

Assistant Professor Alkiviadis Tsamis, PhD, FHEA

PERSONAL DATA

Name: Dr. Alkiviadis Tsamis

Office address:	University of Western Macedonia Office 207 Department of Mechanical Engineering Bakola & Sialvera Street Kozani 50132, Greece	Tel (Office): +30 24610 56600 Tel (Mobile): +30 694 072 1264 E-mail: atsamis@uowm.gr Webpage: http://mech.uowm.gr/en/alkiviadis-tsamis/
-----------------	---	---

EDUCATION

09/2005-01/2010 PhD, Biotechnology and Bioengineering, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
(Funded by Swiss National Science Foundation (SNSF) #118274, #103823)

09/1998-10/2003 Diploma, Mechanical Engineering (5-year Bachelor's & Master's combined degree (Integrated Master)), National Technical University of Athens (NTUA), Athens, Greece
(1st-Class Honours, 8.71/10.00)

WORK EXPERIENCE

11/2020- Assistant Professor, Department of Mechanical Engineering, School of Engineering, University of Western Macedonia, Kozani, Greece.

10/2020- Honorary Lecturer, School of Engineering, College of Science and Engineering, University of Leicester, Leicester, Leicestershire, UK.

09/2016-10/2020 Lecturer, School of Engineering, College of Science and Engineering, University of Leicester, Leicester, Leicestershire, UK.

04/2014-08/2016 Senior Postdoctoral Researcher, Department of Biomedical Engineering, College of Engineering, Carnegie Mellon University, Pittsburgh, PA, USA.

10/2011-03/2014 Postdoctoral Research Scholar, Department of Bioengineering, Swanson School of Engineering, University of Pittsburgh, Pittsburgh, PA, USA.

04/2010-06/2011 Postdoctoral Research Scholar, Department of Mechanical Engineering, School of Engineering, Stanford University, Stanford, CA, USA.

09/2005-01/2010 Graduate Research Fellow, Interfaculty Institute of Bioengineering, School of Life Sciences, EPFL, Lausanne, Switzerland.

03/2004-03/2005 Seaman, Hellenic Navy (Obligatory Military Service): Salamis Naval Base and Navy Supply Center, Greece.

03/2002-10/2003 Undergraduate Research Assistant, School of Mechanical Engineering, National Technical University of Athens, Athens, Greece.

GRANTS

09/2019-03/2023 EPSRC DTP Studentship (Primary Supervisor), University of Leicester. "Effect of microstructure in the mechanical response of cost-effective biomimetic constructs for rapid wound healing," Budget **56,969 GBP**.

09/2017-09/2020 College-funded Stand-Alone PhD Studentship (Primary Supervisor), College of Science and Engineering, School of Engineering, University of Leicester. "Investigating small airway closure in the human lung using multi scale approaches," Budget **48,159 GBP**.

02/2013-01/2014 Advanced Researcher Postdoctoral Fellowship from SNSF (PI). "Characterization and modeling of fiber architecture of human aorta in health and disease," PA00P2_145399, Budget **82,485 USD**. (follow-up project)

- 02/2012-01/2013 Advanced Researcher Postdoctoral Fellowship from SNSF (PI). “Characterization and modeling of fiber architecture of human aorta in health and disease,” PA00P2_139684, Budget **72,660 USD**.
- 04/2010-03/2011 Prospective Researcher Postdoctoral Fellowship from SNSF (PI). “Can passive cardiac support prevent heart failure? A hybrid experimental/ computational approach,” PBELP2-130913, Budget **64,000 USD**.

NATIONAL AND INTERNATIONAL AWARDS AND HONOURS

- 09/2018 Royal Academy of Engineering Travel Award. 6th Frontiers of Engineering for Development Symposium: Engineers as Healthcare Practitioners, Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam.
- 06/2018 Best Paper Prize for Aging Cell Journal in year 2017, Department of Anatomy and Human Sciences, King’s College, London, United Kingdom (**2000 GBP**).
- 05/2016 Polymer Solutions Trainee Travel Award. 10th World Biomaterials Congress, Montreal Convention Center, Montreal, Quebec, Canada (**550 CAD**).
- 06/2013 Award for Best Poster for Bioengineering undergraduate student Mr. Ryan G. Koch, for whom I acted as primary mentor during my postdoc at the University of Pittsburgh. American Society of Mechanical Engineers (ASME) Bioengineering Division Bachelor’s student paper competition. Award Category: Fluid Mechanics, Biotransport, Cellular and Tissue Engineering. 2013 Summer Bioengineering Conference, Sunriver Resort, Sunriver, Oregon, USA.
- 03/2012 Award for Best Poster. Category: Computational Modelling. McGowan Institute for Regenerative Medicine Scientific Retreat, Nemaquin Woodlands Resort, Farmington, PA, USA.
- 10/2007 Award for Publication of Original Scientific Project, Thomaidion Foundation, Athens, Greece.
- 04/2004 Dean’s List, Graduated in top 1%, School of Mechanical Engineering, NTUA, Greece.
- 10/2003 Award for Best NTUA Diploma Thesis, Thomaidion Foundation, Athens, Greece.
- 10/2002, 10/2003 Scholarship & Award for ranking 1st in the academic classes of 2001-2002 and 2002-2003 at NTUA, State Scholarships Foundation, Athens, Greece (Totalling **2,000 EUR**).
- 10/2002, 10/2003 Award for ranking 1st in the academic classes of 2001-2002 and 2002-2003 at NTUA, Technical Chamber of Greece, Athens, Greece.
- 10/2000 Scholarship for ranking in the top 1% in the academic class of 1999-2000 at NTUA, State Scholarships Foundation, Athens, Greece (**1,000 EUR**).

TEACHING EXPERIENCE

Assistant Professor, Department of Mechanical Engineering,
University of Western Macedonia.

