

Jeffrey W. Ruberti, Ph.D.

215 ISEC

Department of Bioengineering

Northeastern University

Boston, MA

ph (617) 373-3984

fax (617)373-2921

Cell (781) 640-0582

j.ruberti@neu.edu

EDUCATION

Northwestern University - Evanston, IL Jan 2000 - July 2001

Postdoctoral Fellow, Dept. of Biomedical Engineering - Nanostructural visualization of lipids in macula, nanoscale transport and micropressure measurements. Advisor: Mark Johnson

Massachusetts Institute of Technology - Cambridge, MA April 1998 - Jan 2000

Postdoctoral Associate, Department of Mechanical Engineering - Visualization of extracellular matrix nanostructure, nanoscale transport mechanics and theoretical treatment of corneal soluble molecule distribution. Advisor: Mark Johnson

Tulane University - New Orleans, LA April 1998

Ph.D. in Biomedical Engineering

Theoretical and computational treatment of transport and swelling in biological membranes. (e.g. cornea). Advisors: DA Rice/Stephen Klyce

Tulane University - New Orleans, LA May 1986

B.S.E. in Biomedical Engineering

Phillips Academy - Andover, MA June 1982

EMPLOYMENT (INDUSTRY)

2020-present **Marvel Diagnostics, Inc.** Los Angeles, CA
Treasurer and Founder. Marvel is a COVID-19 Diagnostic company.

2021-present **RegenX, LLC.** Burlington, MA
Chief Scientific Officer and Founder. RegenX is a tissue engineering biotechnology company.

2001-2004 **Cambridge Polymer Group, Inc.** Boston, MA
Associate Consultant. Direct, perform and develop tests to characterize polymer systems. Research biological applications of polymers including rheological behavior of curing polymers, methods to strengthen hydrogels and generation of artificial cornea *de novo*. Principal Investigator on Phase I SBIR awarded to develop artificial corneal stroma. Lead inventor on patented thetagel technology.

12/89-8/91 **Hamilton Sunstrand, Space and Sea Systems (UTC)** Windsor Locks, CT
Senior Experimental Engineer. Life support systems engineering lead on the International Space Station Potable and Hygiene Water Processing system. Aided in

design of novel zero-gravity water separator that is operational on the International Space Station.

- 6/88-12/89 **Southwest Foundation for Biomedical Research** San Antonio, TX
Research Associate - Biomedical Engineer. Provided engineering support to Department of Physiology and Medicine (pulmonary function measurements). Constructed clinical high frequency ventilation monitoring system for neonates. Designed automated pulmonary function test system.
- 10/86-6/88 **Sikorsky Aircraft (UTC)** Stratford, CT
Systems Engineer - Avionics Mission Tactical Systems (anti-submarine warfare). Responsible for the integration of various advanced avionics and tactical systems into the SH-60F (CV-Helo). Designed electromagnetic interference shielding system for instrument panel on UH-60 Blackhawk Helicopter.

EMPLOYMENT/APPOINTMENTS (ACADEMIC)

- 2001-present **Schepens's Eye Research Institute, MEEI, Ocular Surface Group** Boston, MA
Adjunct Scientist. Consult and assist in efforts to construct cornea grown from human cells. Perform high resolution imaging of nanoscale structure of secreted stromal matrix.
- 2014-present **Northeastern University, Department of Bioengineering,** Boston, MA
Professor and Founding Member. Research focus on mechanobiology, multiscale biomechanics, multiscale mechanochemistry of collagen, corneal tissue engineering and bone tissue engineering. Teaching foci: Quantitative Physiology, Principles of Bioengineering, Transport and Fluid Mechanics for Bioengineers.
- 2009-2018 **Northeastern University, Department of Bioengineering,** Boston, MA
Director of the Ph.D. Program in Bioengineering.
- 2013-2014 **Koch Institute for Integrative Cancer Research, Langer Laboratories, Massachusetts Institute of Technology,** Cambridge, MA
Visiting Scientist
- 2004-2014 **Northeastern University, Department of Mechanical and Industrial Eng.** Boston, MA
Associate Professor. Research focus on mechanobiology, multiscale biomechanics, multiscale mechanochemistry of collagen and tissue engineering. Teaching foci: Musculoskeletal Biomechanics, Capstone Design, Principles of Bioengineering
- 2003-2006 **Massachusetts Eye and Ear Infirmary, Harvard University,** Boston, MA
Lecturer. Disseminate research results to Ophthalmology fellows.
- 8/00-8/01 **Northwestern University, Dept of Biomedical Engineering** Evanston, IL

Research Associate – Performed micropressure measurements in extracellular matrix and used high resolution Quick Freeze Deep Etch imaging to examine lipid accumulation with age in the macula of the eye.

