

## TRUSTED FORENSIC EXPERTS

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### Curriculum Vitae

**Michael R. Hill, Ph.D., P.E.**

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### BACKGROUND

Dr. Hill is a biomechanical engineer passionate about applying biomechanics techniques to solve diverse problems in forensics, medical research, engineering, biology, science, and mathematics. He is an expert in experimental, theoretical, and computational tissue biomechanics, with a focus on injury mechanisms, human tissue damage, and nonlinear soft tissue mechanics. Dr. Hill is a Licensed Professional Engineer and holds a Bachelor of Science degree in Biological Engineering, a Master of Science degree in Biomedical Engineering, and a Doctor of Philosophy degree in Bioengineering, with a focus on Biomechanics. Dr. Hill's core strengths are in orthopedic and cardiovascular biomechanics, vehicle accident reconstruction, injury consistency analysis, mechanical design, instrumentation, experimental analysis, numerical methods, simulation, statistics, and image processing. Dr. Hill has lectured in the field of biomechanics and numerical methods, and his research has been published in 16 academic articles and presented at 40 international and national scientific conferences.

### AREAS OF EXPERTISE

- Vehicle Accident Reconstruction
- Occupant Kinematics
- Orthopedic and Cardiovascular Biomechanics
- Human Tissue Damage Mechanics
- Slip, Trip, and Fall Analysis
- Computational Mechanics
- Experimental Biomechanics
- Image Analysis
- Computational Modeling
- Event Data Recorder (EDR) Data Retrieval and Analysis
- Automobile Restraint Analysis

### PROFESSIONAL LICENSES & CERTIFICATIONS

- Bosch Retrieval Tool Certified Technician
- Licensed Professional Engineer, Louisiana, #46749
- Licensed Professional Engineer, Mississippi, #33926
- Licensed Professional Engineer, North Carolina, #057388
- Licensed Professional Engineer, Texas, #143275

## EDUCATION

- Ph.D., Bioengineering (Cardiovascular Biomechanics), University of Pittsburgh, 2021
- M.S., Biomedical Engineering (Orthopedic Biomechanics), University of Alabama at Birmingham, 2006
- B.S., Biological Engineering, Mississippi State University, 2004

## PROFESSIONAL EXPERIENCE

2023 - Present | Quality Forensic Engineering, LLC | Senior Engineer, Charlotte, NC

2018 - 2023 | Rimkus Consulting Group, Inc. | Principal Consultant – 2022 to 2023, Houston, TX  
| Senior Consultant – 2018 to 2021, Houston, TX

2015 - 2018 | University of Nottingham | Research Fellow/Lecturer, Nottingham, UK

2012 - 2015 | University of Texas | Postdoctoral Fellow, Austin TX

2011 - 2012 | University of Pittsburgh Medical Center | Research Engineer, Pittsburgh, PA

2006 - 2011 | University of Pittsburgh, Department of Bioengineering | Graduate Research Fellow/Teaching Assistant, Pittsburgh, PA

2008 | Tohoku University, Department of Neuroendovascular Therapy | Research Fellow, Sendai, Japan

2004 – 2008 | University of Alabama at Birmingham | Graduate Research Fellow, Birmingham, AL

## NOTABLE PROJECTS

### Biomechanical Evaluation

- Determined consistency of occupant injuries and tissue damage with human movement kinematics associated with automobile collision dynamics
- Measure vibrations and accelerations in motor vehicles to determine consistency with biomechanical loading and orthopedic tissue damage mechanics

### Occupational Injury Biomechanics

- Analyzed head and spinal injury mechanics consistent with impact by falling objects
- Determined consistency of soft tissue injuries with slip and fall accidents
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### Biomechanical Research/Development

- *Airway Computer Model*: developed numerical analysis solvers to predict the biomechanical response and remodeling of asthmatic airway wall tissues
- *High-Throughput Biological Imaging Methods*: collaborated with a multidisciplinary team of biologists and mathematicians to develop custom software techniques that greatly increased both quantity and quality of data obtained from histological images