- Autumn 2021
- 5th-year semester-long Bachelor’s level course “Additive Manufacturing Techniques” (co-teaching 33%).
- Autumn 2021
- 2nd-year semester-long Bachelor’s level course “Strength of Materials” (self-taught teaching).
- Spring 2021
- 1st-year semester-long Bachelor’s level course “Engineering Statics” (self-taught teaching).
- Spring 2021
- 4th-year semester-long Bachelor’s level course “Biomedical Engineering” (self-taught teaching).
- Autumn 2020
- 1st-year semester-long Bachelor’s level course “Introduction to Computing” (co-teaching 50%).

- Autumn 2020 • Semester-long Master’s level course “Tissue Biomechanics” (self-taught teaching).
Lecturer, School of Engineering, University of Leicester.
- Spring 2019, 2020 • 3rd-year semester-long Bachelor’s level Mechanical Engineering course “Thermodynamics & Heat Transfer” (self-taught teaching).
- Autumn 2018-2020 • 3rd-year semester-long Bachelor’s level Mechanical Engineering course “Properties of Materials” (self-taught teaching).
- Autumn 2018-2020 • 3rd-year semester-long Bachelor’s level Mechanical Engineering course “Engineering Mechanics II: Fluid Mechanics” (self-taught teaching).
- Spring 2018-2020 • 2nd-year semester-long Bachelor’s level Mechanical Engineering course “Engineering Mechanics I: Solid Mechanics” (self-taught teaching).
- Autumn 2017 • 2nd-year semester-long Bachelor’s level Mechanical Engineering course “Programming & Numerical Methods” (self-taught teaching).
- Autumn 2017 • 2nd-year semester-long Bachelor’s level Electrical and Electronic Engineering course “Circuits & Systems II” (self-taught teaching).
- Spring 2017 • 1st-year semester-long Bachelor’s level Electrical and Electronic Engineering course “Circuits & Systems I” (self-taught teaching).
- Spring 2017-2019 • 1st-year semester-long Bachelor’s level Electrical and Electronic Engineering course “Computer Programming for Engineers” (self-taught teaching).
- Spring 2012-2014 Guest Lecturer, Department of Bioengineering, University of Pittsburgh.
 • Delivered five invited lectures (12.5 hours) for the Doctoral level course of “Finite Elasticity of Soft Tissues”.
 • Assigned three projects to the students.
 • Marked the assignments.
 • Instructor: Prof. David Vorp.
- Autumn 2010 Guest Lecturer, Department of Mechanical Engineering, Stanford University.
 • Delivered an invited lecture (1 hour) for the Master’s level course of “Mechanics of Growth”.
 • Instructor: Prof. Ellen Kuhl.
- Spring 2008, 2009 Graduate Teaching Assistant, Interfaculty Institute of Bioengineering, EPFL.
 • Teaching assistant in the Master’s level course of “Integrative Biomechanics”: Conducted 4 hours of simulation laboratory.
 • Assisted Prof. Stergiopoulos with marking the exam of the class.
 • Instructor: Prof. Nikolaos Stergiopoulos.
- Spring 2007, Autumn 2007, 2008 Graduate Teaching Assistant, Interfaculty Institute of Bioengineering, EPFL.
 • Teaching assistant in the Master’s level course of “Cardiovascular Biomechanics”: Delivered 35 hours of exercises.
 • Assisted Prof. Stergiopoulos with marking the exam of the class.
 • Instructor: Prof. Nikolaos Stergiopoulos.

SUPERVISION EXPERIENCE

- Supervision of PhD Theses
 09/2017-09/2021 Engineering PhD student Mr. James Campbell, **PhD Thesis** title: “Investigating small airway closure in the human lung using multi scale approaches.” School of Engineering, University of Leicester.
- Supervision of Master Theses
 06/2020-08/2020 Advanced Mechanical Engineering Master’s student Mr. Mingyang Dong, **Master Thesis** title: “Comprehensive computational technology for quantifying the microstructure of fibrous biomaterials.” School of Engineering, University of Leicester.

- 06/2017-08/2017 Advanced Mechanical Engineering Master's student Mr. SiYu Lu, **Master Thesis** title: "Effect of hypertension on mechanical response and remodelling of an artery." School of Engineering, University of Leicester.
Supervision of Diploma Theses
- 07/2021 Member of Three-Member Examination Committee. Mechanical Engineering undergraduate student Mr. Apostolos Lazios, **Diploma Thesis** title: "Numerical analysis and optimization of a diesel engine exhaust manifold system." Department of Mechanical Engineering, University of Western Macedonia.
- 07/2021 Member of Three-Member Examination Committee. Mechanical Engineering undergraduate student Mr. Vassilios Triantafyllou, **Diploma Thesis** title: "Vehicle multibody dynamic analysis." Department of Mechanical Engineering, University of Western Macedonia.
Supervision of Pre-Diploma Theses
- 04/2021-09/2021 Mechanical Engineering undergraduate student Mr. Panagiotis Chatzisavvas, **Pre-Diploma Thesis** title: "Modelling multiple Heineke-Mikulicz strictureplasties in surgical gastrointestinal anatomy using finite element method." Department of Mechanical Engineering, University of Western Macedonia.
Informal Supervision of Master Theses
- 10/2010-12/2010 Bioengineering Master's student Mr. Andrew Hosford, **Master Thesis** title: "Wall stresses and mechanical response of an artery under normal vs. high blood pressure: Hypertension remodelling." Department of Mechanical Engineering, Stanford University.
- 05/2009-05/2009 Biomedical Engineering Master's student Mr. Slim Gharbi, **Master Thesis** title: "Design, analysis and development of a new compliant aortic graft." Interfaculty Institute of Bioengineering, EPFL.
Informal Supervision of Undergraduate Projects
- 01/2016-05/2016 Biological Sciences and Biomedical Engineering undergraduate student Mrs. Njairé McKoy, **Undergraduate Project** title: "Validation of fibronectin-based nanomechanical biosensors' ability to track sub-cellular scale mechanical strains." Department of Biomedical Engineering, Carnegie Mellon University.
- 05/2013-09/2013 Bioengineering undergraduate student Mr. Kristofer J. Pomiecko, **Undergraduate Project** title: "3-D reconstruction of elastin and collagen fibers in the human aorta from 2-D multi-photon microscopy images." Department of Bioengineering, University of Pittsburgh.
- 05/2013-09/2013 Engineering undergraduate student Mr. Daniel W. Patton, **Undergraduate Project** title: "A computational model of the Heineke-Mikulicz strictureplasty: The effect of multiple strictureplasties on mechanical instability states of the intestinal wall." Department of Engineering, Robert Morris University.
- 05/2012-05/2013 Bioengineering undergraduate student Mr. Ryan G. Koch, **Undergraduate Project** title: "A custom image analysis algorithm for characterization of aortic wall connective fiber architecture from multi-photon microscopy imaging." Department of Bioengineering, University of Pittsburgh.
- 05/2012-08/2012 Bioengineering undergraduate student Mr. Kristofer J. Pomiecko, **Undergraduate Project** title: "Development of a "phantom" multi-photon microscopy image of the aortic wall using input microstructural parameters of the connective fiber architecture." Department of Bioengineering, University of Pittsburgh.

