. MARZOCCA, I. TUZCU, "Nonlinear Aeroelastic Modeling and Experiments of Flexible Wings," AIAA-2006-2186, *47<sup>th</sup> AIAA/ASME/ASCE/ASC Structures, Structural Dynamics, and Materials Conference*, Newport, Rhode Island, 1 - 4 May 2006.
59. G. ROMEO, G. FRULLA, E. CESTINO, P. MARZOCCA, "Non Linear Aeroelastic Behavior of Highly Flexible Hale Wings, ICAS 2006-10.2.4 *25th Congress of the International Council of the Aeronautical Sciences*, ICAS 2006, Hamburg, Germany, 3- 8 September, 2006.

60. R. DE BREUKER, M. ABDALLA, P. MARZOCCA, Z. GÜRDAL, "Flutter Suppression using Synthetic Jet Actuators: the Typical Section," Proceedings of ICAST2006, *17th International Conference on Adaptive Structures and Technologies*, Oct. 16-19, 2006, Taipei, Taiwan, pp. 1-8, CD-ROM.
61. J.M. NICHOLS, A. MILANESE, P. MARZOCCA, "Characterizing the Auto-bispectrum as a Detector of Nonlinearity in Structural Systems," Paper 6532-31, *SPIE 14th Annual International Symposium on Smart Structures and Materials and Nondestructive Evaluation and Health Monitoring*, March 18-22, 2007, San Diego, California, USA.
62. P. MARZOCCA, J.M. NICHOLS, M.E. SEAVER, S.T. TRICKEY, A. MILANESE, "Development of higher-order spectra for randomly excited quadratic nonlinear systems: Volterra functional series approach," Paper 6532-33, *SPIE 14th Annual International Symposium on Smart Structures and Materials and Nondestructive Evaluation and Health Monitoring*, March 18-22, 2007, San Diego, California, USA.
63. K. O'DONNELL, S. SCHOBBER, M. STOLK, P. MARZOCCA, R. DE BREUKER, M. ABDALLA, E. NICOLINI, Z. GÜRDAL, "Active Aeroelastic Control Aspects of an Aircraft Wing by Using Synthetic Jet Actuators: Modeling, Simulations, Experiments," Paper 6523-8, *SPIE 14th Annual International Symposium on Smart Structures and Materials and Nondestructive Evaluation and Health Monitoring*, March 18-22, 2007, San Diego, California, USA.
64. M. BELUBEKYAN, K. GHAZARYAN, A. MILANESE, P. MARZOCCA, H.P. MKRTCHYAN, "On the Magnetic Field Effect in Electro-Conductive Plates Under Non-Conservative Loading," AIAA-2007-2156 *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
65. K. O'DONNELL, C. MCNALL, A. MILANESE, P. MARZOCCA, R. JHA, E. BOLLT, "Design of a Wind Tunnel Apparatus to Assist Flow and Aeroelastic Control via Zero Net Mass Flow Actuators," AIAA-2007-1771, *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
66. S. NA, P. MARZOCCA, L. LIBRESCU, K. BONG, G. YOON, C. RUBILLO, "Sliding Mode Aeroelastic Control of Supersonic 2-D Flapped Lifting Surfaces," AIAA-2007-2349, *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
67. R. DE BREUKER, M. ABDALLA, P. MARZOCCA, "Aeroelastic Control and Load Alleviation Using Multiple Optimally Distributed Synthetic Jet Actuators," AIAA-2007-2134, *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
68. V. VITI, G. COPPOTELLI, F. DE POMPEIS, P. MARZOCCA, "Development of an Aerodynamic and Aeroelastic Tool for Wind Turbine Design," AIAA-2007-2241, *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
69. K. LAITH, Q. CHEN, K. O'DONNELL, D. VALENTINE, P. MARZOCCA, "Bifurcations and Chaotic Behavior of Hypersonic Lifting Surfaces with Freeplay including the Stiffness and Damping Nonlinearities," AIAA-2007-2208, *48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, Apr. 23-26, 2007.
70. A. MILANESE, P. MARZOCCA, J. M. NICHOLS, M. SEAVER, S.T. TRICKEY, "Joint Loosening Detection via Output-Only Broad-Band Vibration Measurements: An Experimental Study," 6th International Workshop on Structural Health Monitoring, IWSHM 2007, Stanford, CA, September 11-13, 2007.

71. M. STOLK, D. PATEL, K. O'DONNELL, P. MARZOCCA, R. DE BREUKER, M. ABDALLA, E. NICOLINI, Z. GÜRDAL, "The Active Flow and Aeroelastic Control of Lifting Surfaces Using Synthetic Jet Actuators," SAE-2007-01-3920, SAE 2007 AeroTech Congress & Exhibition, Los Angeles, CA, September 17-20, 2007.
72. K. GHAZARYAN, P. MARZOCCA, A. MILANESE, H. MKRTCHYAN, "Localized bending vibration of a rectangular plate with one free and three clamped edges" International Conference "Topical Problems of Continuum Mechanics" dedicated to 95-anniversary Academician Nagoush Kh. Haroutunyan, 24 – 28 September 2007, Tsakhkadzor, Armenia.
73. K.-S. BONG, L. LIBRESCU, Z. QIN, G.-C. YOON, P. MARZOCCA, S. NA, "Aeroelastic Response and Robust Control of Aircraft Wings Modeled as Thin-Walled Beams in Compressible Flow" Proceedings of ICAST2007, *18th International Conference on Adaptive Structures and Technologies*, Oct. 3-5, 2007, Ottawa, Canada, pp. 1-8, CD-ROM.
74. M. STOLK, D. PATEL, P. MARZOCCA, R. DE BREUKER, M. ABDALLA, "Lifting Surface Aerodynamic Modeling Accounting for Synthetic Jet Actuators," Proceedings of ICAST2007, *18th International Conference on Adaptive Structures and Technologies*, Oct. 3-5, 2007, Ottawa, Canada, pp. 1-8, CD-ROM.
75. R. DE BREUKER, M. ABDALLA, A. MILANESE, P. MARZOCCA, "Simultaneous Flutter Suppression and Load Alleviation Using Multiple Optimally Distributed Synthetic Jet Actuators," Proceedings of ICAST2007, *18th International Conference on Adaptive Structures and Technologies*, Oct. 3-5, 2007, Ottawa, Canada, pp. 1-8, CD-ROM.
76. J. M. NICHOLS, P. MARZOCCA, A. MILANESE, "The Auto-bispectral Density Function for Multi-Degree-of-Freedom Systems: Theory, Estimation, and Detection," *IMAC-XXVI: Conference & Exposition on Structural Dynamics*, Feb. 4-7, 2008, Orlando, Florida.
77. J. M. NICHOLS, P. MARZOCCA, A. MILANESE, "Nonlinearity Detection Using the Auto-Bispectral Density," *SPIE 15th Annual International Symposium on Smart Structures and Materials and Nondestructive Evaluation and Health Monitoring*, March 9-13, 2008, San Diego, California, USA.
78. J. M. NICHOLS, A. MILANESE, P. MARZOCCA, "The Analytical Trispectrum for Multiple Degree-of-Freedom Systems Possessing Cubic Nonlinearity," *SPIE 15th Annual International Symposium on Smart Structures and Materials and Nondestructive Evaluation and Health Monitoring*, March 9-13, 2008, San Diego, California, USA.
79. R. DE BREUKER M. ABDALLA, A. MILANESE, P. MARZOCCA, "Optimal Control of Aeroelastic Systems using Synthetic Jet Actuators," AIAA-2008-1726, *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Schaumburg, IL, Apr. 7-10, 2008.
80. K. KIM, K. BONG, G. YOON, S. NA, P. MARZOCCA, A. MILANESE, L. LIBRESCU (in memory), "Comparative Analysis of Control Performances Applied to a 3-DOFs Nonlinear Supersonic Lifting Surface," AIAA-2008-1724, *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Schaumburg, IL, Apr. 7-10, 2008.
81. M. BELUBEKYAN, K. GHAZARYAN, A. VARDANOV, A. MILANESE, P. MARZOCCA, "Localized Vibrations Near the Free Edge of a Cylindrical Shell," AIAA-2008-1874, *49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Schaumburg, IL, Apr. 7-10, 2008.

