

CURRICULUM VITAE ET STUDIORUM

Dr. Eleonora Tubaldi

Department of Mechanical Engineering
University of Maryland, College Park
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Employment

- 2020/01- Present *Assistant Professor* Tenure-Track Position in the Department of Mechanical Engineering at **University of Maryland, College Park**.
- 2018/1 – 2019/12 *Assistant Professor* Tenure-Track Position in the Department of Aerospace and Mechanical Engineering (AME) at **University of Arizona**.
Assistant Professor in the Applied Mathematics GIDP at University of Arizona.
Research interests: Fluid-Structure Interaction and Nonlinear Dynamics.
- 2017/9 – 2017/12 *Post-Doctoral Researcher* in Mechanical Engineering at **McGill University**.
Supervisors: Prof.Marco Amabili, Prof.Michael P. Païdoussis.

Education

- 2013/9 - 2017/7 Ph.D. in Mechanical Engineering at **McGill University**
GPA 4/4
Supervisors: Prof.Marco Amabili, Prof.Michael P. Païdoussis
Ph.D. Thesis Title: “Nonlinear dynamics of shells and plates subjected to pulsatile flow”.
- 2010/9 - 2013/7 Master Degree in Aeronautical Engineering at **Politecnico di Milano**
Specialization: Structural Mechanics. **Final mark: 110/110**.
Master’s Thesis Title: “Linear and Nonlinear Vibrations and Stability of a Periodically Simply Supported Plate in Axial Flow”.
Master's Thesis Supervisors: Prof. Marco Amabili (McGill University), Prof. Chiara Bisagni (Politecnico di Milano), Prof. Dominique Pelletier (École Polytechnique de Montréal).
- 2011/9 - 2013/5 Master Degree in Aerospace Engineering at **École Polytechnique de Montréal**.
Specialization: Fluid Mechanics. **GPA 3.93/4**.
Double Degree Program between École Polytechnique de Montréal and Politecnico di Milano
- 2007/9 - 2010/9 Bachelor Degree in Aerospace Engineering at **Politecnico di Milano**.
Final mark: 106/110.

Successful Grants

- 2020/04 UMD Northrop Grumman Seed Grant.
- 2019/5 BIO5 Team Scholars Program, *A Comprehensive Approach to Establish the Risk of Stroke due to Carotid Atherosclerotic Disease*. Role: Co P.I. (P.I. Maria Altbach).
- 2018/5 BIO5 Team Scholars Program, *MRI-to-CFD Pipeline for Hemodynamic Profiling of Murine Arteriovenous Fistula*. Role: P.I.

Associated Journal Editor

2018/10

Mechanics Based Design of Structures and Machines: An International Journal

Professional Societies

2017/11

ASME (American Society of Mechanical Engineers) member of the *Dynamics & Control System & Structures (DCSS) Technical Committee.*

Previous Research Positions

2015/4 - 2015/6

Research Associate at **Texas A&M at Qatar** in the Department of Mechanical Engineering. Supervisor: Prof. Annie Ruimi.

Awards and Scholarships

2014/9 - 2017/12

Qatar Foundation Fellowship

2014/5 - 2016/8

Doctoral Merit Scholarship for Foreign Students FRQNT (Fonds de recherche du Québec -Nature et technologies)

2013/9 - 2016/8

MEDA Award (McGill Engineering Doctoral Awards)

2013/9 - 2016/8

Werner Graupe International Fellowship in Engineering. Antje Graupe Pryor Foundation

2014/4

Graduate Research Enhancement and Travel Awards (GREAT Awards) McGill University. Presenter at Conference ASME IMECE 2013, San Diego.

2011/9 - 2013/7

Double Degree Award Politecnico di Milano

2011/9 - 2013/7

Italian Government Scholarship for Italian students in Canadian Universities
Research Disciplines: Aeronautical Engineering

2010/9

XXIV Merit Award BCC Bachelor's Degree Merit Award
Banca di Credito Cooperativo Recanati e Colmurano.

2007/9 - 2013/7

Merit scholarship "Scholarship high grade point average"
Politecnico di Milano.

2007/6

XXI Merit Award BCC High-School Merit Award
Banca di Credito Cooperativo Recanati e Colmurano.