- *Statistical Model of Cancer Treatment*: applied Bayesian statistics to develop a model of clonogenic survival assays that includes experimental uncertainties and errors in predictions
- *Biomechanical Testing System*: lead engineering team in the design and construction of a 3-axis biomechanical testing system and frame for soft tissues
- *Heart Computer Model*: developed state-of-the-art computer models to predict pathological heart wall tissue remodeling associated with pulmonary hypertension, validated by experimental biomechanics technique
- *Sciatic Nerve Injury Prevention Project*: along with engineers, orthopedic surgeons and residents, evaluated new clinical techniques for preventing peroneal nerve injury during surgery
- *Nerve Strain/Pressure Measurement Project*: designed and assembled a system for measuring strain and pressure in the nerve during mock surgery
- *Brain Aneurysm Model*: developed a computer model to determine the mechanisms of aneurysm mechanical behavior and rupture; results were validated with a custom-built imaging and biomechanical testing system
- *Side Impact Automobile Accident Analysis*: assisted in a project to evaluate the effect of highspeed side automobile impacts on the lower torsos of human cadavers

#### PROFESSIONAL ASSOCIATIONS AND VOLUNTEER SERVICE

- Independent Peer Reviewer of Scientific Journals
  - Annals of Biomedical Engineering
  - International Journal for Numerical Methods in Biomedical Engineering
  - Journal of Biomechanical Engineering
  - Public Library of Science (PLoS) ONE
- Current Member, the Society of Automotive Engineers (SAE International)
- Programme Committee Member, 5th International Conference on Computational and Mathematical Biomedical Engineering, University of Pittsburgh (2017)
- Postdoctoral/Postgraduate Affairs Committee Member, The University of Nottingham (2015- 2018)
- MayFest Student Engagement Event, The University of Nottingham (2015, 2016)
- BMES Chapter Community Outreach Chair, University of Pittsburgh (2010-2011)
- BMES Chapter Vice President, UAB (2005-2006)
- Graduate Student Senator, Graduate Student Association, UAB (2005-2006)

#### AWARDS, HONORS, AND FELLOWSHIPS

- National Institutes of Health Ruth L. Kirschstein National Research Service Award Fellowship
- American Heart Association Southwest Affiliate Postdoctoral Fellowship
- National Science Foundation East Asia and Pacific Summer Institutes (EAPSI) Fellowship
- Finalist, Ph.D. Student Paper Competition: AMSE 2011 Summer Bioengineering Conference
- National Institutes of Health Fellowship: Biomechanics in Regenerative Medicine (BiRM)
- National Science Foundation Graduate Research Fellowship
- Tau Beta Pi Engineering Honors Society

## COURSEWORK/CONTINUING EDUCATION

**Advanced Coursework:** Orthopedic Biomechanics, Biomechanics of Organs, Tissues, and Cells, Advanced Topics in Biosolid Mechanics, Biomechanical Measurements, Molecular Mechanisms of Tissue Growth and Differentiation, Continuum Mechanics, Finite Element Analysis, Numerical Methods, Advanced Fluid Mechanics, Cardiovascular System Dynamics and Modeling, Engineering Analysis, Implant Tissue Interaction, Elastic Stability, Advanced Mechanics of Materials, Biochemistry, Organic Chemistry, Bioinstrumentation, Cell Biology, Immunology, Biomedical Materials, Dynamics of Aging, Biomechanics, Physiological Systems in Biomedical Engineering, Biophysical Properties of Materials, Transport in Biological Environments, Biosystems Simulation, Microbiology, Thermodynamics, Statics and Dynamics

### Continuing Education

2023 | Surveying Essentials  
| Fundamentals of Asphalt Pavement Design  
| Concrete Fundamentals, An Introduction  
| Concrete 1, Evaluation of Causes of Damage  
| Heavy Truck Braking System and Braking Techniques  
| Safe Backing of Tractor-Trailer Rigs  
| Transportation Engineering, Traffic Flow Theory  
| Accessible Parking  
| Essentials of the Connected Vehicle  
| Material Science, Structure of Metals  
| Material Science, Properties of Metals  
| Ethics for Professionals  
| Electric Motors

2019 | SAE International: Injuries, Anatomy, Biomechanics, and Federal Regulation  
| Northwestern University: Crash Investigation 1