ONLINE AND BLENDED TRAINING COURSES

- 07/2019 Information Security Awareness (online course, Blackboard, University of Leicester)
- 10/2018 Challenging Unconscious Bias (online course, Blackboard, University of Leicester)
- 10/2018 Safeguarding Awareness (online course, Blackboard, University of Leicester)

01/2017	Supervising Research Degree Candidates (blended course, Blackboard, University of Leicester)
09/2016	Equality and Diversity (online course, Blackboard, University of Leicester)
09/2016	School of Engineering Safety (online course, Blackboard, University of Leicester)
07/2015	Compressed and Toxic Gas Procedures (online course, Biotechnology Research Applications and Financial Tracking (BioRAFT), Carnegie Mellon University)
07/2015	Blood Borne Pathogens (online course, BioRAFT, Carnegie Mellon University)
02/2015	Laser Safety (online course, BioRAFT, Carnegie Mellon University)
02/2015	Fire Extinguisher Use (online course, BioRAFT, Carnegie Mellon University)
07/2014	Laboratory Safety and Hazardous Waste (online course, BioRAFT, Carnegie Mellon University)
07/2014	Biological Safety (online course, BioRAFT, Carnegie Mellon University)
07/2013	Responsible Conduct of Research (online course, Virtual Learning Environment (VLE), University of Pittsburgh)
07/2013	Conflicts of Interest (online course, Collaborative Institutional Training Initiative (CITI), University of Pittsburgh)
12/2011	Human Subjects Research in Biomedical Science (online course, VLE, University of Pittsburgh)
11/2011	Hand Hygiene for Children's Hospital of Pittsburgh (online course, VLE, University of Pittsburgh)
11/2011	Research Integrity (online course, VLE, University of Pittsburgh)
10/2011	Preventing Sexual Harassment (online course, VLE, University of Pittsburgh)
10/2011	Preventing Employment Discrimination (online course, VLE, University of Pittsburgh)
03/2006-06/2006	Biomechanics of the Cardiovascular System (blended course, Moodle VLE, EPFL)
09/2005-11/2005	Numerical Methods for Partial Differential Equations (Java-based online course, EPFL)

POSTGRADUATE EDUCATION IN UNIVERSITY TEACHING

01/2018-02/2019	PostGraduate Certificate in Academic and Professional Practice Module II: "Enhancing Academic Practice in Higher Education" leading to Fellowship of the Higher Education Academy of the UK, Leicester Learning Institute, University of Leicester
09/2016-06/2017	PostGraduate Certificate in Academic and Professional Practice Module I: "Teaching and Supporting Learning in Higher Education" leading to Associate Fellowship of the Higher Education Academy of the UK, Leicester Learning Institute, University of Leicester
03/2007-07/2007	Master's level course of "Tutoring Skills", Teaching Support Centre, EPFL

MEMBER OF PROFESSIONAL ASSOCIATIONS

08/2014-present	American Association for the Advancement of Science
09/2012-present	American Society of Mechanical Engineers
02/2010-present	A3 EPFL Alumni
06/2007-present	Biomedical Engineering Society
06/2007-present	European Society of Biomechanics
06/2005-present	Technical Chamber of Greece (Professional Chartered Mechanical Engineer)

JOURNAL REVIEWER

12/2019-02/2021	Frontiers in Bioengineering and Biotechnology (Review Editor, Biomechanics)
05/2018-present	Computers in Biology and Medicine
06/2017-present	PLoS One

06/2016-present	Artificial Organs
02/2014-present	European Biophysics Journal
11/2013-present	Journal of Biomechanical Engineering
05/2013-present	Acta Biomaterialia
02/2013-present	American Journal of Physiology - Heart and Circulatory Physiology
11/2012-present	Journal of the Mechanical Behavior of Biomedical Materials
10/2012-present	Annals of Biomedical Engineering
06/2012-present	Journal of Biorheology
06/2012-present	Computer Methods in Applied Mechanics and Engineering
10/2011-present	Biomechanics and Modeling in Mechanobiology
05/2009-present	Journal of Biomechanics

GRANT PROPOSAL REVIEWER

04/2019-present	National Centre for the Replacement, Refinement & Reduction of Animals in Research
06/2018-present	Biotechnology and Biological Sciences Research Council