4/98-4/99 **Boston University Medical School, Dept of Ophthalmology** Boston, MA
Consultant – Assisted in the preparation and visualization of corneal and trabecular meshwork nanostructure using Quick Freeze/Deep Etch technique.

5/93 - 8/94 **Tulane University, Dept of Biomedical Engineering** New Orleans, LA
Research Assistant - Investigated turbulent blood flow in models of Abdominal Aortic Aneurysms.

8/91 - 5/93 **Tulane University, Dept of Biomedical Engineering** New Orleans, LA
Teaching Assistant Assisted in the instruction of undergraduate physiology for engineers. Instructed laboratory and graded lab reports.

SCHOLARSHIP

Quick summary

Published works count includes:

Published or accepted peer-reviewed journal articles: 57

Chapters/Reviews: 4

Abstracts/Conference Papers: 115

Issued Patents: 18

Patents Pending: 5

Total Substantive Publications (Journal Articles, Chapters/Reviews and Issued Patents): 79

Total Publications including abstracts and conference papers: 194

Not included in published works count:

Journal articles under review: 1

Journal articles in revision: 0

As of June 2nd: Dr. Ruberti's H-INDEX: 35 (Via Google Scholar)

I10-INDEX: 61

Total citations (Google Scholar): 4454; Top 5 cited papers: Collier *et al.* 2001 (**265**), Ethier, Johnson and Ruberti 2004 (**299**), Ruberti, Roy and Roberts 2011 (**201**), Ruberti and Zieske (**189**), and Guo *et al.* 2007 (**182**)

PEER-REVIEWED JOURNAL ARTICLES

- J1. Siadat SM, Susilo ME, Paten JA, Silverman AA, DiMarzio CA and JW Ruberti (2021). Development and validation of fluorescently labeled, functional type I collagen molecules. bioRxiv: doi: <https://doi.org/10.1101/2021.03.26.437209>
- J2. Siadat SM, Silverman AA, DiMarzio CA and JW Ruberti (2021) Measuring collagen fibril diameter with differential interference contrast microscopy. *Journal of Structural Biology Mar; 213(1): 107697.*