## TEACHING EXPERIENCE

- Lecturer, Computerized Mathematical Methods in Engineering, School of Mathematical Sciences, University of Nottingham, Spring 2018
- Guest Lecturer, Models for Growth & Remodeling in Native and Engineered Tissue Systems, Department of Biomedical Engineering, University of Texas at Austin, Spring 2014
- Guest Lecturer, Tissue Biomechanics, Department of Biomedical Engineering, University of Texas at Austin, Spring 2013
- Guest Lecturer, Biomechanics, Department of Biomedical Engineering, University of Texas at Austin, Fall 2012 and Fall 2013
- Teaching Assistant, Senior Design, Department of Bioengineering, University of Pittsburgh, Fall 2009 and Spring 2010

## PRESENTATIONS

### Podium Presentations (speaker underlined>)

1. Brook BS, Philp CJ, Hill MR, Bullock AM, Liu B, Habgood AN, John AE, Middlewick RJ, Stephenson KE, Goodwin AT, Billington CK, Tatler AL, O'Dea RD, Johnson SR, 2019. A Novel, Comprehensive Method to Study Murine Airway Remodeling Reveals Differential Smooth Muscle and Collagen Increases in Large and Small Airways, American Thoracic Society International Conference, Dallas, Texas, 2019 (Mini Symposium; DOI 10.1164/ajrccm-conference.2019.199.1\_MeetingAbstracts.A5889)
2. Hill MR, Philp CJ, Billington CK, Tatler AL, Johnson SR, O'Dea RD, Brook BS, Mechanical Homeostasis in a Morphoelastic Mechanobiological Model of Airway Remodelling, 8th World Congress of Biomechanics, Dublin, Ireland, 2018
3. Hill MR, O'Dea RD, Brook BS, A Mechanobiological Morphoelastic Model of Inflammation- and Contractile Agonist-Induced Airway Wall Remodelling During Asthma, UK Conference on Multiscale Biology, University of Nottingham, UK, 2018
4. Hill MR, Philp CJ, Billington CK, Tatler AL, O'Dea RD, Johnson SR, Brook BS, A Mechanobiological Morphoelastic Model of Inflammation and Mechanotransduction-Induced Remodelling of the Airway Wall: Application to an Ovalbumin Mouse Model of Asthma, Proceedings of the Biomedical Engineering Society (BMES), Phoenix, AZ, 2017
5. Hill MR, O'Dea RD, Brook BS, A Mechanochemical Computational Model of Airway Growth and Remodelling in Asthma, 3rd Workshop on Soft Tissue Modelling, School of Mathematics and Statistics, University of Glasgow, UK, 2017
6. Philp CJ, Billington CK, Hill MR, Bullock AM, Liu B, Habgood AN, Miller S, O'Dea RD, Tatler AL, Johnson SR, Brook BS, Altered ASM Mass and Contractile Responses in an Ovalbumin Murine Model of Asthma during the Inflammation Resolution Phase as assessed by PCLS and IHC, 10th Young Investigator's Meeting in Smooth Muscle in Airways & Vascular Disease, Philadelphia, PA, 2017
7. Hill MR, Philp CJ, Bullock AM, Billington CK, O'Dea RD, Tatler AL, Johnson SR, Brook BS, Inflammation-Induced Airway Remodelling in an Ovalbumin Murine Model of Asthma: An Integrated In Silico - In Vivo Study, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE), Pittsburgh, PA, USA, 2017
8. Hill MR, O'Dea RD, Brook BS, A Mathematical Model of Lung Airway Growth Mechanics: Application to a Murine Model of Asthma, European Conference on Mathematical and Theoretical Biology / Society for Mathematical Biology Annual Conference, University of Nottingham, Nottingham, UK, 2016
9. Hill MR, O'Dea RD, Brook BS, Modelling Tissue Growth as a Non-Isochoric Deformation Capable of Imparting Stress: Implications for the Airway Wall, Emerging Trends in Applied Mathematics and Mechanics, Mini-Symposium 1: Mechanics of Fibre-reinforced Materials: Theory and Applications, Perpignan, France, 2016
10. Hill MR, Tatler AL, O'Dea RD, Billington CK, John AE, Deacon K, Johnson SR, Brook BS, Biomechanical Model of Inflammation-Induced Airway Smooth Muscle Mass Accumulation and Extracellular Matrix Deposition in an Ovalbumin Murine Model of Asthma, American Thoracic Society International Conference, San Francisco, CA, USA, 2016 (Mini Symposium, DOI 10.1164/ajrccm-conference.2016.193.1\_MeetingAbstracts.A7525)