## **G. Review Papers of a Cooperative Work at NASA Langley Research Center**<sup>10</sup>

1. W.A. SILVA, P. BERAN, C. CESNIK, R.E. GUENDEL, A.J. KURDILA, R.J. PRAZENICA, L. LIBRESCU, P. MARZOCCA, D. RAVEH, "Reduced-Order Modeling Research and Development at the NASA Langley Research Center" *International Forum on Aeroelasticity and Structural Dynamics 2001*, Madrid (Spain) June 5-7, 2001.

## **H. Keynote and Invited Speaker**

### **International Presentations**

1. Keynote: "Advances in the Linear/Nonlinear Control of Aeroelastic Structural Systems," (with Professor L. Librescu), presented at the Third European Conference on Structural Control (3ECSC), Vienna University of Technology, Vienna, Austria, July 12-15, 2004.
2. Invited Speaker: "Linear/Nonlinear Indicial Methods for 2-D Lifting Surfaces Aeroelasticity" Invited speaker at the: 16th Canadian Symposium on Fluid Dynamics, Dalhousie University in Halifax; CAIMS/CMS 2004: 25th Annual Meeting of the Canadian Applied and Industrial Mathematics Society; 2004 Summer Meeting of the Canadian Mathematical Society. June 13-15, 2004.

### **I. Abstracts and Presentations at Meetings**

1. S. SCHOBBER, P. MARZOCCA, R. DE BREUKER, M. ABDALLA, "Computation of a SJA in Crossflow: Analysis of the Flow Structure on a NACA 0012 Airfoil," 1000 Islands Fluid Mechanics Meeting, TIM 2006, April 28-30, 2006, Gananoque, ON, Canada.
2. T. CALDER, E. CROSBIE, C. CHANG, P. MARZOCCA, "Design and Shape Optimization of Inflatable Wings," 1000 Islands Fluid Mechanics Meeting, TIM 2006, April 28-30, 2006, Gananoque, ON, Canada.
3. E. CROSBIE, P. MARZOCCA, "A Numerical Study of the Aerodynamics of Inflatable Airfoils with Morphing Camber," 1000 Islands Fluid Mechanics Meeting, TIM 2006, April 28-30, 2006, Gananoque, ON, Canada.
4. K. GHAZARYAN, H. MRTCHYAN, P. MARZOCCA, C. CORMIER, "Localized Interface Bending Waves in an Elastic Orthotropic Plates," International Conference on Mechanics of Composites and Optimal Design, Yerevan, Armenia, September 25-28, 2006.
5. M. BELUBEKYAN, K. GHAZARYAN, H. MKRTCHYAN, P. MARZOCCA, C. CORMIER, A. MILANESE, "Localized bending waves and interface waves in elastic plates," APM 2007 *Advanced Problems in Mechanics, International Summer School-Conference*, Russia, St. Petersburg, June 20-28, 2007.
6. E. LEVIS, P. MARZOCCA, "Control of Inflatable Wing Vibration Through Use of Seamless Trailing Edge Devices," Proceedings of ICAST2007, *18th International Conference on Adaptive Structures and Technologies*, Oct. 3-5, 2007, Ottawa, Canada, pp. 1-8, CD-ROM.

### **J. Invited Lectures in Conferences and Workshops, (In Addition to Conference Presentations)**

1. P. MARZOCCA, L. LIBRESCU, "Aeroelasticity of Two-Dimensional Lifting Surfaces via Indicial Function Approach: Compressible Flight Speed Regime," *Lecture at Virginia Academy of Science 78<sup>th</sup> Meeting*, May 23-26, 2000, Radford University, Radford, VA.

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<sup>10</sup> In this paper are shared some aspects of our research involving Volterra theory and reduced-order modeling techniques as applied to aeroelasticity as well as some of our own ongoing research and collaborative efforts, cooperative research and development activities at the NASA LaRC.

2. P. MARZOCCA, L. LIBRESCU, "Hopf-Bifurcation of Sectional Wing with Cubic Aerodynamic and Physical Nonlinearities," *Lecture at Virginia Academy of Science 79<sup>th</sup> Meeting*, May 23-26, 2001, James Madison University, Harrisonburg, VA.
3. P. MARZOCCA, L. LIBRESCU, W.A. SILVA, "Consideration of a Flutter Prediction Methodology Using a Combined Analytical-Experimental Procedure," Symposium in honor of Professor I.M. Daniel, *14<sup>th</sup> U.S. National Congress of Applied Mechanics*, Virginia Polytechnic Institute and State University, June 23-28, 2002.
4. L. LIBRESCU, P. MARZOCCA, W.A. SILVA, "Nonlinear Aeroelasticity of Air Vehicle Structural Systems In Pre- And Post- Flutter Flight Conditions," AFOSR/AFRL Workshop on Nonlinear Aspects of Aeroelasticity and Related Structural Dynamics, Shalimar, FL, 6-7 March 2003.
5. M. BELUBEKYAN, K. GHAZARYAN, YU. SANOYAN, P. MARZOCCA, C. CORMIER, Electro-Magneto Coupling Based Structural, Health Monitoring of Elastic Systems, National Foundation of Science and Advanced Technologies U.S. Office of Naval Research Global Conference: "International Collaboration Opportunities for Science and Technology Development in Armenia" Yerevan, January 24-25, 2006.
6. P. MARZOCCA, Non-linear Unsteady Aerodynamics and Aeroelastic Computation of Aircraft Wings, 07ATC-322, SAE 2007 AeroTech Congress & Exhibition, Los Angeles, CA, September 17-20, 2007.

#### **K. Invited National and International Seminars/Presentations**

1. P. MARZOCCA, "Volterra Functional Series Applied to Aerospace," Polytechnic of Turin, Department of Aeronautical and Aerospace Engineering, Turin, Italy, March 3, 2001.
2. P. MARZOCCA, "Nonlinear Aeroelasticity of Air Vehicle Structural Systems In Pre- And Post- Flutter Flight Conditions," Clarkson University, Department of Mechanical and Aeronautical Engineering, Potsdam, NY, 11 February 2003.
3. P. MARZOCCA, "Nonlinear Aeroelastic Control of Aerospace Structural Systems," Clarkson University, Department of Mechanical and Aeronautical Engineering, Potsdam, NY, 7 February 2005.
4. P. MARZOCCA, "Linear/Nonlinear Aeroelasticity and Control of Aerospace Systems in Various Flight Speed Regimes," Xi'an Jiaotong University, Aerospace Department, Xi'an, China, 1 June 2005.
5. P. MARZOCCA, "Aeroservoelasticity for Advanced Aeronautical Systems," Northwestern Polytechnical University, School of Aeronautics and Aerospace, Xi'an, China, 2 June 2005.
6. P. MARZOCCA, "Stability and Bifurcations of Aerospace Systems," Xi'an Jiaotong University, Department of Mathematics, Xi'an, China, 3 June 2005.
7. P. MARZOCCA, "Potentials of Functional Series for Health Monitoring of Structural Systems," Naval Research Laboratory, Washington, DC, 24-25 April 2006.
8. P. MARZOCCA, "Linear and Non Linear Aeroelasticity: An Overview," Korea University, South Korea, 28 May 2006.
9. P. MARZOCCA, "Aeroelasticity of Flexible Systems," Korea University, GyeongSang National University (GSNU), South Korea, May 29 2006.
10. P. MARZOCCA, "Stability, Bifurcations and Active Aeroelastic Control of Aeroelastic Systems," KAIST, South Korea, 30 May 2006.