- J3. Jamieson RR, Stasiak SE, Polio SR, Ruberti JW and Parameswaran H. (2021). Stiffening of the extracellular matrix is a sufficient condition for airway hyperreactivity. *Journal of Applied Physiology. J Appl Physiol (Chosen as "APS Select")*.
- J4. Hosseini H, Rangchian A, Prins ML, Giza CL, **Ruberti JW** and Kavehpour HP. (2020). Probing flow-induced biomolecular interactions with micro-extensional rheology: Tau protein aggregation. *J. Biomech Eng.* 142(3).
- J5. Chaudhary M, Ismail EN, Yao P, Tayyari F, Radu RA, Nusinowitz S, Boulton ME, Apte RS, **Ruberti JW**, Handa JT, Tontonoz P and G Malek. (2020). LXRs regulate features of age-related macular degeneration and may be a potential therapeutic target. *JCI Insight* 5(1).
- J6. Paten JA, Martin CL, Wanis JT, Siadat SM, Figueroa-Navado AM, **Ruberti JW** and LF Deravi. (2019). Molecular interactions between collagen and fibronectin: A reciprocal relationship that regulates *de novo* fibrillogenesis. *Chem* 5, 2126-2145
- J7. Wu PJ, Kabakova IV, **Ruberti JW**, Sherwood JM, Dunlop IE, Paterson C, Torok P and DR Overby (2018). Water content, not stiffness, dominates Brillouin spectroscopy measurements in hydrated materials. *Nature Methods* Aug;15(8):561-562
- J8. Chen ML, **Ruberti JW** and TD Nguyen. (2018) Increased stiffness of collagen fibrils following cyclic tensile loading. *Journal of the Mechanical Behavior of Biomedical Materials* Jun: 82:345-354.
- J9. Chantre CO, Campbell PH, Golecki HM, Buganza AT, Capulli AK, Deravi LF, Dauth S, Sheehy SP, Paten JA, Gledhill K, Doucet YS, Abaci HE, Ahn S, Pope BD, **Ruberti JW**, Hoerstrup SP, Christiano AM and KK Parker (2018) Production-scale fibronectin nanofibers promote wound closure and tissue repair in a dermal mouse model. *Biomaterials* Jun; 166:96-108.
- J10. Pouran B, Moshtagh PR, Arbabi V, Snabel J, Stoop R, **Ruberti JW**, Malda J, Zadpoor AA and H Weinans (2018). Non-enzymatic cross-linking of collagen type II fibrils is tuned via osmolality switch. *J Ortho Res.* Jul; 36(7): 1929-1936
- J11. Ismail EN, **Ruberti JW** and Malek G (2017). Quick-freeze deep-etch electron microscopy visualization of the mouse posterior pole. *Exp Eye Res.* 162,62-72
- J12. Zareian R, Susilo ME, Paten JA, McLean JP, Hollman J, Karamichos D, Messer C, Tambe D, Saeidi N, Zieske JD and **JW Ruberti** (2016). Human corneal fibroblast pattern evolution and matrix synthesis on mechanically-biased substrates. *Tissue Engineering Part A* 22(19-20), 1204-1217.
- J13. Paten JA, Siadat S, Susilo ME, Ebraheim IN, Stoner JL, Rothstein JP and **JW Ruberti** (2016). Flow-induced crystallization of collagen: A potentially critical mechanism in early tissue formation (2016) *ACS Nano* 10(5), 5027-5040.
- J14. Wingender B, Bradley P, Saxena N, **Ruberti JW** and L Gower (2016). Biomimetic organization of collagen matrices to template bone-like microstructures. *Matrix Biology* Feb 16 52-54, 384-396.
- J15. Susilo M, Paten J, Sander E, Nguyen TD and **JW Ruberti** (2016). Collagen network strengthening following cyclic tensile loading. *Interface Focus* Feb 6, 6(1) (Epub).
- J16. Tonge, TK, **Ruberti JW** and TD Nguyen. (2015) A micromechanical modeling study of the mechanical stabilization of enzymatic degradation of collagen tissues. *Biophys J.* Dec 109(12), 2689-2700.
- J17. Zhou EH, Watson C, Pizzo R, Cohen J, Dang Q, DeBarros PM, Park CY, Chen C, Brain JD, Butler JP, **Ruberti JW**, Fredberg JJ and P Demokritou (2014). Assessing the impact of