11. Avazmohammadi R, Hill MR, Simon MA, Zhang W, Sacks MS, A Novel Fiber-Level Structural Constitutive Model for Viable Right Ventricular Myocardium, Society of Engineering Science (SES)  
52nd Annual Technical Meeting, Texas A&M University, College Station, Texas, USA, 2015
12. Hill MR, Simon MA, Sacks MS, Time-Evolving Growth and Remodeling Response of Right Ventricular Myocardium to Pressure Overload, Proceedings of the Biomedical Engineering Society (BMES), San Antonio, TX, 2014
13. Siegel SM,\* Dar UA, Rahman M, Hill MR, Simon MA, Sacks MS, Quantitative Histomorphological Analysis of Right Ventricular Myocardium Under Chronic Pressure Overload, Proceedings of the Biomedical Engineering Society (BMES), San Antonio, TX, 2014  
\* Winner, National BMES Student Design and Research Award
14. Hill MR, Raut SS, Rodriguez A, Weber III TV, Chen D, Placeres C, Cheang D, Sacks MS, Triaxial Experimental Analysis and Simulation (TExAS) system for full 3D modeling of soft biological tissues, 7th World Congress of Biomechanics, Boston, MA, 2014
15. Hill MR, Valdez-Jasso D, Simon MA, Champion HC, Sacks MS, Right Ventricular Adaptation to Pulmonary Hypertension in a Rat Model, Proceedings of the Biomedical Engineering Society (BMES), Seattle, WA, 2013
16. Robertson AM\*, Hill MR, X Duan, S Watkins, Structurally Motivated Constitutive Models for the Arterial Wall - Theory and Experiments, ECCOMAS Thematic Conference on Simulation and Modeling of Biological Flows - SIMBIO, Free University of Brussels, Belgium, 2011  
\* Keynote Address
17. Hill MR,\* Robertson AM, Abrupt Recruitment of Medial Collagen Fibers in the Rabbit Carotid Artery, Proceedings of the ASME 2011 Summer Bioengineering Conference, Farmington, PA, 2011  
\* Finalist in the PhD Student Paper Competition
18. Robertson AM, Zeng Z, Durka MJ, Kallmes DF, Kadirvel R, Ding Y, Dai D, Lewis D, Hill MR, Watkins SC, Use of Computational Fluid Dynamics for the Design and Development of Animal Models for Studies of the Pathophysiology of Cerebral Aneurysms, 2nd International Conference on Computational & Mathematical Biomedical Engineering, Washington, DC, 2011
19. Hill MR, Robertson AM, Combined Histological and Mechanical Evaluation of Isotropic Damage to Elastin in Cerebral Arteries, 6th World Congress on Biomechanics, Singapore, 2010
20. Robertson AM, Hill MR, Li D, On the Biomechanics of Damage in Cerebral Vessels, IVth International Symposium on Modeling of Physiological Flows, MPF2010, Cagliari, Sardinia Island, Italy, 2010

#### Conference Papers

21. Yang B, Lesicko J, Sharma M, Hill MR, Sacks MS, Tunnell JW, Collagen Fiber Orientation Mapping with Top Layer Discrimination using Polarized Light Spatial Frequency Domain Imaging (pSFDI) on Native Heart Tissue, Biomedical Optics, Optical Society of America Technical Digest (online), paper BM4B.5, Miami, FL, 2014