11. A. *EKBOTE*, D. AIDUN, P. MARZOCCA, "Investigation of Water Quality Requirements and Corrosion Evaluation of Heat Exchangers," General Electric, Houston, TX, 13-15 March 2007.
12. R. *CROCKER*, D. AIDUN, P. MARZOCCA, "Modeling and Analysis of the Bonding of the Fin/Tube in Heat Exchangers," General Electric, Houston, TX, 13-15 March 2007.
13. O. *AL-HABAHBEH*, D. AIDUN, P. MARZOCCA, "Thermal Model for Gas Turbine System Components," General Electric, Houston, TX, 13-15 March 2007.

#### **L. Poster Presentations**

1. A. ROMAN (McNair Student), "i-UAV Project: structural characterization" Mentor: P. Marzocca, B. Helenbrook, E. Bollt, K. Visser, SURE Conference 2004, Clarkson University, July 2004.
2. Q. SODJI (McNair Student), "i-UAV Project: CFD modeling" Mentor: P. Marzocca, B. Helenbrook, E. Bollt, K. Visser, SURE Conference 2004, Clarkson University, July 2004.
3. A. GNANN (MAE Und. Student), "Adaptive Control Based Structural Health Monitoring Technique," Mentors: P. Marzocca, A. Behal, SURE Conference 2004, Clarkson University, July 2004.
4. C. RUBILLO (MS Student) "Active Aeroelastic Limiter Control of a Nonlinear Wings," SIAM Conference on Applications of Dynamical Systems, Snowbird Ski and Summer Resort, Snowbird, Utah, May 22-26, 2005.
5. C. MCBEE (Summer Research Student), C. LIBORDI (Summer Research Student), V.M. RAO (MS Student ECE), "Damage Detection Based on Structural Dynamic Characteristics," Mentors: P. Marzocca, A. Behal, SURE Conference 2005, Clarkson University, July 2005.
6. M.K. KAMALUDEEN (McNair Student), V.M. RAO, (MS Student ECE) "Adaptive Aeroelastic Vibration Suppression of a Supersonic Airfoil with Flap," Mentors: P. Marzocca, A. Behal, SURE Conference 2005, Clarkson University, July 2005.
7. C. MCBEE, C. LIBORDI (Faculty Advisors: P. Marzocca, A. Behal) "Health Monitoring of Structural Components," 14th Annual Teaching Effectiveness Conference Undergraduate Research: Models, Funding and Pedagogy Saturday, October 29, 2005 Bertrand Snell Hall, Clarkson University.
8. M.K. KAMALUDEEN (McNair Student), V.M. RAO, (MS Student ECE) (Faculty Mentors: P. Marzocca, A. Behal) "Adaptive Control of a Supersonic Wing," 14th Annual Journey Beyond Excellence CSTEP State Wide Student Conference, 21-23 April, 2006, Lake George, Sagamore, NY. *Best Poster Award: 3<sup>rd</sup> place* - Science and Technology category.
9. D.M. ENO, P. MARZOCCA, D. LEONARD, R. PARTCH, "Studies on Filler Addition to SOMOS 11120 Watershed Stereolithography Resin," CAMP Meeting, May 2006, Canandaigua.
10. C.W. MCNALL (REU-NSF/MAE UG Student), K. O'DONNELL (MAE UG/G Student), "Development of an Experimental Two Degree of Freedom Aeroelastic Test Apparatus," Mentor: P. Marzocca, SURE Conference 2006, Clarkson University, July 2006.
11. M. HE, (Advisors: S. DHANIYALA, P. MARZOCCA) "Urban Airshed Monitoring: New Tools for Aerosol Characterization at Meso-Scale Spatial Resolution" Clarkson CEE Meeting, Spring 2007.

12. O. AL-HABAHBEH, R. CROCKER, A. EKBOTE, P. MARZOCCA, D. AIDUN, "Use of Reliability and Life Assessment Techniques to Analyze Corrosion & Fatigue," CAMP Technical Meeting, May 2007, Canandaigua, NY.
13. A. MILANESE, P. MARZOCCA, J. M. NICHOLS, "Modeling of Randomly Excited Nonlinear Structures for the Benchmark of SHM Techniques," 6th International Workshop on Structural Health Monitoring, IWSHM 2007, Stanford, CA, September 11-13, 2007.
14. M. HE, P. MARZOCCA, S. DHANIYALA, "Urban Airshed Monitoring: UAV-based system for aerosol measurements," AAAR Conference, September 24-28, 2007, Reno, NV.
15. D. VALYOU, Z. GIBBONS, "Flight control, Data Acquisition, and Payload Integration for an Aerosol Sampling Unmanned Aerial Vehicle," Mentors: P. Marzocca, S. Dhaniyala, "SURE Conference 2006, Clarkson University, July 2007.

### **M. Technical Reports**

1. L. LIBRESCU, P. MARZOCCA, "Open/closed loop nonlinear aeroelasticity of aircraft wings," Final Technical Report Project – NASA Langley Research Center Grant NAG-1-02-011.
2. L. LIBRESCU, P. MARZOCCA, "*Nonlinear Aeroelasticity of Lifting Surfaces by Functional Series Techniques: Subcritical Response and Character of the Flutter Boundary*," Final Technical Report Project – NASA Langley Research Center Grant NAG-1-01-007.
3. L. LIBRESCU, P. MARZOCCA, "*Aeroelastic Modeling and Behavior of Lifting Surfaces incorporating Aerodynamic and Structural Nonlinearities: Volterra Series and Indicial Function Approach*," Final Technical Report Project 4-26504 – NASA Langley Research Center Grant NAG-1-2281.
4. P. MARZOCCA, "*Unified Aeroelastic Model for Supermaneuverable Flight Vehicles Incorporating Nonlinear Unsteady Aerodynamics and Structural Nonlinearities, via Volterra-Wiener Series Approach*," *Technical Report*, Aeronautical and Aerospace Engineering Dept., Politecnico di Torino, pp. 57, June 1999.
5. P. MARZOCCA, "*Aeroelasticity of Two-Dimensional Lifting Surfaces via Indicial Function Approach: Incompressible and Compressible Flight Speed Regimes*," *Technical Report*, Aeronautical and Aerospace Engineering Dept., Politecnico di Torino, pp. 60, August 1999.
6. P. MARZOCCA, "*Aeroelastic Response to Gust and Blast Pressure Pulses of an Airfoil in an Incompressible Flow Field Featuring Plunging and Pitching Coupled Motions*," *Technical Report*, Aeronautical and Aerospace Engineering Dept., Politecnico di Torino, pp. 20, September 1999.
7. P. MARZOCCA, *Studies on Linear and Nonlinear Aeroelasticity of Lifting Surfaces Approached Via New Techniques*, Ph.D. Thesis in Aerospace Engineering, Politecnico di Torino, Aeronautical and Aerospace Engineering Dept., Turin, Italy, March 2001, thesis available also at the Italian National Library of Florence, Milan and Rome.
8. P. MARZOCCA, *Realization of a wing box of 6 meters and experimental and theoretical analysis of structures in composite material for solar energy electrical gliding*. MS Thesis in Aeronautical Engineering, Politecnico di Torino, Aeronautical and Aerospace Engineering Dept., Turin, Italy, December 1996.
9. C.W.C. CHANG, P. MARZOCCA, "Conceptual Design and Realization of an Inflatable Uninhabited Aerial Vehicle," Department of Mechanical and Aeronautical Engineering Clarkson University, Potsdam, NY 13699-5725, MAE Report No. 374, June 2005.

10. T.C.S. RENDALL, P. MARZOCCA, "Static, Dynamic and Aeroelastic Behavior of Inflatable UAV Wing," Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY 13699-5725, MAE Report No. 375, June 2005.
11. C.P. CORMIER, P. MARZOCCA, "Buckling Analysis of an Inflatable, Non-Rigidizable Wing," Department of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY 13699-5725, MAE Report No. 376, June 2005.