- engineered nanoparticles on wound healing using a novel in vitro bioassay. *Nanomedicine* 13:1-13
- J18. Karamichos D, Rich CB, Zareian R, Hutcheon AEK, **Ruberti JW**, Trinkaus-Randall V and JD Zieske (2013). TGF-B3 stimulates stromal matrix assembly by human corneal keratocyte-like cells” *IOVS* Oct 9;54(10):6612-9.
- J19. Kao HK, Li Q, Flynn B, Qiao X, **Ruberti JW**, Murphy GF and L Guo (2013). Collagen synthesis modulated in wounds treated by pulsed radiofrequency energy. *Plast. Reconstr. Surg.* Apr, 131(4): 490e-8e.
- J20. Paten JA, Tilburey G, Molloy E, Zareian R, Trainor C and **JW Ruberti** (2013). Utility of an optically-based micromechanical system for printing and testing collagen fibers. *Biomaterials.* Apr; 34(11):2577-87.
- J21. Flynn BP, Tilburey G and **JW Ruberti** (2013). Single fibril force/enzyme degradation assay reveals highly-sensitive mechanochemical switch in native collagen. *Biomech Model Mechanobiol.* 12(2): 291-300.
- J22. Karamichos D, Zareian R, Hutcheon AEK, **Ruberti JW** and JD Zieske (2012). Novel in vitro model for keratoconus disease. *Journal of Functional Biomaterials* 3, 760-775.
- J23. Deravi LF, Tianxiang S, Paten JA, **Ruberti JW**, Bertoldi K and KK Parker (2012). Differential contributions of conformation extension and domain unfolding to properties of fibronectin nanotextiles. *NanoLetters.* Nov 14; 12(11):5587-92.
- J24. Mega Y, Robitaille M, Zareian R, McLean J, **Ruberti JW** and C DiMarzio (2012). Quantification of lamellar orientation in corneal collagen using second harmonic generation images. *Optics Letters.* 37(16): 3312-3314.
- J25. Saeidi N, Karmelek KP, Paten JA, Zareian R, Dimasi E and **JW Ruberti** (2012). Molecular crowding of collagen: A pathway to produce highly-organized collagenous structures. *Biomaterials* Oct; 33(30):7366-74.
- J26. Saeidi N, Guo X, Hutcheon AEK, Sander EA, Sunder Bale S, Melotti S, Zieske JD, Trinkaus-Randall V and **JW Ruberti** (2012). Disorganized collagen scaffold interferes with fibroblast mediated deposition of organized extracellular matrix in vitro. *Biotech Bioeng* Oct: 109(10):2683-98.
- J27. Chang S, Flynn BP, **Ruberti JW** and MJ Buehler (2012). Molecular mechanism of force induced stabilization of collagen against enzymatic breakdown. *Biomaterials* May; 33(15):3852-9.
- J28. Hadi F, Sander EA, **Ruberti JW** and V Barocas (2012). Simulated remodeling of loaded collagen networks via strain-dependent enzymatic degradation at constant-rate fiber growth. *Mechanics of Materials* Jan 1; 44:72-82.
- J29. Grytz R, Sigal IA, **Ruberti JW**, Meschke G and JC Downs (2012). Lamina cribosa thickening in early glaucoma predicted by a microstructure motivated growth and remodeling approach. *Mechanics of Materials* Jan 1; 44: 99-109.
- J30. **Ruberti JW** and JB Sokoloff (2011). Theory of the short time mechanical relaxation in articular cartilage. *Journal of Biomechanical Engineering* Oct; 133(10): 104504
- J31. Robitaille MC, Zareian R, DiMarzio C, Wan KT and **JW Ruberti.** (2011). Small-Angle light scattering to detect strain-directed collagen degradation in native tissue. *Interface Focus* Oct 1:754-766.
- J32. Paten J, Zareian R, Saeidi N, Melotti SA and **JW Ruberti** (2011). Design and performance of an optically accessible, low-volume mechanobioreactor for long-term study of living constructs. *Tissue Engineering Part C Methods* Jul;17(7):775-88