Publications

Journal Papers

1. M. Amabili*, P. Balasubramanian, G. Ferrari, G. Franchini, F. Giovanniello, **E. Tubaldi***, Identification of Viscoelastic Properties of Dacron Aortic Grafts Subjected to Physiological Pulsatile Flow, *Journal of the Mechanical Behavior of Biomedical Materials* (2020), In Press.
2. G. Librandi, **E. Tubaldi***, K. Bertoldi*, Snapping of hinged arches under displacement control: strength loss and non-reciprocity, *Physical Review E* (2020), In Press.
3. G. Ferrari, P. Balasubramanian, **E. Tubaldi**, F. Giovanniello, M. Amabili, Dynamic behaviour of a Dacron aortic graft in a Mock circulatory loop, *Journal of Biomechanics* 86 (2019), 132-140. ([Click here](#))
4. M. Amabili, P. Balasubramanian, I. Breslavky, G. Ferrari, **E. Tubaldi**, Viscoelastic characterization of woven Dacron by using direction-dependent quasi-linear viscoelasticity, *Journal of the Mechanical Behavior of Biomedical Materials*, 82 (2018), 282-290. ([Click here](#))

5. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, Nonlinear dynamics of Dacron aortic prosthesis conveying pulsatile flow, *ASME Journal of Biomechanical Engineering*, 140 (2018), 061004. ([Click here](#))
6. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, Nonlinear dynamics of shells conveying pulsatile flow with pulse-wave propagation. Theory and numerical results for a single harmonic pulsation, *Journal of Sound and Vibration*, 396 (2017) 217-245. ([Click here](#))
7. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, Fluid–structure interaction for nonlinear response of shells conveying pulsatile flow, *Journal of Sound and Vibration*, 371 (2016) 252-276. ([Click here](#))
8. **E. Tubaldi**, M. Amabili, F. Alijani, Nonlinear vibrations of plates in axial pulsating flow, *Journal of Fluids and Structures*, 56 (2015) 33-55. ([Click here](#))
9. **E. Tubaldi**, F. Alijani, M. Amabili, Non-linear vibrations and stability of a periodically supported rectangular plate in axial flow, *International Journal of Non-Linear Mechanics*, 66 (2014) 54-65. ([Click here](#))
10. **E. Tubaldi**, M. Amabili, Vibrations and stability of a periodically supported rectangular plate immersed in axial flow, *Journal of Fluids and Structures*, 39 (2013) 391-407. ([Click here](#))