#### **N. Articles in The Popular Press**

1. Wired News, "Big Flap Over Future Flight," by Lakshmi Sandhana, May 18, 2004, [http://www.wired.com/news/technology/0,1282,63361-2,00.html?tw=wn\\_story\\_page\\_next1](http://www.wired.com/news/technology/0,1282,63361-2,00.html?tw=wn_story_page_next1). (published in English, Spanish, Portuguese, Japanese).
2. Clarkson University News, "Clarkson Students Invited To Present Innovative Lunar Base Proposal At Upcoming NASA Meeting," <http://www.clarkson.edu/news/view.php?id=1452>
3. Clarkson University News, "Clarkson University Senior Places Third in Student Research Paper Competition at Princeton," <http://www.clarkson.edu/news/view.php?id=1267>
4. Clarkson University News, "Clarkson Research Seed Grants Jumpstart New Research Directions," <http://www.clarkson.edu/news/view.php?id=1471>
5. "Vento Tek focuses on Wind-Turbine Technology," The Central New York Business Journal, November 2006, [www.cnybj.com](http://www.cnybj.com)
6. Clarkson University News, "Clarkson University Spin-off Vento Tek Receives \$50K Grant for Smart Wind Turbine Blades," <http://www.clarkson.edu/news/view.php?id=1935>
7. "Small companies have high hopes for new technologies," The Central New York Business Journal, January 2008, [www.cnybj.com](http://www.cnybj.com)

#### **O. Editorial work**

1. Co-Editor of Thermal Stresses'03 Proceeding Volumes, Virginia Polytechnic Institute and State University, Blacksburg, VA, Vols. 1-2, 2003, ISBN 0-9721257-2-8.
2. Support the Editorial Board of the Thermal Stresses 2005. Develop Guidelines and Proceeding Format for TS2005 Conference.
3. Associate Editor of the Journal of Thermal Stresses, 2008 – Present

#### **P. Undergraduate and Graduate Research Papers and Presentations**

1. M.K. Kamaludeen (McNair Student), V.M. Rao, (MS Student ECE) (Faculty Mentors: P. Marzocca, A. Behal) "Adaptive Control of a Supersonic Wing," C-STEP Conference 2006, April 21-23, 2006, Syracuse University, 14th Annual Journeys Beyond Excellence Conference at the Sagamore Resort on Lake George. Student Poster Presentation Competition. – *Best Poster Award: 3<sup>rd</sup> place.*
2. J. Thomson (Honor Student), "Assessment of Visual Stabilization for Controlling Unmanned Aerial Vehicles," AIAA Region I-NE Student Conference, Princeton University, NJ, April 22-23, 2005. – *Best paper Award: 3<sup>rd</sup> place.*
3. T. Rendall, C. Chang, (Visiting Scholar Students) "Aerodynamic and Aeroelastic Characterization of a Non-Rigidizable Inflatable UAV," AIAA Region I-NE Student Conference, Princeton University, April 22-23, 2005.
4. C.P. Cormier (Honor Student), "Buckling Characterization of an Inflatable, Non-Rigidizable Wing," AIAA Region I-NE Student Conference, Princeton University, April 22-23, 2005.

5. S.J. Schober (MS Student), "Multiple Synthetic Jet-Airfoil Synthesis: Potential for Aerodynamic Improvement and Aeroelastic LCO Control," AIAA Region I-NE Student Conference, Princeton University, April 22-23, 2005.
6. R. Hover (UG Student), J. Thomson (Honor Student), "Feasibility Analysis of a Jet-Rocket Launch System" AIAA Region I-NE Student Conference, Princeton University, April 22-23, 2005.
7. J. Dearborn (McNair Student), "Inflatable-Winged Unmanned Aerial Vehicle," SURE Conference 2005, Clarkson University, July 2005.
8. A. Bingham, M. Farrell, W. Owens, K. Wickswat, C. Zupp, (Advisors: P. Marzocca, H. Shen) "Development of a Sustainable Development of a Sustainable Lunar Base," AIAA Region I-NE Student Conference, Syracuse University, March 30 - April 1, 2006.
9. A. Bingham, M. Farrell, W. Owens, K. Wickswat, C. Zupp, (Advisors: P. Marzocca, H. Shen) "Development of a Sustainable Development of a Sustainable Lunar Base," Revolutionary Aerospace Systems Concepts Academic Linkage (RASC-AL), RASC-AL 2006 forum, Cape Canaveral, Florida, May 21–25, 2006. Competition limited to 20 US University Teams.
10. J. Dearborn (McNair Student), "Inflatable UAV Project," University at Buffalo's 12th Annual Ronald E. McNair Research Conference McNair Conference 2006, July 15th Niagara Falls, NY.
11. L.M. Myers, J.M. Holla (Advisors: P. Marzocca, D. Valentine), "Design of Acoustical and Flow Visualization Experiments with a Remote Controlled Helicopter," AIAA Region I-NE Student Conference, MIT, Boston, MA, April 27 - April 29, 2007.
12. J.M. Holla (Advisors: P. Marzocca), "Project Sandfly: Design of High speed VTOL Demonstrator Aircraft," AIAA Region I-NE Student Conference, MIT, Boston, MA, April 27 - April 28, 2007.
13. T.F. Perley, K.M. Zeznick (Advisors: P. Marzocca, S. Dhaniyala), "Unmanned Aircraft Systems Operation in Civil Airspace for University Research: the Rules of the Game," AIAA Region I-NE Student Conference, MIT, Boston, MA, April 27 - April 28, 2007.
14. W.E. Bartlett, A.T. Bingham, S.D. Caron, M.M. Farrell, S.D. Moore, E.C. Weston, K.M. Wickswat, R.A. Zilnicki (Advisors: P. Marzocca, D. Valentine) "Manned Missions to Near Earth Objects Using Exploration Systems Architecture Study Hardware," Revolutionary Aerospace Systems Concepts Academic Linkage (RASC-AL), RASC-AL 2007 forum, Houston, Texas, May 20–24, 2007. Competition limited to 15 US University Teams. Awarded \$5,000 from Universities Space Research Association (USRA).
15. L.M. Myers, J.M. Holla, (Advisors: P. Marzocca, D. Valentine) "Design of Acoustical and Flow Visualization Experiments with a Remote Controlled Helicopter," NASA Aeronautics Competition: 2006-2007 Academic Year, University Division, Categories for entry: Small Team. Awarded \$500 from NASA LaRC.
16. J. Holla (C-STEP Student), (Advisors: P. Marzocca, A. Milanese) "Acoustic Analysis of Blade Modifications on a Scale Model Helicopter," University at Buffalo's 13th Annual Ronald E. McNair Research Conference McNair Conference 2007, July 25th Niagara Falls, NY.
17. J. Holla, (Advisors: P. Marzocca, D. Valentine) "Acoustic Analysis of Blade Modifications on a Scale Model Helicopter," AIAA Region I-NE Student Conference, Clarkson University, Potsdam, NY, April 5 - 7, 2008.

18. P.B. Coffin, C.L. Singer, A. Colletti, J. Lazar, "Overview of Inflatable UAV Research at Clarkson University," AIAA Region I-NE Student Conference, Clarkson University, Potsdam, NY, April 5 - 7, 2008; *Best Team paper Award: 3<sup>rd</sup> place.*
19. J. Holla, "The Design of a High Speed Multipurpose ESTOL/VTOL Aircraft," AIAA Region I-NE Student Conference, Clarkson University, Potsdam, NY, April 5 - 7, 2008. *Best paper Award: 3<sup>rd</sup> place.*
20. J. Holla, (Advisors: P. Marzocca, D. Valentine) "Acoustic Analysis of Blade Modifications on a Scale Model Helicopter," Poster Presentation, SURE Spring Symposium, April 11, 2008.
21. J. Holla, "The Design of a High Speed Multipurpose ESTOL/VTOL Aircraft," Poster Presentation, SURE Spring Symposium, April 11, 2008.