ORGANISATION OF CONFERENCES

06/2021	6 th International Virtual Conference of Engineering Against Failure, ICEAF VI, Chairperson of session entitled: “Using Computational and Experimental Techniques to Investigate the Role of Extracellular Matrix in the Mechanical Response of Soft Tissue”
12/2016, 04/2017, 12/2017	Mechanics of Materials Research Day (Chair and Organizer), School of Engineering, University of Leicester, Leicester, UK

INVITED TALKS

1. Mechanics and engineering of fibre-reinforced soft biological materials. School of Engineering, University of Leicester, Leicester, UK, 10/2018.
2. Integrated computational and experimental techniques to analyse the role of extracellular matrix in the mechanical response of healthy and diseased human aorta. Biomedical Sciences Research Centre, Nottingham Trent University, Nottingham, UK, 11/2017.
3. Analysis and design of soft biological structures. School of Mechanical Engineering, National Technical University of Athens, Athens, Greece, 09/2017.
4. Modelling the effect of multiple strictureplasties on mechanical instability states of the intestinal wall. Department of Mechanical, Aerospace & Civil Engineering, Brunel University London, Uxbridge, London, UK, 05/2017.
5. Multiscale mechanics and engineering of soft biological tissues (**Keynote Speech**). XXXII LIAC Meeting on Vascular Research, City Library, Ustica, Italy, 09/2016.
6. Mechanics, modelling and engineering of soft biological tissues at multiple time and length scales. Faculty of Science, Arts Building, University of East Anglia, Norwich, Norfolk, UK, 04/2016.
7. Multiscale mechanics, modelling and engineering of soft biological tissues. College of Engineering, Mathematics and Physical Sciences, Harrison Building, University of Exeter, Exeter, Devon, UK, 04/2016.
8. Aortic valve morphology predicts spatially-distinct fiber architecture in ascending aortic aneurysm (**Keynote Speech**). McGowan Institute for Regenerative Medicine Annual Scientific Retreat, Nemaquin Woodlands Resort, Farmington, Pennsylvania, USA, 03/2014.
9. Quantification of fiber architecture in soft, fibrous tissue using multi-photon microscopy image analysis. School of Dental Medicine, Center for Craniofacial Regeneration, University of Pittsburgh, Pittsburgh, Pennsylvania, USA, 02/2014.
10. Multi-photon analysis of the role of fiber micro-architecture on aneurysm and dissection characteristics of human ascending thoracic aorta. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, 01/2014.

11. Multi-photon interrogation and quantification of fiber architecture in soft, fibrous tissue. Wound Healing Research Seminar Series, Eye and Ear Institute, University of Pittsburgh, Pittsburgh, Pennsylvania, USA, 09/2012.
12. Arterial remodeling in response to increased blood flow using a constituent-based model. Interfaculty Institute of Bioengineering Seminar Series, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, 10/2008.

RESEARCH INTERESTS

- Soft fibrous tissue mechanics (e.g., cardiovascular, gastrointestinal)
- Soft fibrous tissue engineering
- Role of micro-structure on the mechanical response of soft fibrous tissue
- Experimental bioengineering
- Computational bioengineering (analytical/finite element approach)
- Mechanics and modelling at multiple time/length scales
- Fluorescence imaging
- Characterization of extracellular matrix (ECM) micro-/nano-environment
- Micro-/nano-fabrication technologies
- ECM-based biosensors

COMPUTER SKILLS

- Operating Systems: Windows, Mac
- Application Packages: MS-Office (Word, Excel, PowerPoint, Outlook), Adobe Suite (Acrobat, Illustrator, Photoshop)
- Web Browser (Internet Explorer, Google Chrome)
- Languages: Python, Fortran 90, Pascal, OpenGL/C++
- Mathematical Software: Matlab, Mathematica
- Finite Element Analysis Packages: Abaqus
- Image Processing Software: ImageJ, Imaris, AutoQuant
- Web-based Learning: Blackboard, Moodle, Java, University of Pittsburgh VLE, BioRAFT, CITI

LANGUAGES

- Greek (native)
- English (fluent spoken and written)
- French (professional working proficiency spoken and written)
- German (professional working proficiency spoken and written)

PUBLICATIONS

Peer-Reviewed Scientific Articles

1. Liyanage L, Budgeon C, Musto L, Ruddy G, Biggs M, Saratzis A, Vorp DA, Vavourakis V, Bown M, **Tsamis A**. “Multimodal structural analysis of the human aorta: from valve to bifurcation.” *The European Journal of Vascular and Endovascular Surgery*. (Submitted)
2. Shiwarski DJ, Tashman JW, **Tsamis A**, Bliley JM, Blundon MA, Aranda-Michel E, Jallerat Q, Szymanski JM, McCartney BM, Feinberg AW. “Fibronectin-based nanomechanical biosensors to map 3D surface strains in live cells and tissue.” *Nature Communications* 11(1):5883, 11/2020.
3. Natividad GC, Theodossiou SK, Schiele NR, Murdoch GK, **Tsamis A**, Tanner B, Potirniche G, Mortazavi M, Vorp DA, Martin BA. “Ex-vivo quantification of ovine pia arachnoid complex biomechanical properties under uniaxial tension.” *Fluids and Barriers of the CNS* 17(1):68, 11/2020.
4. Karagiorgis S, **Tsamis A**, Voutouri C, Turcu R, Porav SA, Socoliuc V, Vekas L, Louca M, Stylianopoulos T, Vavourakis V, Krasia-Christoforou T. “Engineered magnetoactive collagen hydrogels with tunable and predictable mechanical response.” *Materials Science & Engineering C* 114:111089, 09/2020.