Conference Poster Group Discussions (presenter underlined>

22. Brook BS, Hill MR, Philp CJ, Habgood AN, Middlewick RJ, John AE, Stephenson KE, Goodwin AT, Billington CK, Tatler AL, O'Dea RD, Johnson SR, Inflammation- and Mechanotransduction-driven Airway Remodeling in a Mouse Model of Asthma; an Integrated in vivo - in silico Study, American Thoracic Society International Conference, San Diego, CA, USA, 2018 (Poster Discussion Session; DOI /10.1164/ajrccm-conference.2018.197.1\_MeetingAbstracts.A2927)
23. Philp CJ, Billington CK, Hill MR, Bullock AM, Liu B, Habgood AN, Miller S, O'Dea RD, Tatler AL, Johnson SR, Brook BS, Altered Airway Smooth Muscle Mass and Contractile Responses in an Ovalbumin Murine Model of Asthma during the Inflammation Resolution Phase as Assessed by Precision Cut Lung Slices (PCLS) and Immunohistochemistry, American Thoracic Society International Conference, Washington, DC, USA, 2017 Poster Discussion Session, DOI 10.1164/ajrccm-conference.2017.195.1\_MeetingAbstracts.A3148)
24. Hill MR, O'Dea RD, Brook BS, In Silico Model of Airway Smooth Muscle Cell and Extracellular Matrix Growth and Remodeling, 9th Young Investigator's Meeting in Smooth Muscle in Airways & Vascular Disease, London, UK, 2015

Conference Posters

25. Philp CJ, Hill MR, Billington CK, O'Dea RD, Tatler AL, Brook BS, Johnson SR, A Novel Computational Image Analysis Method gives Comprehensive Insight into Airway Remodelling and Resolution in the Ovalbumin Model of Asthma, Thorax 73:A23, 2018
26. Hill MR, O'Dea RD, Brook BS, Inflammation-Induced Growth and Remodeling of Airways During Asthma, 2nd Workshop on Soft Tissue Modelling, School of Mathematics and Statistics, University of Glasgow, UK, 2015
27. Hill MR, Simon MA, Sacks MS, Structural Remodeling and Mechanical Adaptation of Right Ventricle Free Wall Myocardium to Sustained Pressure Overload, North American Vascular Biology Organization (NAVBO) 4th Annual Yale Cardiovascular Research Center Symposium: Cardiovascular Inflammation and Remodeling, New Haven, CT, 2014
28. Simon MA, Hill MR, Champion HC, Sacks MS, Biomechanics of Right Ventricular Myocardial Remodeling in Response to Pressure Overload, International Society for Heart and Lung Transplantation (ISHLT) 34th Annual Meeting & Scientific Sessions, San Diego, CA, 2014
29. Yang B, Sharma M, Hill MR, Tunnell JW, Sacks MS, A Method for Quantifying Fiber Orientation in Valvular Tissues with Polarized Spatial Frequency Domain Imaging, Proceedings of the Biomedical Engineering Society (BMES), Seattle, WA, 2013
30. Yang B, Sharma M, Hill MR, Sacks MS, Tunnell JW, Biomechanical Properties Extraction on a Thin Sample with Highly Ordered Structure Using Polarized Spatial Frequency Domain Imaging, Engineering Conferences International (ECI) Advances in Optics for Biotechnology, Medicine, and Surgery XIII, Lake Tahoe, CA, 2013
31. Robertson AM\*, Duan X, Valentin A, Hill MR, Li D, Zunino P, Allen R, Wang Y, Watkins S, Modeling the Biomechanics of the Arterial Wall Across Multiple Temporal and Spatial Scales, Annual Meeting, Current Challenges in Computing Conference (CCubed), Special Focus on New Directions in Biomedical Research, Napa, CA, 2013