- J33. Saeidi N, Sander EA, Zareian R and **JW Ruberti** (2011). Production of highly-aligned collagen lamellae by combining shear force and thin-film confinement. *Acta Biomaterialia* Jul; 7(6):2437-47.
- J34. Camp R, Liles M, Beale J, Saeidi N, Flynn BP, Moore E, Murthy SK and **JW Ruberti** (2011). Molecular Mechanochemistry: Low force switch slows enzymatic cleavage of human type I collagen monomer. *JACS* Mar 23; 133(11):4073-8.
- J35. Flynn BP, Bhole A, Saeidi N, Liles M, DiMarzio C and **JW Ruberti** (2010). Mechanical strain stabilizes reconstituted collagen fibrils against enzymatic degradation by mammalian collagenase Matrix Metalloproteinase 8 (MMP-8) *PLoS ONE* 5(8) e12337.
- J36. Zareian R, Church KP, Saeidi N, Flynn BP and **JW Ruberti** (2010). Probing collagen/enzyme mechanochemistry in native tissue with dynamic, enzyme-induced creep. *Langmuir* 26(12):9917-26.
- J37. Saeidi N, Sander E and **JW Ruberti** (2009). Dynamic shear influenced collagen self-assembly *Biomaterials* Dec 30,(34):6581-6592.
- J38. Bueno EM, Saeidi N, Melotti SA and **JW Ruberti** (2009). Effect of Serum and Insulin Modulation on the Organization and Morphology of Matrix Synthesized by Bovine Corneal Stromal Cells. *Tissue Engineering Part A*, 15(11): 3559-3573.
- J39. Bhole AP, Flynn BP, Liles M, Saeidi N, DiMarzio CA and **JW Ruberti** (2009). Mechanical strain enhances survivability of collagen micronetworks in the presence of collagenase: Implications for load-bearing matrix growth and stability. *Philosophical Transactions of the Royal Society A* Sept 13, 367(1902):3339-3362. (Invited)
- J40. Bueno EM and **JW Ruberti** (2008). Collagen transport through track-etched nanopores. *Journal of Membrane Science* Aug 15, 321:250-263.
- J41. **Ruberti JW** and JD Zieske (2008). Prelude to corneal tissue engineering – Gaining control of collagen organization. *Progress in Retinal and Eye Research* Sept 27(5):549-577.
- J42. **Ren, R**, Hutcheon AEK, Guo XQ, Melotti SA, **Ruberti JW**, Zieske JD and V Trinkaus-Randall. (2008). Human primary fibroblasts synthesize and deposit proteoglycans in long-term 3-D cultures. *Developmental Dynamics* Oct; 237(10):2705-2715. (Invited)
- J43. Guo X, Huchon AEK, Melotti SA, Trinkaus-Randall V, Zieske JD and **JW Ruberti** (2007). Morphological characterization of organized extracellular matrix deposition by ascorbic acid stimulated human corneal fibroblasts. *Investigational Ophthalmology and Visual Science* 48 (9):4050-4060.
- J44. **Ruberti JW** and NJ Hallab (2005). Strain controlled enzymatic cleavage of collagen in loaded matrix. *Biochemical Biophysical Research Communications* Oct 21; 336(2):483-489
- J45. Li LY, Tighe BJ, and **JW Ruberti**. Mathematical modelling of corneal swelling. *Biomechanics and Modeling Mechanobiology* 2004 Nov 3(2):114-123.
- J46. Switkes M and **JW Ruberti**. (2004). Effect of surface properties and dissolved gas on the evolution of nanobubbles at submerged surfaces. *Applied Physics Letters* 84, 4759-4761
- J47. Bass EC, Wistrom EV, Diedrich CJ, Nau WH, Pellegrino R, **Ruberti JW** and JC Lotz (2004). Heat induced changes in annulus fibrosus mechanics. *Journal of Biomechanics* Feb; 37(2):233-240.
- J48. Muratoglu OK, **Ruberti JW**, Melotti SA, Spiegelberg SH, Greenbaum ES and WH Harris (2003). Optical analysis of surface changes on early retrievals of highly crosslinked and conventional polyethylene tibial inserts. *Journal of Arthroplasty* Oct;18(7 Suppl 1):42-47.
- J49. Pederson AW, **Ruberti JW** and PB Messersmith (2003). Thermal assembly of a biomimetic mineral/collagen composite. *Biomaterials* 24, 4881-4890.

- J50. **Ruberti JW**, Curcio CA, Millican L, Menco BPhM, Huang JD and M. Johnson (2003). Quick-freeze/deep etch visualization of age-related lipid accumulation in Bruch's membrane. *Investigational Ophthalmology and Visual Science* **44**(4): 1753-1759.
- J51. Gong H, **Ruberti JW**, Overby D, Johnson M and TF Freddo (2002). A new view of the human trabecular meshwork using quick-freeze, deep-etch electron microscopy. *Experimental Eye Research* **75**(3):347-358.
- J52. Sanchez JM, Li Y, Rubashkin A, Iserovich P, Wen Q, **Ruberti JW**, Kuang K, Diecke FPJ and J Fischbarg (2002). Evidence for a central role for electro-osmosis in fluid transport by corneal endothelium. *Journal of Membrane Biology*. **187**(1):37-50.
- J53. **Ruberti JW** and SD Klyce (2003). NaCl osmotic perturbation can modulate hydration control in rabbit cornea. *Experimental Eye Research* **76**(3): 349-359.
- J54. Collier JH, Hu BH, **Ruberti JW**, Zhang J, Shum P, Thompson DH and PB Messersmith (2001). Thermally and photochemically triggered self-assembly of peptide hydrogels. *Journal of the American Chemical Society* **123**(38):9463-9464.
- J55. Overby D, **Ruberti JW**, Gong H, Freddo T and M Johnson (2001). Specific Hydraulic Conductivity of Corneal Stroma as Seen by Quick Freeze/Deep Etch. *Journal of Biomechanical Engineering* Apr;**123**(2):154-61.
- J56. **Ruberti JW**, Klyce SD, Smolek MK and M Caron (2000). Anomalous Acute Inflammatory Response in Rabbit Corneal Stroma. *Investigational Ophthalmology and Visual Science* **41**(9) 2523-2530.
- J57. Peattie RA, Asbury CL, Bluth EI and **JW Ruberti** (1996). Steady Flow in Models of Abdominal Aortic Aneurysms. Part I: Investigation of the Velocity Patterns. *Journal of Ultrasound Medicine*, **15**:679-688.
- J58. Asbury CL, **Ruberti JW**, Bluth EI and RA Peattie (1995). Experimental Investigation of Steady Flow in Rigid Models of Abdominal Aortic Aneurysms, *Annals of Biomedical Engineering*, **23**: 29-39.