5. Katsampa I, Evangelides P, Voutouri C, **Tsamis A**, Vavourakis V, Stylianopoulos T. "Biomechanical modelling of spinal tumor anisotropic growth." *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* 476(2238): 20190364, 06/2020.
6. Wang X, Li B, Wu YP, **Tsamis A**, Yu HG, Liu S, Zhao J, Li YS, Li DS. "Investigation on the component evolution of a tetranuclear nickel-cluster-based Metal-Organic Framework in an electrochemical oxidation reaction." *Inorganic Chemistry* 59(7): 4764-4771, 03/2020.
7. Stearns-Reider KM, D'Amore A, Beezhold K, Rothrauff B, Cavalli L, Wagner WR, Vorp DA, **Tsamis A**, Shinde S, Zhang C, Barchowsky A, Rando TA, Tuan R, Ambrosio F. "Aging of the skeletal muscle extracellular matrix drives a stem cell fibrogenic conversion." *Aging Cell* 16(3): 518-528, 06/2017. (**Aging Cell's Best Paper Prize 2017, Department of Anatomy and Human Sciences, King's College, London, United Kingdom, 06/2018**)
8. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D'Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. "Extracellular matrix fiber microarchitecture is region-specific in bicuspid aortic valve-associated ascending aortopathy." *The Journal of Thoracic and Cardiovascular Surgery* 151: 1718-1728.e5, 06/2016.
9. Pasta S, Phillippi JA, **Tsamis A**, D'Amore A, Raffa GM, Pilato M, Scardulla C, Watkins SC, Wagner WR, Gleason TG, Vorp DA. "Constitutive modeling of ascending thoracic aortic aneurysms using microstructural parameters." *Medical Engineering & Physics* 38(2): 121-130, 02/2016.
10. Hemmasizadeh A, **Tsamis A**, Cheheltani R, Assari S, D'Amore A, Autieri M, Kiani MF, Pleshko N, Wagner WR, Watkins SC, Vorp DA, Darvish K. "Correlations between transmural mechanical and morphological properties in porcine thoracic descending aorta." *Journal of the Mechanical Behavior of Biomedical Materials* 47: 12-20, 07/2015.
11. **Tsamis A**, Pal S, Phillippi JA, Gleason TG, Maiti S, Vorp DA. "Effect of aneurysm on biomechanical properties of "radially-oriented" collagen fibers in human ascending thoracic aortic media." *Journal of Biomechanics* 47(16): 3820-3824, 12/2014.
12. **Tsamis A**, Pocivavsek L, Vorp DA. "Elasticity and geometry: a computational model of the Heineke-Mikulicz strictureplasty." *Biomechanics and Modeling in Mechanobiology* 13(6): 1185-1198, 11/2014.
13. Koch RG, **Tsamis A [co-first author]**, D'Amore A, Wagner WR, Watkins SC, Gleason TG, Vorp DA. "A custom image-based analysis tool for quantifying elastin and collagen micro-architecture in the wall of the human aorta from multi-photon microscopy." *Journal of Biomechanics* 47(5): 935-943, 03/2014.
14. Pal S, **Tsamis A**, Pasta S, D'Amore A, Gleason TG, Vorp DA, Maiti S. "A mechanistic model on the role of "radially-running" collagen fibers on dissection properties of human ascending thoracic aorta." *Journal of Biomechanics* 47(5): 981-988, 03/2014.
15. **Tsamis A**, Phillippi JA, Koch RG, Pasta S, D'Amore A, Watkins SC, Wagner WR, Gleason TG, Vorp DA. "Fiber micro-architecture in the longitudinal-radial and circumferential-radial planes of ascending thoracic aortic aneurysm media." *Journal of Biomechanics* 46(16): 2787-2794, 11/2013.
16. **Tsamis A**, Krawiec JT, Vorp DA. "Elastin and collagen fibre microstructure of the human aorta in ageing and disease: a review." *Journal of the Royal Society Interface* 10(83): 20121004, 03/2013.
17. **Tsamis A**, Cheng A, Nguyen TC, Langer F, Miller DC, Kuhl E. "Kinematics of cardiac growth: In vivo characterization of growth tensors and strains." *Journal of the Mechanical Behavior of Biomedical Materials* 8(1): 165-177, 04/2012.
18. **Tsamis A**, Bothe W, Kvitting JP, Swanson JC, Miller DC, Kuhl E. "Active contraction of cardiac muscle: In vivo characterization of mechanical activation sequences in the beating heart." *Journal of the Mechanical Behavior of Biomedical Materials* 4(7): 1167-1176, 10/2011.
19. **Tsamis A**, Rachev A, Stergiopoulos N. "A Constituent-based model of age-related changes in conduit arteries." *American Journal of Physiology - Heart and Circulatory Physiology* 301(4): H1286-H1301, 10/2011.
20. **Tsamis A**, Stergiopoulos N, Rachev A. "A structure-based model of arterial remodeling in response to sustained hypertension." *Journal of Biomechanical Engineering* 131(10): 101004, 10/2009.

21. **Tsamis A**, Stergiopoulos N. “Arterial remodeling in response to increased blood flow using a constituent-based model.” *Journal of Biomechanics* 42(4): 531-536, 03/2009.
22. Roy S, **Tsamis A [co-first author]**, Prod’hom G, Stergiopoulos N. “On the in-series and in-parallel contribution of elastin assessed by a structure-based biomechanical model of the arterial wall.” *Journal of Biomechanics* 41(4): 737-743, 07/2008.
23. Papadopoulos E, **Tsamis A**, Vlachos K. “Development of a real-time visual and force environment for a haptic medical training simulator.” *Artificial Life and Robotics* 12(1): 307-316, 03/2008.
24. **Tsamis A**, Stergiopoulos N. “Arterial remodeling in response to hypertension using a constituent-based model.” *American Journal of Physiology - Heart and Circulatory Physiology* 293(5): H3130-H3139, 11/2007.
25. Papadopoulos E, **Tsamis A**, Vlachos K. “A real-time graphic environment for a urological operation training simulator.” *IEEE Transactions on Robotics and Automation* 2(WE-12): 1295-1300, 04/2004. (**Award for Publication of Original Scientific Project, Thomaidion Foundation, Athens, Greece, 10/2007**)

Peer-Reviewed Scientific Book Chapters

1. Roy S, **Tsamis A**, Prod’hom G, Stergiopoulos N. “Structure-based biomechanical model of the arterial wall.” In: Chakfé N, Durand B, Kretz JG, editors. *New Technologies in Vascular Biomaterials: Fundamentals About Stents II*. Strasbourg, France: European Symposium of Vascular Biomaterials (ESVB 2007); 04/2007. pp. 1-10.