Proceedings

1. **E. Tubaldi**, G. Librandi, K. Bertoldi, *Nonlinear Dynamics of Mechanical Metamaterials made of snapping shallow arches*, Accepted for Oral Presentation at ICTAM 2020+1.
2. R. C. Philip , A. G. Agosto, N. Sampson, R. Janardhanan, F. Rischard, R. R. Vanderpool, **E. Tubaldi**, *Performance of Supervised Classifiers for Classification of the Four Chambers of the Heart*, Submitted ASME SB3C 2020, June 17 – 20, 2020, Vail, Colorado.
3. A. G. Agosto, R. C. Philip, R. R. Vanderpool*, **E. Tubaldi***, *Ventricular Dynamics in Patients with Pulmonary Arterial Hypertension*, Submitted ASME SB3C 2020, Undergraduate Students Competition, June 17 – 20, 2020, Vail, Colorado.
4. G. Librandi, **E. Tubaldi**, K. Bertoldi, *Non-linear dynamic behaviour of mechanical metamaterials based on bistable shallow arches*, Society of Engineering Science Conference, 13-15 October 2019, Washington St Louis, USA
5. J. A. Rosado-Toro, D. Celdran-Bonafonte, P. Roy-Chaudhury, **E. Tubaldi**, *Functional Analysis of Arteriovenous Fistulae on models using MRI*, ASME Summer Biomechanics, Bioengineering and Biotransport Conference, June 25 -28, 2019, Seven Springs, PA, USA
6. G. Librandi, **E. Tubaldi**, K. Bertoldi, *Propagation of non-linear waves in 2D mechanical metamaterials based on bistable shallow arches*, ASME IMECE, 9-15 November, 2018, Pittsburgh, PA, USA.
7. M. Amabili, I. Breslavsky, G. Ferrari, **E. Tubaldi**, P. Balasubramanian, A. Kassab, R. Mongrain, G. Arena, *Comparison of Experimental and Numerical Results for Dynamics of Human Thoracic Descending Aortas*, 8th World Congress of Biomechanics, 8-12 July, 2018, Dublin, Ireland.
8. M. Amabili, P. Balasubramanian, I. Breslavky, G. Ferrari, **E. Tubaldi**, *Viscoelastic characterization of woven Dacron with direction-dependent quasyl-linear viscoelasticity*, 8th World Congress of Biomechanics, 8-12 July, 2018, Dublin, Ireland.
9. **E. Tubaldi**, G. Ferrari, P. Balasubramanian, M.P. Paidoussis, M. Amabili, *The nonlinear dynamics of Woven Dacron Aortic Prostheses conveying pulsatile blood flow*, 8th World Congress of Biomechanics, 8-12 July, 2018, Dublin, Ireland.
10. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, *Fluid-structure interaction of woven Dacron prostheses with simple interrupted suture*, 10th European Solid Mechanics Conference, 2-6 July, 2018, Bologna, Italy.
11. M. Amabili , I. Breslavsky, G. Ferrari, **E. Tubaldi**, P. Balasubramanian, A. Kassab, R. Mongrain, G. Arena, *Comparison of experimental and numerical results for dynamics of human aorta*, 10th European Solid Mechanics Conference, 2-6 July, 2018, Bologna, Italy.
12. M. Amabili, P. Balaubramanian, G. Ferrari, **E. Tubaldi**, *Experimental investigation on the dynamic behavior of a Dacron graft used for the treatment of descending thoracic aortic aneurysm*, ASME International Mechanical Engineering Congress and Expositions, 3-9 November, 2017, Tampa, Florida, USA.
13. I. Breslavkyi, M. Amabili, **E. Tubaldi**, A. Ruimi, *Statics and dynamics of an aortic segment considering residual stresses*, ASME International Mechanical Engineering Congress and Expositions, 3-9 November, 2017, Tampa, Florida, USA.

14. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, *Nonlinear vibrations of woven Dacron aortic prostheses conveying pulsatile flow*, ASME International Mechanical Engineering Congress and Expositions, 3-9 November, 2017, Tampa, Florida, USA.
15. M. Amabili, **E. Tubaldi**, M.P. Païdoussis, *Nonlinear dynamics of woven Dacron prostheses*, 14th U.S. National Congress on Computational Mechanics, Montreal, Jul7 17-20, 2017.
16. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, *Nonlinear dynamics of Dacron aortic prostheses conveying pulsatile flow*, ASME SB3C, 21-24 June, 2017, Tucson, Arizona, USA.
17. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, *Nonlinear response of shells conveying pulsatile flow with pulse-wave propagation*, ASME International Mechanical Engineering Congress and Expositions, 11-17 November, 2016, Phoenix, Arizona, USA.
18. **E. Tubaldi**, M. Amabili, M.P. Païdoussis, *Nonlinear response of shells conveying pulsatile flow*, XXIV ICTAM, 21-26 August, 2016, Montreal, Quebec, Canada.
19. **E. Tubaldi**, M. Amabili, M. Païdoussis, *Fluid-Structure Interaction for nonlinear response of aorta replacement*, ASME International Mechanical Engineering Congress and Expositions, November 13–19, 2015, Houston, Texas, USA.
20. **E. Tubaldi**, M. Amabili, F. Alijani, *Nonlinear vibrations of plates in axial pulsating flow*, ASME 2014 International Mechanical Engineering Congress and Expositions, November 14-20, 2014, Montreal, Quebec, Canada.
21. **E. Tubaldi**, F. Alijani, M. Amabili, *Nonlinear vibrations of a periodically simply supported rectangular plate immersed in axial flow*, 4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013), July 23-26, 2013, Montreal, Quebec, Canada.