UNDER REVISION/REVIEW

- J1. Siadat SM, Susilo ME, Paten JA, Silverman AA, DiMarzio CA and JW Ruberti (2021). Development and validation of fluorescently labeled, functional type I collagen molecules. In review at *Macromolecular Bioscience*

BOOK CHAPTERS

- B1. **Ruberti JW**, Zieske JD and V. Trinkaus-Randall (2007). Corneal Tissue Replacement in Principles of Tissue Engineering, 3rd edition. Eds Lanza R, Langer R and JP Vacanti, Elsevier/Academic Press. Chapter 68 (24 pages)
- B2. **Ruberti, JW** and SD Klyce (2002). *Chapter 1: Physiological System Models of the Cornea in Models of the Visual System*. Hung, Eds: G.K. and K.J. Ciuffreda. Topics in Biomedical Engineering International Book Series, Series Ed: Micheli-Tzanakou, E. Kluwer Academic/Plenum Publishers, New York. pp. 3-55.

REVIEW ARTICLES

- R1. Ethier CR, Johnson M and **JW Ruberti** (2004) Ocular Biomechanics and Biotransport. Invited review for *Annual Reviews of Biomedical Engineering* 2004; 6:249-73.

- R2. **Ruberti JW**, Roy A and Roberts C (2011). *Corneal Biomechanics and Biomaterials*. Invited review for *Annual Reviews of Biomedical Engineering*. 2011 Aug 15; 13:269-95.
-

CONFERENCE PROCEEDINGS

- CP1. Ataer-Cansizoglu E, Ghadarghadar N, Zareian R, Bas E, **Ruberti JW** and D. Erdogmus. (2011). Motion flow analysis in cell videos using a multi-level clustering method. Conf Proc IEEE Eng Med Biol Soc Aug; 2011:7767-70.
- CP2. Zareian R, Saeidi N and **JW Ruberti** (2009). Strain-influenced degradation of native collagenous tissue in a very-low volume environmentally-controlled bioreactor. Proceedings of the ASME International Congress and Exposition. Nov 13-19 Buena Vista FL: Paper: IMECE2009-13084
-