Peer-Reviewed Scientific Conferences

Podium presentations

1. **Tsamis A**. “Role of microstructure in mechanics and engineering of soft biological materials.” In *Proc. of 6th International Virtual Conference of Engineering Against Failure, ICEAF VI*, 06/2021.
2. Campbell J, Siddiqui S, Gill S, **Tsamis A**. “Flux-driven and external-pressure-driven finite element models replicating pressure-volume hysteresis of small airways and daughter branches in the lung.” In *Proc. of 6th International Virtual Conference of Engineering Against Failure, ICEAF VI*, 06/2021.
3. Shiwarski D, Tashman J, **Tsamis A**, Jallerat Q, Blundon M, Szymanski J, McCartney B, Davidson L, Feinberg A. “Fibronectin-based nanomechanical biosensors to map 3D mechanical strain in live cells and tissues.” In *Proc. of 2019 Annual Meeting of the Biomedical Engineering Society*, Pennsylvania Convention Center, Philadelphia, Pennsylvania, USA, 10/2019.
4. Shiwarski D, Tashman J, **Tsamis A**, Jallerat Q, Blundon M, Szymanski J, McCartney B, Davidson L, Feinberg A. “Mapping 3D mechanical strains during tissue formation with a novel fibronectin-based nanomechanical biosensor.” In *Proc. of Summer Biomechanics, Bioengineering and Biotransport Conference, SB3C2019-327*, Seven Springs Mountain Resort, Seven Springs, Pennsylvania, USA, 06/2019.
5. Campbell J, Siddiqui S, Gill S, **Tsamis A**. “Investigating small airway closure in the human lung using a multi-scale approach.” In *Proc. of 2018 School of Engineering First Annual PhD Conference*, University of Leicester, Leicester, Leicestershire, UK, 09/2018.
6. **Tsamis A**, Szymanski JM, Jallerat Q, Feinberg AW. “Fibronectin-based nanomechanical biosensors towards measuring cell-generated strains during tissue morphogenesis.” In *Proc. of 10th World Biomaterials Congress*, Montreal Convention Center, Montreal, Quebec, Canada, 05/2016. (**Polymer Solutions Trainee Travel Award, Montreal, Quebec, Canada, 05/2016**)
7. **Tsamis A**, Pal S, Phillippi JA, Pasta S, D’Amore A, Gleason TG, Vorp DA, Maiti S. “Role of aneurysm on biomechanics of radially-oriented fibers in human ascending thoracic aorta.” In *Proc. of 2014 Annual Meeting of the Biomedical Engineering Society*, Henry B. Gonzalez Convention Center, San Antonio, Texas, USA, 10/2014.
8. Vorp DA, Pichamuthu JE, **Tsamis A**, Pasta S, D’Amore A, Phillippi JA, Gleason TG. “Biomechanical and micro-architectural investigation of ascending thoracic aortic aneurysms with different aortic valve phenotypes.” In *Proc. of 7th World Congress of Biomechanics*, John B. Hynes Veterans Memorial Convention Center, Boston, Massachusetts, USA, 07/2014.

9. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D'Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. "Aortic valve morphology predicts spatially-distinct fiber architecture in ascending aortic aneurysm." In Proc. of *2013 Annual Meeting of the Biomedical Engineering Society*, Washington State Convention Center, Seattle, Washington, USA, 09/2013.
10. Pal S, **Tsamis A**, Pasta S, D'Amore A, Gleason TG, Vorp DA, Maiti S. "Mechanistic model on role of "radially-running" collagen in dissection properties of ascending aorta." In Proc. of *2013 Annual Meeting of the Biomedical Engineering Society*, Washington State Convention Center, Seattle, Washington, USA, 09/2013.
11. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D'Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. "Aortic valve morphology dictates region-specific fiber architecture in human ascending thoracic aortic aneurysms." In Proc. of *19th Congress of the European Society of Biomechanics*, Conference and Cultural Centre of the University of Patras, Patras, Greece, 08/2013.
12. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D'Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. "Region-specific medial fiber micro-architecture in the longitudinal-radial and circumferential-radial planes of ascending thoracic aortic aneurysm among bicuspid and tricuspid aortic valve patients." In Proc. of *ASME Summer Bioengineering Conference*, SBC2013-14403, Sunriver Resort, Sunriver, Oregon, USA. 2013, Volume 1 A 2013, Code 102833, pp. V01AT01A002, 2 pages, 06/2013.
13. **Tsamis A**, Phillippi JA, Koch RG, Pasta S, D'Amore A, Watkins SC, Wagner WR, Gleason TG, Vorp DA. "Fiber architecture in the longitudinal-radial and circumferential-radial planes of human ascending thoracic aortic media." In Proc. of *2012 Annual Meeting of the Biomedical Engineering Society*, Georgia World Congress Center, Atlanta, Georgia, USA, 10/2012.
14. **Tsamis A**, Pocivavsek L, Vorp DA. "Effect of geometry on wall stresses in a computational model of the Heineke-Mikulicz strictureplasty." In Proc. of *2012 Annual Meeting of the Biomedical Engineering Society*, Georgia World Congress Center, Atlanta, Georgia, USA, 10/2012.
15. Pichamuthu JE, **Tsamis A [co-first author]**, Jankowitz BT, Vorp DA. "Association of wall stress of human intracranial saccular aneurysm with coil packing density after coil embolization." In Proc. of *ASME Summer Bioengineering Conference*, SBC2012-80782, El Conquistador Resort, Fajardo, Puerto Rico. 2012. pp. 107-108, 06/2012.
16. **Tsamis A**, Rachev A, Stergiopoulos N. "Aortic remodeling in ageing predicted by a constituent-based modeling approach." In Proc. of *6th World Congress of Biomechanics*, Suntec Convention Centre, Singapore, 08/2010.
17. **Tsamis A**, Rachev A, Stergiopoulos N. "Arterial remodeling in response to sustained hypertension using a structure-based model." In Proc. of *Third Switzerland-Japan Workshop on Biomechanics*, Hotel Europe, Engelberg, Switzerland, 09/2009.
18. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to increased blood flow using a constituent-based model." In Proc. of *4th European Conference of the International Federation for Medical and Biological Engineering, ECIFMBE 2008*, Flanders Congress & Concert Centre, Antwerp, Belgium. 2008. pp. 1903-1905, 11/2008.
19. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to a sustained increase in flow using a constituent-based model." In Proc. of *16th Congress of the European Society of Biomechanics*, Culture and Convention Centre, Lucerne, Switzerland, 07/2008.
20. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to increased blood flow using a constituent-based model." In Proc. of *6th European Symposium on Biomedical Engineering*, Center for Mediterranean Architecture, Chania, Crete Island, Greece, 06/2008.
21. **Tsamis A**, Stergiopoulos N. "Dynamics of arterial remodeling in response to hypertension using a structure-based model." In Proc. of *5th World Congress of Biomechanics*, Munich University of Applied Sciences, Munich, Germany, 07/2006.