### III. RESEARCH ACTIVITIES

Dr. Marzocca research efforts focus on aero-thermo-elasticity, fluid-structure interactions, linear/nonlinear structural dynamics, aeroelastic stability and control, unsteady aerodynamics, aerodynamic shaping and morphing concepts, smart and functionally graded materials and structures, unmanned-air-vehicles (UAV), inflatable structures, wind energy concepts, reliability of systems and components. Success in such research requires the development and integration of a number of disciplines including structural, solid and fluid mechanics, control methodologies, and dynamics of multi-body systems. Past and on-going collaborations are with scientists and researchers from the following (Country) institutions:

Prof. Gianfranco Chiccochia, Politecnico di Torino, Italy; Prof. Liviu Librescu, Dr. Davresh Hasanyan, Dr. Zhanming Qin, Virginia Tech, USA; Prof. Giulio Romeo, Prof. Giacomo Frulla, Politecnico di Torino, Italy; Dr. Valerio Viti, University of Kentucky, USA; Dr. Walter A. Silva, NASA Langley Research Center, USA; Dr. Sean O' Fahey, CSA Engineering, Inc., USA; Prof. Karen Ghazaryan, Prof. Mels Belubekyan, National Academy of Sciences of Armenia, Armenia; Prof. Dong-Hyun Kim, Gyeongsang National University, Republic of Korea; Prof. Moon K. Kwak, Dongkuk University, Republic of Korea; Prof. In Lee, Korea Advanced Institute of Science and Technology, Republic of Korea; Prof. Sungsoo Na, Korea University, Republic of Korea; Prof. Pei Yu, University of Western Ontario, Canada; Prof. Yuan Yuan, Memorial University of Newfoundland, Canada; Prof. Giuliano Coppotelli, University of Rome "La Sapienza", Italy; Prof. Fred Nietzsche, Carleton University, Canada; Prof. Zafer Gurdal, Dr. Jan Hol, Dr. Mostafa Abdalla, Delft University, The Netherlands; Prof. John Moosbrugger, Prof. Aman Behal, Prof. Erik Bollt, Prof. Ratneshwar Jha, Clarkson University, USA; Prof. Ilhan Tuzcu, The University of Alabama, Tuscaloosa, AL. For more information, see <http://www.clarkson.edu/~pmarzocc>.

### IV. TEACHING

#### A. Undergraduate and graduate classes

##### **Politecnico di Torino, Department of Aeronautical and Aerospace Engineering**

<u>Semester</u>	<u>Course</u>	<u>Title</u>	<u>Level</u>	<u>Students</u>	<u>Credits</u>
Fall 1998	AEB4190	Aerospace structures: FEM Patran/Nastran	Grad	75	3
Fall 1997	AEB4190	Aerospace structures: FEM Patran/Nastran	Grad	75	3
Fall 2000	AEB1420	Aerospace technical design	Junior	100	3

##### **Virginia Tech, Department of Engineering Science and Mechanics**

<u>Semester</u>	<u>Course</u>	<u>Title</u>	<u>Level</u>	<u>Students</u>	<u>Credits</u>
Fall 2001	ESM2104	Statics	Sophomore	50	3
Spring 2002	ESM2104	Statics	Sophomore	50	3
Fall 2002	ESM2104	Statics	Sophomore	75	3
Spring 2003	ESM2104	Statics, session # 1	Sophomore	50	3
Spring 2003	ESM2104	Statics, session # 2	Sophomore	50	3

**Clarkson University, Department of Mechanical and Aeronautical Engineering**

<u>Semester</u>	<u>Course</u>	<u>Title</u>	<u>Level</u>	<u>Students</u>	<u>Credits</u>
Fall 2003	AE430	Stability and control of aerospace vehicles	Senior	30	3
Spring 2004	AE429	Performance and flight mechanics	Junior	30	3
Fall 2004	AE430	Stability and control of aerospace vehicles	Senior	30	3
Spring 2005	AE429	Performance and flight mechanics	Junior	50	3
Spring 2005	ME628	Models/Analysis of Nonlinear Mech. Phenom.*	Graduate	6	3
Fall 2005	AE430	Stability and control of aerospace vehicles	Senior	38	3
Spring 2006	AE429	Performance and flight mechanics	Junior	50	3
Fall 2006	AE430	Stability and control of aerospace vehicles	Senior	30	3
Fall 2006	ME 555	Advanced Mechanical Vibrations***	Graduate	10	3
Spring 2007	AE429	Performance and flight mechanics	Junior	50	3
Fall 2007	AE430	Stability and control of aerospace vehicles	Senior	40	3
Spring 2008	AE429	Performance and flight mechanics	Junior	35	3

**AE200 Seminars, Independent Projects, and Selected Topics Study**

<u>Semester</u>	<u>Course</u>	<u>Title</u>	<u>Level</u>	<u>Students</u>	<u>Credits</u>
Fall 2003	AE200	Aeronautical Engineering Seminar**	Sophomore	30	0
Fall 2004	AE200	Aeronautical Engineering Seminar**	Sophomore	60	0
Spring 2004	ME657	ST: Advanced vibration analysis	Grad	1	3
Spring 2004	ME657	ST: Linear/Nonlinear Aeroelasticity	Grad	1	3
Spring 2004	AE365	IP: Fundamentals of aeroelasticity	Senior	1	3
Fall 2004	AE365	IP: Fundamentals of aeroelasticity	Senior	4	3
Fall 2004	AE365	IP: Unmanned aerial vehicle design	Senior	1	1
Spring 2005	AE365	IP: UAV Autonomous Visual Control	Senior	1	3
Spring 2005	AE465	IP: i-UAV prototyping and aeroelasticity	Senior	1	3
Spring 2005	AE465	IP: Safety of a Turbojet	Senior	1	3
Fall 2005	AE365	IP: Fundamentals of aeroelasticity	Senior	1	3
Fall 2005	AE200	Aeronautical Engineering Seminar**	Sophomore	60	0
Spring 2006	AE365	IP: Fundamentals of aeroelasticity II	Senior	1	3
Spring 2006	AE365	IP: Inflatable Structures	Senior	1	3
Spring 2006	AE365	IP: Health Monitoring	Senior	1	3
Fall 2006	AE365	IP: UAV design I	Senior	1	3
Fall 2006	ME591	ST: Special topics in Material Engineering	Grad	1	3
Fall 2006	AE200	Aeronautical Engineering Seminar**	Sophomore	60	0
Spring 2007	AE365	IP: UAV technologies	Senior	1	3
Spring 2007	AE366	IP: UAV design II	Senior	1	3
Spring 2007	AE465	IP: Rotor Aero-acoustics	Senior	1	3
Spring 2007	ME628	ST: Special topics in fluid mechanics	Grad	1	3
Spring 2007	ME657	ST: Special topics in solid mechanics	Grad	2	3
Summer 2007	HP180	Honor Independent Study	Und.	1	3
Fall 2007	AE200	Aeronautical Engineering Seminar**	Sophomore	40	0

\* Co-Coordinator together with Profs. Valentine and Helenbrook

\*\* Taught 1 seminar in 2003 and 4 in 2004. The class meets once every week. No credit.