\* invitation only



32. Goyal K, Hill MR, O'Malley M, Mehta M, Flynn S, Pape H, Moosy J, Tarkin I, Biomechanical Mechanisms Underlying Peroneal Nerve Injury Following Acetabular Fracture and Surgery, American Academy of Orthopedic Surgeons (AAOS) Annual Meeting, Chicago, IL, 2013
33. Goyal K, Hill MR, O'Malley M, Mehta M, Flynn S, Pape H, Moosy J, Tarkin I, Fibular Tunnel Release may Alleviate Peroneal Nerve Injury after Acetabular Fracture and Surgery, Orthopaedic Trauma Association (OTA) Annual Meeting, Minneapolis, MN, 2012
34. Goyal K, Hill MR, O'Malley M, Mehta M, Flynn S, Pape H, Moosy J, Tarkin I, Mechanisms Underlying Preferential Peroneal Nerve Injury Following Acetabular Fracture and Surgery, Orthopaedic Trauma Association (OTA) Annual Meeting, Minneapolis, MN, 2012
35. Hill MR, Robertson AM, Analyzing Collagen Crimp for Inclusion in Microstructural Mechanical Models, Proceedings of the Biomedical Engineering Society (BMES), Hartford, CT, 2011
36. Remlinger NT, Hill MR, Wainwright JM, Wearden PD, Gilbert TW, Mechanical Stretch Increases Cardiomyocyte Alignment on Extracellular Matrix Scaffolds, Tissue Engineering & Regenerative Medicine International Society (TERMIS), Orlando, FL, 2010
37. Phillippi JA, Kubala AA, Eskay MA, Hill MR, Robertson AM, Watkins SC, Vorp DA, Gleason TG, Reduced Oxidative Stress Responses and Disrupted Collagen Homeostasis in Thoracic Aortic Aneurysms in Patients with Bicuspid Aortic Valve, 5th Center for Vascular Remodeling & Regeneration Annual Retreat, Pittsburgh, PA, 2010
38. Hill MR, Hydrean C, Wulandana R, Robertson AM, A Device for Uniaxial Mechanical Testing of Arterial Ring Segments, Proceedings of the Biomedical Engineering Society (BMES), Pittsburgh, PA, 2009
39. Hill MR, Catledge SA, Konovalov V, Etheridge BS, Stanishevsky A, Vohra YK, Lemons JE, Eberhardt AE, Tribological Evaluation of Nanostructured Diamond Coatings Against Ultra-High Molecular Weight Polyethylene, Proceedings of the Society for Biomaterials, Pittsburgh, PA, 2006
40. Hill MR, Catledge SA, Vohra YK, Eberhardt AE, Wear Testing of Nanocrystalline Diamond Coatings for a Temporomandibular Joint Prosthesis, Proceedings of the Biomedical Engineering Society (BMES), Baltimore, MD, 2005

## PUBLICATIONS

1. Tatler AL, Philp CJ, Hill MR, Cox S, Bullock AM, Habgood AN, John AE, Middlewick RJ, Stephenson KE, Goodwin AT, Billington CK, O'Dea RD, Johnson SR, Brook BS, "Differential Remodelling in Small and Large Murine Airways Revealed by Novel Whole Lung Airway Analysis," American Journal of Physiology - Lung Cellular and Molecular Physiology (DOI 10.1152/ajplung.00034.2022)
2. Hill MR, Philp CJ, Billington CK, Tatler AL, Johnson SR, O'Dea RD, Brook BS, 2017. "A Theoretical Model of Inflammation- and Mechanotransduction-driven Asthmatic Airway Remodelling," Biomechanics and Modeling in Mechanobiology (DOI: 10.1007/s10237-018-1037-4)
3. Avazmohammadi R, Hill MR, Simon MA, Sacks MS, 2017. "Transmural Remodeling of Right Ventricular Myocardium in Response to Pulmonary Arterial Hypertension," Applied Physics Letters: Bioengineering, Volume 1, Issue 1, 016105 (DOI: 10.1063/1.5011639)
4. Goyal K, Hill MR, O'Malley M, Mehta M, Flynn S, Pape H, Moosy J, Tarkin I, 2017. "Preferential Peroneal Nerve Injury After Posterior Acetabular Fracture and Reconstruction,"



Current Orthopaedic Practice, Volume 29, Issue 2, pages 160-166  
(DOI:10.1097/BCO.0000000000000596)