Poster presentations

1. Campbell J, Siddiqui S, Gill S, **Tsamis A**. "Modelling the role of pulmonary surfactant in the human lung." In Proc. of *2019 Annual Meeting of the Biomedical Engineering Society*, Pennsylvania Convention Center, Philadelphia, Pennsylvania, USA, 10/2019.

2. Campbell J, Siddiqui S, **Tsamis A**, Gill S. “Modelling capillary pressure in the human lung to simulate surface-tension-driven volume-pressure hysteresis.” In Proc. of *2019 Biomedical Engineering Conference*, Imperial College London, South Kensington, London, UK, 09/2019.
3. **Tsamis A**, Szymanski JM, Jallerat Q, Feinberg AW. “ECM-based nanomechanical biosensors for measuring cell-generated 3D mechanical strains during tissue morphogenesis.” In Proc. of *McGowan Institute for Regenerative Medicine Annual Scientific Retreat*, Nemacon Woodlands Resort, Farmington, Pennsylvania, USA, 03/2016.
4. Liu S, **Tsamis A**, Duffy R, Hinton TJ, Feinberg AW. “Tracking cell-generated compaction strains in 3D tissue using fibronectin-based nanomechanical biosensors.” In Proc. of *2015 Annual Meeting of the Biomedical Engineering Society*, Tampa Convention Center, Tampa, Florida, USA, 10/2015.
5. Pal S, **Tsamis A**, Pasta S, D’Amore A, Gleason TG, Vorp DA, Maiti S. “A mechanistic model of dissection of human ascending thoracic aorta.” In Proc. of *7th World Congress of Biomechanics*, John B. Hynes Veterans Memorial Convention Center, Boston, Massachusetts, USA, 07/2014.
6. Stearns K, Beezhold K, D’Amore A, Wagner WR, Koch RG, **Tsamis A**, Vorp DA, Barchowsky A, Ambrosio F. “The effect of age on structural and mechanical properties of skeletal muscle extracellular matrix.” In Proc. of *Third Annual Symposium on Regenerative Rehabilitation*, Mission Bay Conference Center at University of California, San Francisco, San Francisco, California, USA, 04/2014.
7. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D’Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. “Aortic valve morphology correlates with circumferentially-distinct arrangement of radially-oriented fibers in aneurysm of ascending thoracic aorta.” In Proc. of *14th Biennial Meeting of the International Society for Applied Cardiovascular Biology*, Tudor Arms Doubletree Hotel, Cleveland, Ohio, USA, 04/2014.
8. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D’Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. “Aortic valve morphology correlates with circumferentially-distinct arrangement of radially-oriented fibers in aneurysm of ascending thoracic aorta.” In Proc. of *McGowan Institute for Regenerative Medicine Annual Scientific Retreat*, Nemacon Woodlands Resort, Farmington, Pennsylvania, USA, 03/2014.
9. Pomiecko K, **Tsamis A**, Watkins SC, Gleason TG, Vorp DA. “Three-dimensional reconstruction of aortic elastin and collagen fibers from multi-photon micrographs.” In Proc. of *Science Convergence 2013*. University of Pittsburgh, Alumni Hall, Pittsburgh, Pennsylvania, USA, 10/2013.
10. Koch RG, **Tsamis A**, D’Amore A, Wagner WR, Vorp DA. “A custom image-based analysis tool for quantifying elastin and collagen fiber micro-architecture in the wall of the human aorta from multi-photon microscopy images.” In Proc. of *ASME Summer Bioengineering Conference*, SBC2013-14482, Sunriver Resort, Sunriver, Oregon, USA. 2013, Volume 1 B 2013, Code 102833, pp. V01BT58A005, 2 pages, 06/2013. **(Best Poster Award. “Category: Fluid Mechanics, Biotransport, Cellular and Tissue Engineering”)**
11. **Tsamis A**, Phillippi JA, Koch RG, Krawiec JT, D’Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. “Aortic valve morphology dictates region-specific fiber architecture in human ascending thoracic aortic aneurysms.” In Proc. of *McGowan Institute for Regenerative Medicine Annual Scientific Retreat*, Nemacon Woodlands Resort, Farmington, Pennsylvania, USA, 03/2013.
12. **Tsamis A**, Phillippi JA, Koch RG, Pasta S, D’Amore A, Watkins SC, Wagner WR, Gleason TG, Vorp DA. “Fiber architecture in the longitudinal-radial and circumferential-radial planes of human ascending thoracic aortic media.” In Proc. of *2013 LS² Annual Meeting*, University of Zürich, Campus Irchel, Zürich, Switzerland, 01/2013.
13. Koch RG, **Tsamis A**, Vorp DA. “A custom image analysis algorithm for characterization of aortic wall connective fiber architecture from multiphoton microscopy imaging.” In Proc. of *2012 Annual Meeting of the Biomedical Engineering Society*, Georgia World Congress Center, Atlanta, Georgia, USA, 10/2012.
14. Koch RG, **Tsamis A**, D’Amore A, Wagner WR, Vorp DA. “Custom image-analysis tool for quantifying aortic wall architecture from multiphoton microscopy.” In Proc. of *Translation Science 2012*. University of Pittsburgh, Alumni Hall, Pittsburgh, Pennsylvania, USA, 10/2012.