ST: Selected Topics: Graduate independent study under supervision

IP: Independent Projects: Undergraduate independent study under supervision

\*\*\*Support to Instructor: Cetin Cetinkaya. Participation to a series of weekly seminars

**BEAR Company, Consulauto S.n.c., Torino, Italy**

<u>Semester</u>	<u>Course</u>	<u>Title</u>	<u>Level</u>	<u>Students</u>
Fall 1995	CEE	Introduction to Automotive Electronics	All	15

## **B. Post-doctoral and graduate students supervised**

<b><u>Year</u></b>	<b><u>Student Name</u></b>	<b><u>Program</u></b>	<b><u>Project [present work]</u></b>
2003	Riccardo Lazzaro	PhD	Aero-magneto-elasticity report - suspended - [Ferrari F-1, Italy]
2003-2004	Kiran Cheguri	ME	Aeroelasticity report – no thesis - [work in NJ]
2003-2004	Arthur Michalek	MS	<i>Thesis: <b>Effects of an In-Plane Axisymmetric Electromagnetic Field on the Vibration of a Thin Spinning Disk</b></i> [PhD @ UVM, VT]
2004-2006	Chrissy Rubillo	MS	<i>Thesis: <b>Non-Linear Aeroelasticity and Control of 2-D Lifting Surfaces</b></i> [GE, NY]
2004-2006	Steve Schober	MS	<i>Thesis: <b>Modeling and Computation of Synthetic Jet Actuators for Flow and Aeroelastic Control</b></i> [Lockheed Martin, NY]
2004	Venkatesh Venkataramanujam	ME	Active control report – no thesis - [PhD @ FIT, FL]
2004-	Miguel A Pereira	MS	Magneto-elastic interactions in flexible media [USA, TX]
2005	Albert Campbell	MS	Structural Health Monitoring report
2006-	Keegan O'Donnell	MS	<i>Thesis: <b>Lifting Surfaces Aeroelastic Experimental Investigations and Implementation of Active Flow Control Using Synthetic Jet Actuators</b></i> [GE, NY]
2006-	Mitchell Stolk	MS	<i>Thesis: <b>Modeling and Computation of Lifting Surfaces Hosting Flow Control Actuators</b></i>
2006-	Meilu He	PhD	Urban Airshed Monitoring: New Tools for Aerosol Characterization at Meso-Scale Spatial Resolution (Co-Advisor: S. Dhaniyala)
2006-	Attilio Milanese	PhD	Aeroelasticity and System Identification
2007-2008	Abhishek Ekbote	MS	<i>Thesis: <b>An Experimental Study to Investigate Corrosion Behavior in Heat Exchangers</b></i> (Co-Advisor: D. Aidun)
2007-2008	Ryan Crocker	MS	<i>Thesis: <b>Analysis of the Fin to Tube Bond Degradation Due to Thermal Fatigue in a Plate-Fin Heat Exchangers</b></i> (Co-Advisor: D. Aidun)
2007-	Osama Al-Habahbeh	PhD	Thermal Model for Gas Turbine System Components (Co-Advisor: D. Aidun)
2007-	Mahmood Izadi	PhD	Thermal Model for Gas Turbine System Components (Co-Advisor: D. Aidun)
2008-	Marissa LaCoursiere	PhD	Thermal Model for Gas Turbine System Components (Co-Advisor: D. Aidun)
2006-	Carl Hoover	MS	<i>Thesis: <b>Design and Experimentation of a Flutter-Like Aeroelastic Power Source – FLAPS</b></i> [PhD, Clarkson University]
2006-	Lucas Craig	MS	<i>Thesis: <b>Investigation of Fluid Flow and Particle Dispersion within a shock wave of an Explosion</b></i> (Co-Advisor: G. Ahmadi, S. Dhaniyala, D. Partch) [PhD, Clarkson University]
2007-	Steve Finley	MS	<i>Thesis: <b>Integration of Commercial Computer Aided</b></i>

***Engineering Software To Perform Multidisciplinary Optimization*** (Co-Advisor: K. Willmert) [P&W, CT]

2006-	Kejing Li	PhD	Modeling of a Thermally Affected Dissimilar Metals Joint and FSW Processes (Co-Advisor: D. Aidun)
2007-	Snehal Sewant	MS	SHM Composite Structures
2008-	Omkar Dole	MS	FEM Modeling Unconventional Structures
2007-	Qaid Foulks	ME	Modeling of an hyper-actuated morphing wing

**C. Graduate thesis committees**

<b><u>Year</u></b>	<b><u>Student Name</u></b>	<b><u>Degree, University</u></b>	<b><u>Thesis Title</u></b>
Fall 2004	Peri Murthy	MS, MAE, Clarkson University	Transport, Detachment and Adhesion Measurements of Micro/Nano-Spheres
Fall 2004	Feixia Yu	MS, ECE, Clarkson University	Heat Flow Modeling of SOI MOSFETs and Circuits
Spring 2005	Wei Chen	PhD, MAE, Clarkson University	Fundamentals of Gas-Liquid and Gas-Liquid-Solid Flow in a Bubble Column and in a Simple Shear Flow Device
Spring 2005	Suman K.N.S.	PhD, Mechanical Engineering, Andhra University, India	Performance Evaluation of an Ellipsoidal Nose Made of Natural Fibre Reinforced Plastic for a High Speed Under Water Vehicle
Fall 2005	Chen Li	PhD, MAE, Clarkson University	Acoustic Methods for Thickness Measurements and Monitoring Multi-Layered Structures
Spring 2006	Filippo Testa	MS, Mechanical Engineering, University of Catania, Italy	Non Linear Aeroelastic Behavior of Highly Flexible Wings
Fall 2006	Brian LeFevre	MS, MAE, Clarkson University	Attitude Dynamics and Stability of Solar Sails During Spin Deployment
Fall 2006	van Campen Julien	MS, Aerospace Structures, TUDelft, The Netherlands	Feasibility of a Composite Concept Front Floor for the SuperLightCar Golf
Fall 2006	Federico De Pompeis	MS, Aerospace Engineering, University of Rome "La Sapienza", Italy	Damage Detection of Wind Turbines in Operative Conditions via Output-Only Methods
Fall 2007	Manish Ranjan	PhD, MAE, Clarkson University	Aerosol Instrumentations
Spring 2007	Curtis Rector	MS, MAE, Clarkson University	Feasibility Study of a Small Contra-Rotating Horizontal-Axis Wind Turbine
Spring 2007	Matthew Brown	MS, MAE, Clarkson University	Optimum Blade Numbers and Solidity for Small Horizontal Axis Wind Turbines
Spring 2008	S. Harutyunyan	PhD, MSE, Virginia Tech	Magnetic and elastic wave

interaction in a vibrating  
piecewise-homogeneous  
ferromagnetic space with a  
crack

**D. Undergraduate research project advisor**

<b><u>Year</u></b>	<b><u>Student Name</u></b>	<b><u>Project Title</u></b>
2004	D. J Streibich	Unmanned Aerial Vehicles: Design and Prototyping
2004	C. Cornier (HS)	Finite Element Modeling and Characterization of an inflatable unmanned aerial vehicle
2004	A. Gnann	Health Monitoring of Aircraft Wing via Adaptive Control
2005	C. Mundy (HS)	Flow and Aeroelastic Control via Synthetic Jets
2005	A. Campbell	Evaluation of Output Only Codes for SHMT
2005	G. Sanders	Evaluation of Output Only Codes for SHMT
2006	A. Bingham (HS)	Stability and Control of a MARS Re-Entry System
2007	J. Holla	Project Sandfly: Design of High speed VTOL Demonstrator Aircraft
2007	L. Myers	Design of Acoustical and Flow Visualization Experiments with a Remote Controlled Helicopter
2007	T.F. Perley	Unmanned Aircraft Systems Research
2007	K.M. Zeznick	Unmanned Aircraft Systems Research
2008	I. Lee	CFD modeling using Fluent
2008	S. Kennedy	CFD modeling using Fluent

**E. Undergraduate summer research project supervision (non-credit)**

<b><u>Year</u></b>	<b><u>Student Name</u></b>	<b><u>Project Title</u></b>
Summer 04	A. Gnann (Und)	Health Monitoring of Aircraft Wing via Adaptive Control
Summer 04	A. Roman (McNair)	I-UAV stiffness characterization
Summer 04	Q. Sodji (McNair)	I-UAV CFD modeling
Summer 05	A. Howard (McNair)	Dynamic Characterization of Cellular Material
Summer 05	J. Dearborn (McNair)	Inflatable structures
Summer 05	C. Libordi (Und)	Structural Health Monitoring
Summer 05	C. McBee (Und)	Structural Health Monitoring
Summer 05	M.K. Kamaludeen (McNair)	Adaptive Aeroelastic Vibration Suppression of a Supersonic Airfoil with Flap
Summer 06	C. McNall (NSF-REU, McNair)	Development of an Aeroelastic Experimental Apparatus
Summer 06	K. O'Donnell (SOE)	Development of an Aeroelastic Experimental Apparatus
Summer 07	D. Gonyer (McNair)	Experimental investigation into the implementation of Smart Wind Turbine Blades
Summer 07	J. Holla (C-STEP)	Acoustic Analysis of Blade Modifications on a Scale Model Helicopter
Summer 07	D. Valyou (HS)	Flight control, Data Acquisition, and Payload Integration for an Aerosol Sampling Unmanned Aerial Vehicle