Invited Seminars

1. E. Tubaldi, *Nonlinear Dynamics of things: from understanding Nature to designing new mechanical systems*, Georgia Institute of Technology, October 24th 2019.
2. E. Tubaldi, *Soft Dynamics: from understanding Nature to designing new mechanical systems*, Yale University, February 27th 2019.
3. E. Tubaldi, *Human arteries and vascular prostheses: a comparison of their dynamics*, UMass Amherst, October 5th 2018.
4. E. Tubaldi, *Nonlinear dynamics of human arteries and vascular prostheses*, Harvard University SEAS, August 15th 2018 (Group Meeting Bertoldi Group).
5. E. Tubaldi, *Fluid-Structure Interaction of Cardiovascular Woven Dacron Aortic Prostheses conveying pulsatile flow*, University College Dublin (UCD), Biomedical Engineering Seminar, December 18th 2017.

Teaching Experience

1. *Instructor* at University of Maryland, College Park, Mechanical Engineering Department.
Course Title: *Vibration, Control and Optimization* (ENME 361). Term: Spring 2020.
2. *Instructor* at University of Arizona, Aerospace and Mechanical Engineering Department.
Course Title: *Advanced Vibrations* (AME 560). Term: Spring 2019.
3. *Instructor* at University of Arizona, Aerospace and Mechanical Engineering Department.
Course Title: *Engineering Analysis* (AME 301). Term: Spring 2018.
4. *Teaching Assistant* at McGill University, Mechanical Engineering Department.
Course Title: *Mechanics 3* (MECH 315). Terms: Fall 2017 - Fall 2016 - Spring 2016 - Fall 2014. Professors: Prof. Luc Mongeau, Prof. Marco Amabili, Prof. Srikar Vengallatore.
5. *Teaching Assistant* at McGill University, Mechanical Engineering Department.
Course Title: *Vibrations of continuous systems* (MECH 550). Terms: Fall 2016 - Fall 2015. Professor: Prof. Marco Amabili.
6. *Teaching Assistant* at McGill University, Mechanical Engineering Department.
Course Title: *Fluid-Structure Interaction* (MECH 566). Term: Spring 2016. Professor: Prof. Michael Païdoussis.

Supervision in current position at University of Arizona, Department of Aerospace and Mechanical Engineering

1. William Fries, *June 2019 – December 2019*, Graduate Research Assistant
2. Anna Gabriella Agosto, *May 2019 – December 2019*, Undergraduate Research Assistant
3. Rohit Philip, *March 2019 – December 2019*, Graduate Research Assistant
4. Dr. Jose Rosado Toro, *January 2019 – March 2019*. Post-Doctoral Researcher
5. Samuel Thomas Dunn, *January 2018 – December 2019*. Master student in Mechanical Engineering
6. Nathan Donovan, *May 2018– September 2018*. Undergraduate Research Assistant

Industrial Experience

E.Tubaldi, Redesign of the bleed valve system for the industrial Trent 60MW Rolls-Royce Gas Turbine 20.
Ecole Polytechnique de Montreal - Rolls Royce Canada, 2012.

Event Administration

1. 2018 – 2020 *ASME IMECE Track Organizer* International Undergraduate Research, Design Expo and Poster Competition.
2. 2017 – 2020 *ASME IMECE Topic Co-Organizer*. Track: Dynamics, Vibration and Control. Symposium: Fluid-Structure Interaction.
3. *Fluid-Structure Interaction Symposium Co-Organizer, International Conference on Nonlinear Solid Mechanics*, Rome, 16-19 Jun 2019. Co-Organizer: Prof. Yuri Bazilevs, Brown University.
4. *Volunteer (logistic support) at the Conference XXIV ICTAM*, 21-26 August 2016, Montreal, Quebec, Canada.
5. *Member of the organizing committee, Fourth Canadian Conference of Nonlinear Solid Mechanics (CanCNSM 2013)*, July 23-27, 2013. Responsible for the organization of the Opening Ceremony and for the "Banquet and Awards" event.

Community and Volunteer Activities

- 2018/5 – 2019/12 *Co-Chair Commission on the Status of Women* - Faculty Affairs, University of Arizona.
2013/9 – 2017/12 *POWE, Promoting Opportunity for Women in Engineering*, McGill University.
2013/9 – 2017/12 *Canadian Red Cross Volunteer*, Canadian Red Cross.

Language Skills

- Italian: Native proficiency.
English: Full professional proficiency.
French: Full professional proficiency.
Spanish: Elementary proficiency.