5. Collis J, Hill MR, Nicol JR, Paine PJ, Coulter JA, 2017. "A Hierarchical Bayesian Approach To Calibrating the Linear-Quadratic Model from Clonogenic Survival Assay Data," *Radiotherapy and Oncology*, Volume 124, Issue 3, pages 541-546 (DOI:10.1016/j.radonc.2017.08.015)
6. Avazmohammadi R, Hill MR, Simon MA, Zhang W, Sacks MS, 2017. "A Novel Constitutive Model for Passive Right Ventricular Myocardium: Evidence for Direct Myofiber-Collagen Fiber Mechanical Coupling," *Biomechanics and Modeling in Mechanobiology*, Volume 16, Issue 2, pages 561-581 (DOI:10.1007/s10237-016-0837-7)
7. Yang B, Lesicko J, Sharma M, Hill MR, Sacks MS, Tunnell JW, 2015. "Polarized Light Spatial Frequency Domain Imaging for Non-Destructive Quantification of Soft Tissue Fibrous Structures," *Biomedical Optics Express*, Volume 6, Issue 4, pages 1520-1533 (DOI:10.1364/BOE.6.001520)
8. Robertson AM, Duan X, Aziz KM, Hill MR, Watkins SC, Cebra JR, 2015. "Diversity in the Strength and Structure of Unruptured Cerebral Aneurysms," *Annals of Biomedical Engineering*, Volume 43, Issue 7, pages 1502-1515 (DOI:10.1007/s10439-015-1252-4)
9. Hill MR, Simon MA, Valdez-Jasso D, Champion HC, Sacks MS, 2014. "Structural and Mechanical Adaptation of Right Ventricular Free Wall Myocardium to Pressure Overload," *Annals of Biomedical Engineering*, Volume 42, Issue 12, pages 2451-65 (DOI:10.1007/s10439-014-1096-3)
10. Simon MA, Hill MR, Champion HC, Sacks MS, 2014. "Biomechanics of Right Ventricular Myocardial Remodeling in Response to Pressure Overload," *The Journal of Heart and Lung Transplantation*, Volume 33, Issue 4, pages S228-S229 (DOI:10.1016/j.healun.2014.01.593)
11. Phillippi JA, Green BR, Eskay MA, Kotlarczyk MP, Hill MR, Robertson AM, Watkins SC, Vorp DA, Gleason TA, 2014. "Mechanism of Aortic Medial Matrix Remodeling is Distinct in Bicuspid Aortic Valve Patients," *Journal of Thoracic and Cardiovascular Surgery*, Volume 147, Issue 3, pages 1056-1064 (DOI:10.1016/j.jtcvs.2013.04.028)
12. Phillippi JA, Green BR, Eskay MA, Kotlarczyk MP, Hill MR, Robertson AM, Gibson GA, Hong Y, Wagner WR, St. Croix C, Watkins SC, Vorp DA, Gleason TA, 2013. "Reactive Oxygen Species and Zinc Mediate BAV Aortopathy," *Cardiovascular Pathology*, Volume 22, Issue 3, pages e42-e43 (DOI:10.1016/j.carpath.2013.01.051)
13. Hill MR, Duan X, Gibson G, Watkins S, Robertson AM, 2012. "A Theoretical and Non-Destructive Experimental Approach for Direct Inclusion of Measured Collagen Orientation and Recruitment into Mechanical Models of the Artery Wall," *Journal of Biomechanics*, Special Issue on Cardiovascular Solid Mechanics, Volume 45, Issue 5, pages 762-771 (DOI:10.1016/j.jbiomech.2011.11.016)
14. Robertson AM, Hill MR, Li D, 2011. "Structurally Motivated Damage Models for Arterial Walls - Theory and Application," in *Modelling of Physiological Flows*, Ambrosi D, Quarteroni A, Rozza G (eds.), Springer, ISBN 978-88-470-1934-8, pages 143-185 (DOI:10.1007/978-88-470-1935-5-6)
15. Clem WC, Chowdhury S, Catledge SA, Weimer JJ, Shaikh FM, Hennessy KM, Konovalov VV, Hill MR, Waterfeld A, Bellis SL, Vohra YK, 2008. "Mesenchymal Stem Cell Interaction with Ultra-Smooth Nanostructured Diamond for Wear-Resistant Orthopaedic Implants," *Biomaterials*, Volume 29, Issues 24-25, pages 2461-2468 (DOI:10.1016/j.biomaterials.2008.04)

16. Hill MR, Catledge SA, Konovalov VV, Clem WC, Chowdhury SA, Etheridge BS, Stanishevsky A, Lemons JE, Vohra YK, Eberhardt AE, 2007. "Preliminary Tribological Evaluation of Nanostructured Diamond Coatings Against Ultra-High Molecular Weight Polyethylene," Journal of Biomedical Materials Research, Part B: Applied Biomaterials, Volume 85B, Issue 1, pages 140-148 (DOI:10.1002/jbm.b.30926)

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