15. Pomiecko K, **Tsamis A**, D'Amore A, Vorp DA. "Development of a "phantom" multiphoton microscopy image of the aortic wall using input microstructural parameters of the connective fiber architecture." In Proc. of *Translation Science 2012*. University of Pittsburgh, Alumni Hall, Pittsburgh, Pennsylvania, USA, 10/2012.
16. **Tsamis A**, Phillippi JA, Pasta S, D'Amore A, Watkins SC, Wagner WR, Vorp DA, Gleason TG. "Collagen fiber architecture in the longitudinal-radial and circumferential-radial planes of ascending aorta is distinctly different among bicuspid aortic valve and tricuspid aortic valve patients with ascending aortic aneurysm." In Proc. of *13th Biennial Meeting of the International Society for Applied Cardiovascular Biology*, University College London, Institute of Child Health, London, United Kingdom, 09/2012.
17. **Tsamis A**, Pocivavsek L, Vorp DA. "Effect of geometry on stress distribution in a computational model of the Heineke-Mikulicz strictureplasty." In Proc. of *7th Annual Postdoctoral Data & Dine Symposium*. University of Pittsburgh, William Pitt Union Assembly Room and Ballroom, Pittsburgh, Pennsylvania, USA, 05/2012.
18. **Tsamis A**, Pocivavsek L, Vorp DA. "Effect of geometry on stress distribution in a computational model of the Heineke-Mikulicz strictureplasty." In Proc. of *McGowan Institute for Regenerative Medicine Annual Scientific Retreat*, Nemaquin Woodlands Resort, Farmington, Pennsylvania, USA, 03/2012. **(Best Poster Award. Category: "Computational Modelling")**
19. Blose K, **Tsamis A**, Vorp DA. "Finite element analysis of a tissue engineered vascular graft." In Proc. of *McGowan Institute for Regenerative Medicine Annual Scientific Retreat*, Nemaquin Woodlands Resort, Farmington, Pennsylvania, USA, 03/2012.
20. **Tsamis A**, Stergiopoulos N, Rachev A. "A structure-based model of arterial remodeling in response to sustained hypertension." In Proc. of *ASME Summer Bioengineering Conference*, SBC2009-206338, Resort at Squaw Creek, Lake Tahoe, California, USA. 2009. pp. 1053-1054, 06/2009.
21. **Tsamis A**, Stergiopoulos N. Arterial remodeling in response to increased blood flow using a constituent-based model. In: Proc. of *18th International Conference of the Cardiovascular System Dynamics Society*, Renaissance Grand & Suites Hotel, St. Louis, Missouri, USA, 09/2008.
22. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to increased blood flow using a constituent-based model." In Proc. of *6th European Symposium on Biomedical Engineering*, Center for Mediterranean Architecture, Chania, Crete Island, Greece, 06/2008.
23. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to increased blood flow using a constituent-based model." In Proc. of *ASME Summer Bioengineering Conference*, SBC2008-192557, Marriott Resort, Marco Island, Florida, USA. 2009. pp. 345-346, 06/2008.
24. **Tsamis A**, Stergiopoulos N. "Arterial remodeling in response to a sustained step change in blood flow using a constituent-based model." In Proc. of *Biology Meets Engineering - USGEB*, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, 02/2008.
25. **Tsamis A**, Stergiopoulos N. "Dynamics of arterial remodeling in response to a sustained step change in blood flow using a constituent-based model." In Proc. of *ASME Summer Bioengineering Conference*, SBC2007-176359, Keystone Resort & Conference Center, Keystone, Colorado, USA. 2007. pp. 193-194, 06/2007.
26. **Tsamis A**, Stergiopoulos N. "Dynamics of arterial remodeling in response to hypertension using a structure-based model." In Proc. of *17th Cardiovascular System Dynamics Society*, Kasteel Vaalsbroek, Vaals, The Netherlands, 09/2006.

Theses

1. "Arterial remodeling using a constituent-based approach." PhD thesis in Biotechnology and Bioengineering, Interfaculty Institute of Bioengineering, School of Life Sciences, École Polytechnique Fédérale de Lausanne, 01/2010, Advisor: Prof. Nikolaos Stergiopoulos.
2. "Design and implementation of an OpenGL/C++ real-time graphic environment for a urological operation training simulator." Diploma thesis, School of Mechanical Engineering, National Technical University of Athens, 10/2003, Advisor: Prof. Evangelos Papadopoulos.
(Award for Best NTUA Diploma Thesis, Thomaidion Foundation, Athens, Greece, 10/2003)
(Award for Publication of Original Scientific Project, Thomaidion Foundation, Athens, Greece, 10/2007)