Summer 07      Z. Gibbons (HS)      Flight control, Data Acquisition, and Payload Integration for an Aerosol Sampling Unmanned Aerial Vehicle

**i-UAV Team** - Co-Coordinator: Erik Bollt (MCS) web page <http://www.clarkson.edu/~pmarzocc/i-uav/i-uav-web.html>. Other Faculty involved: Ken Visser, Brian Helenbrook

*Team members*

C. McNall, T. Swain, D. Streibich, C. Zupp, D. McCarney, R. Hover, M. Brown, A. Gnann, C. Staniunas, T.J. Pond, G. McCain, J. Rohr, J. Butler, S. Schober, C. Cornier, N. Foti, M.J Brewer  
C. Bastien, M. Feldman, J. Leahy, D. Beckmann, J. Ngambo, A. Roman, Q. Sodji

**TurboJet Team** - Co-coordinator: Valerio Viti (University of Kentucky).

*Team members*

C. Zupp, C. Agwu, C. Stout, C. McBee, A. Collins, L. Roberts, G. Scialdone; M. Brewer; B. Bohan; J. Butler; J. Edlinger; R. Hover. Web page <http://www.clarkson.edu/~pmarzocc/> ... under construction

**F. Visiting Professors**

<u>Year</u>	<u>Name</u>	<u>Title (University)</u>	<u>Present Position</u>
Spring 05	Valerio Viti	Visiting Professor, Kentucky University	Fluent, Inc.

**G. Visiting Scholars**<sup>11</sup>

<u>Year</u>	<u>Student Name</u>	<u>Degree, University</u>	<u>Project Title</u>
Spring 05	Chris Chang	MS Student, Imperial College, UK	MS Thesis: <i>Conceptual Design and Realization of an Inflatable Uninhabited Aerial Vehicle</i>
Spring 05	Thomas Rendall	MS Student, Imperial College, UK	MS Thesis: <i>Static, Dynamic and Aeroelastic Behavior of Inflatable UAV Wing</i>
Summer 05	Enrico Cestino	Ph.D Student, Politecnico di Torino, Italy	PhD Thesis: <i>High Altitude Long Endurance UAV Nonlinear Aeroelasticity</i>
Fall 05	Filippo Testa	MS Student, Universita' di Catania, Italy	MS Thesis: <i>Gust Response of HALE wings</i>
Spring 06	Thomas Calder	MS Student, Imperial College, UK	MS Thesis: <i>Design of a Morphing Inflatable Wing</i>
Spring 06	Ewan Crosbie	MS Student, Imperial College, UK	MS Thesis: <i>Aeroelastic and Aerodynamic Control of a Morphing Inflatable UAV Wing</i>
Summer 06	Fabio Borello	Ph.D Student, Politecnico di Torino, Italy	PhD Research: <i>Probabilistic Design in Advanced Composite Materials</i>
Spring 07	Errikos Levis	MS Student, Imperial College, UK	MS Thesis: <i>Aeroelasticity of Morphing Inflatable Wing</i>
Spring 07	Dhruve Patel	MS Student, Imperial College, UK	MS Thesis: <i>Active Flow Control via SJAs: modeling, design and experiments</i>

<sup>11</sup> Serving as External Supervisor and Member of the Committee for the Degree Awarded.

Summer 07	Emanuele Nicolini	MS Student, Delft University of Technology, The Netherlands	MS Thesis: SJA Design and Testing
Summer 07	Filippo Testa	Visiting student	<i>Gust Response of HALE wings</i>

## V. NATIONAL SERVICE

### A. Professional societies

- ❑ American Helicopter Society (AHS International) The Vertical Flight Society, Member (2000-Present)
- ❑ American Institute of Aeronautics and Astronautics (AIAA), Member, (2000-Present)
- ❑ American Society of Mechanical Engineers (ASME), Associate Member, (2000-Present)
- ❑ American Society for Engineering Education (ASEE), Member, (2003-Present)
- ❑ Virginia Academy of Science (VAS), Member, (2000-Present)
- ❑ The National Air and Space Society (NASS), Member, (2001-Present)
- ❑ Society of Automotive Engineers (SAE International), Member, (2003-Present)
- ❑ Gruppo Nazionale per la Fisica Matematica (GNFM), Istituto Nazionale di Alta Matematica, (INdAM), Meccanica dei Continui Solidi, - National Group for the Mathematical Physics - National Institute of High Mathematics, Continuum Mechanics, Solids, Elected Member, (2003-Present)
- ❑ Center for the Environment, Clarkson University, Member, (2004-Present)
- ❑ Sigma Gamma Tau Honor Society for Aerospace Engineering, Member (2004-Present)
- ❑ AIAA Student Chapter, 2006, co-advisor
- ❑ Design Build and Fly, 2007, co-advisor
- ❑ Institute of Electrical and Electronics Engineers, IEEE Member (2007-Present)

### B. Book's, journal's, conference's, proposal reviewer

#### **Book**

- ❑ Cambridge University Press
- ❑ Elsevier, Butterworth-Heinemann, Newnes, Academic Press

#### **Journal**

- ❑ AIAA Guidance, Navigation, and Control Conference
- ❑ AIAA Journal of Aircraft
- ❑ AIAA Journal
- ❑ AIAA Journal of Guidance, Dynamics and Control
- ❑ AIAA Journal of Spacecraft and Rockets
- ❑ Aerospace Sciences and Technology
- ❑ Nonlinear Dynamics
- ❑ Journal of Vibrations and Control
- ❑ Journal of Thermal Stresses
- ❑ Smart Materials and Structures
- ❑ IEE Proceedings Control Theory & Applications
- ❑ International Journal of Systems Science
- ❑ AMM – Applied Mathematical Modelling
- ❑ Shock and Vibration
- ❑ Journal of Applied Mechanics
- ❑ ASME Journal of Offshore Mechanics and Arctic Engineering
- ❑ International Journal of Robust and Nonlinear Control
- ❑ ASME Journal of Vibration and Acoustics
- ❑ Canadian Aeronautics and Space Journal
- ❑ Dynamics of Continuous, Discrete and Impulsive Systems

- ❑ Journal of Fluids and Structures
- ❑ Composites Part B: Engineering
- ❑ Mathematical and Computer Modelling
- ❑ Mechanics Research Communications

### **Conference**

- ❑ AIAA/ASME/ASCE/AHS/ASC SDM Conference
- ❑ CDC - IEEE Control Systems Society Conference
- ❑ AIAA Region I-MA Student Conference
- ❑ AIAA Region I-NE Student Conference
- ❑ SAE Aerotech 2007
- ❑ SAE WATC 2008

### **Proposals**

- ❑ U.S. Civilian Research and Development Foundation CRDF
- ❑ National Science Foundation
- ❑ ASEE NRL Fellowships
- ❑ ASEE Department of Defense SMART Fellowship
- ❑ NASA Postdoctoral Program Review
- ❑ Department of Energy

### **C. Judge at conferences and meetings**

- ❑ Judge, student paper contest, AIAA Region I-MA Student Conference, Virginia Tech, Blacksburg, VA, April 16-18, 2004
- ❑ Judge, student paper contest, AIAA Region I-NE Student Conference, Boston, Boston University, Boston, MA, April 2-3, 2004

### **D. Conference and Committee Activities**

- June, 2003 **Secretary**, *5th International Congress of Thermal Stresses and Related Topics, TS2003*, Organized and hosted by Virginia Polytechnic Institute and State University, Blacksburg, Virginia, June 8-11, 2003.
- June, 2003 **Session Chair**, *Aerothermoelasticity*, at *5th International Congress of Thermal Stresses and Related Topics, TS2003*, Organized and hosted by Virginia Polytechnic Institute and State University, Blacksburg, Virginia, June 8-11, 2003.
- July, 2004 **Session Chair**, *Different Structures I: Aerospace, Off- Shore, Ship*, at *3rd European Congress on Structural Control*, Organized and hosted by Vienna University of Technology, Vienna, July 12-15, 2004.
- May, 2005 **Member of the International Organizing Committee** of the *6th International Congress of Thermal Stresses and Related Topics, TS2005*, Organized and hosted by Vienna University of Technology, Vienna, Austria, May 26-29, 2005.
- May, 2005 **Session Chair**, *Waves II*, at *6th International Congress of Thermal Stresses and Related Topics, TS2005*, Organized and hosted by Vienna University of Technology, Vienna, Austria, May 26-29, 2005.
- May, 2005 **Session Chair**, *Dynamic Problem II*, at *6th International Congress of Thermal Stresses and Related Topics, TS2005*, Organized and hosted by Vienna University of Technology, Vienna, Austria, May 26-29, 2005.
- Oct., 2005 **Member of the Scientific Program Committee** of the *5th International Conference "The Problems of Dynamics of Interaction of Deformable Media"* Organized by the Institute of Mechanics NAS of Armenia, Institute of Mechanics of Moscow State University, Institute of Mechanical Problems of RAS and Goris Branch of SEUA, Goris, Armenia, October 1-7, 2005.

- May, 2006 **Session Chair**, Engine and Jet Design, 2nd AIAA Multidisciplinary Design Optimization Specialist Conference, Newport, Rhode Island, 1 - 4 May 2006.
- May, 2007 **Member of the International Organizing Committee** of the *7th International Congress of Thermal Stresses and Related Topics, TS2007*, Organized and hosted by National Taiwan University of Science and Technology, National Taiwan University, Taipei, Taiwan, June 4-7, 2007.
- 2007 – **Chair**, UAV Applied Technical Committee, SAE International.
- Sept 2007 Organizer and Chair of three sessions at the SAE 2007 AeroTech Congress & Exhibition September 17-20, 2007, Los Angeles, CA. – UAV Design part A, ATC40A; UAV Design part B, ATC40B; UAV Guidance and Control ATC42.
- Jan, 2008 Member of the Editorial Board of the Journal of Thermal Stresses.
- May 2008 **Chair**, Professor Liviu Librescu Memorial Sessions, co-organized with Professor M. Pindera of UVA. To be held during the ESM2008 Mechanics Conference celebrating 100 years of the ESM Department at Virginia Tech; 40 contributions from 15 Countries for this special symposium.

#### **E. Other Professional Society Membership / Involvement**

- ❑ AIAA E-Mentoring
- ❑ ASME E-Mentoring

#### **F. Virginia Tech Service**

- ❑ Center for Excellence in Undergraduate Teaching (CEUT)
- ❑ Statics for Undergraduates, Department of Engineering Science and Mechanics

### **VI. CLARKSON UNIVERSITY SERVICE**

#### **A. Departmental Service**

- ❑ Aeronautical Engineering Committee
- ❑ Recruitment & Teaching Committee
- ❑ University Award Committee
- ❑ Academic Integrity Committee
- ❑ McNair, C-Step and Honor Student Mentor
- ❑ Undergraduate student recruitments efforts – Meetings with parents of prospective students student, tours, etc.
- ❑ Open House Activities since Fall 2003 (four times per year)
- ❑ MAE Senior and Junior students activities
- ❑ Qualifying exam
- ❑ Speaker and Invite speaker to Seminar Series
- ❑ Serve in Ph.D. committees
- ❑ Support Faculty Recruiting Committee in establishing contact with potential candidates.
- ❑ Web pages:
  - ❑ AE-430, Stability and control of aerospace vehicles, <http://www.clarkson.edu/~pmarzocc/AE430/AE430index.htm>
  - ❑ AE-429, Performance and flight mechanics, <http://www.clarkson.edu/~pmarzocc/AE429/AE429index.html>
  - ❑ i-UAV: <http://www.clarkson.edu/~pmarzocc/i-uav/i-uav-web.html>
- ❑ Mentor: Undergraduate Research Project, Summer 2004
- ❑ Mentor: Undergraduate Research Project, Summer 2005
- ❑ Mentor: Undergraduate Research Project, Summer 2006
- ❑ Mentor: Undergraduate Research Project, Summer 2007
- ❑ Mentor inflatable Unmanned Aerial Vehicle Team, i-UAV team
- ❑ Mentor: Wright Brother Glider Club

- Mentor: Turbojet Propulsion Group (with Prof. V. Viti)
- Mentor: SPEED RASC-AL Team 2006 (with Prof. H. Shen)
- Mentor: SPEED RASC-AL Team 2007 (with Prof. D. Valentine)
- Mentor: SPEED RASC-AL Team 2008 (with Prof. D. Valentine)

## **B. University Service**

Mentor 2 McNair Scholars, Summer 2004  
 Mentor 2 McNair Scholars, Summer 2005  
 Mentor 1 REU Scholar, Summer 2006  
 Mentor 1 McNair Scholar, Summer 2007  
 Mentor 1 CSTEP Scholar, Summer 2007  
 Mentor 2 Honor Students, Summer 2007

## **VII. RELEVANT SKILLS**

**Languages:** MATHEMATICA, FORTRAN, MATLAB, LaTeX, HTML, BASIC, Pascal  
**Systems:** UNIX (DIGITAL Workstation and SILICON Graphic) MS-DOS, Windows system (3.1X, 95, 98, 2000, NT, XP), MAC  
**Applications:** OFFICE (WORD for Windows, Excel, PowerPoint) Norton Utility AUTOCAD, Showcase, Compiler Design, Data Structures, discrete math and calculus Codes: MSC PATRAN/NASTRAN, DYTRAN, AKUSTIC MOD, FEMAP, PAL  
 I realized some programs using finite element method and Matrix Methods for Structural Analysis working in the MATLAB and FORTRAN, MSC PATRAN/NASTRAN environment. I followed courses on the application of the FEM organized by the Department of Electric Industrial Engineering and at the MacNeal-Schwendler Company (Italia) s.r.l. - Engineering Analysis Software

## **AREA OF INTEREST (Short Description)**

- Nonlinear Aeroelasticity and Aerothermoelasticity
- Unsteady Aerodynamics
- Structural Dynamics
- Active/Passive/Hybrid Controls
- Smart Materials and Smart Structures
- Actuators and Sensing Devices
- Structural Health Monitoring
- Modeling, Manufacturing, and Testing of Composite Structures
- Thermal Stresses and Thermoelasticity
- Spacecraft Thermal Modeling
- Multi-physics: Aero-magneto-elastic
- Reliability Engineering
- Inflatable Structural Systems
- UAV Design and Operations
- Functionally graded materials and structures
- Performance and Flight Mechanics
- Flight Dynamics, Stability and Control of Aircraft and Spacecraft Systems
- Wind Turbine Design
- Volterra Functional Series

## **KEYWORDS DESCRIBING THE ACADEMIC FIELDS OF INTEREST**

Linear/Nonlinear Aero-thermo-elasticity; Fluid-Structure Interaction, Unsteady Aerodynamics; Flutter and Aeroelastic Response Analysis; Linear/Nonlinear Indicial Models; Thermal Stresses, Thermoelasticity, Structural Health Monitoring, Smart Structures, Volterra-Wiener Series Techniques; Hopf-Bifurcation; Flutter Boundary; Stall and Post-Stall Flight Conditions; Time and Frequency Descriptions, Fundamental Theoretical Analysis; Functionally graded materials and structures; Reliability; Diagnostics and Prognostics of Structural Systems.

## **VIII. REFERENCES**

Available upon request

## **IX. GRANTS**

Available upon request