CONFERENCE ABSTRACTS

- C1. Ismail E and JW Ruberti (2019). QFDE visualization of matrix production by human corneal fibroblasts: A look at Fibrillogenesis. ARVO meeting IOVS 60(9) 5100 Seattle (Poster).
- C2. Bradley, P.A., Wingender, B., Gower, L., Ruberti, J.W. (2019). Producing Long-range Fibril Organization with Crimp-like Structure from Liquid Crystalline Collagen. Poster presented at the Orthopaedic Research Society, Austin, TX.
- C3. Hosseini H, Rangchian A, Ruberti, JW, Kavehpour, HP (2019). Extensional Flow Induced Tau Protein Aggregate Formation, UC Neurotrauma Symposium, September, Santa Barbara CA, USA.
- C4. Siadat SM and JW Ruberti (2019). Dynamic tracking of fluorescently labeled type I collagen molecules: Direct quantification of molecular association with native fibrils. SB3C 2019, Seven Springs, PA (Poster)
- C5. Bradley PA, Wingender B, Gower L and JW Ruberti (2019) Producing advanced liquid crystal collagen materials. Gordon Research Conference on Collagen. July, Colby Sawyer College, NH (Poster)
- C6. Siadat SM, Spak A, DiMarzio C and JW Ruberti. (2019) Dynamic tracking of fluorescently, functionally labelled type I collagen molecules on fibrils and in human model of corneal stromal regeneration. Gordon Research Conference on Collagen. July, Colby Sawyer College, NH. (Poster)
- C7. Pouran B, Moshtagh PR, Arbabi V, Ruberti J, Zadpoor A and Weinans H (2017). Efficacy of chemical processes in collagen fibrils of articular cartilage is osmolarity dependent. *Osteoarthritis and Cartilage* 25, S275-S276.
- C8. Siadat, MS, Susilo ME, DiMarzio C and Ruberti JW (2017). Dynamic tracking of fluorescently labeled type I collagen molecules: Direct quantification of molecular association with native fibrils. Gordon Conference on Collagen, Colby Sawyer, NH.
- C9. Chen ML, Susilo ME, Ruberti JW and TD Nguyen (2016). Changes in the mechanical properties of collagen fibrils under cyclic loading. APS March Meeting. Baltimore, MD.
- C10. Ismail E, **Ruberti JW** and G Malek (2015). Evaluation of the morphology of the mouse retinal pigment epithelium/bruch's membrane/choroid (RPE/BrM/Ch) using quick-freeze/deep etch transmission electron microscopy (QFDE-TEM) and conventional cTEM. ARVO (Poster #2356) Denver, CO.

- C11. Long-Term, Live-Imaging of the Mechanodynamics of Primary Human Corneal Fibroblasts: From Initial Seeding to Matrix Production (2015) **Ruberti JW**, Zareian R, Karamichos D, Tambe D, Susilo M, Paten J, Saeidi N, Messer C, Ismail E, and JD Zieske. ARVO (Poster #1934) Denver, CO.
- C12. Wingender B, Bradley P, Ruberti JW and L Gower (2015). Combining soft and hard biomimetic processing to emulate bone's nano- and microstructure". Symposium 5: Next Generation Bioceramics and Biocomposites. 39th International Conference & Exposition on Advanced Ceramics and Composites (39th ICACC).
- C13. Zareian R, Karamichos D, Paten JA, Zieske JD and **JW Ruberti** (2013). Live, long-term imaging of corneal fibroblast mechanodynamics: Influence of force on matrix production. Gordon Conference on Collagen, Colby-Sawyer College, NH. (Poster)
- C14. Paten J, Ismail E, Stoner J, Fowle W, Trainor C and **JW Ruberti** (2013). Mechanochemical collagen assembly: Shear strain induction of monomeric solution into a fiber. Gordon Conference on Collagen, Colby-Sawyer College, NH. (Poster)
- C15. Paten J, Trainor C and **JW Ruberti**. (2013) Mechanochemical Collagen Assembly: Drawing a fiber directly from a solution of monomers. NEMB #93409 (Oral Presentation).
- C16. Tambe D, Zareian R, Karamichos D, Zieske JD and **JW Ruberti** (2012). Continuous measurement of physical forces during human primary corneal fibroblast migration. ARVO 2012 #1528 (Poster) Ft. Lauderdale, FL
- C17. Zareian R, Karamichos D, Paten J, Zieske JD and **JW Ruberti** (2012). Live, long-term observation of the mechanobiology of confluent primary human corneal fibroblast cultures subjected to applied force. ARVO 2012 #1529 (Poster) Ft. Lauderdale, FL
- C18. Karamichos D, Zareian R, Hutcheon AE, **Ruberti JW** and JD Zieske (2012). TGF- β 3 replaces serum action in an *in vitro* model of corneal matrix development. ARVO 2012 # (Poster) Ft. Lauderdale, FL
- C19. Zhu B, Melotti SA, **Ruberti JW** and SK Murthy (2011). Microfluidic Capture of Corneal Progenitor Cells from Primary Cultures of Human Corneal Stromal Cells. *Biomedical Engineering Society Meeting Hartford, CT* A118 (Poster)
- C20. Tilburey GE, Sama B and **Ruberti JW** (2011). Kinetic imaging of collagen type I fibrillogenesis – effect of proteoglycans at physiological levels. *Biomedical Engineering Society Meeting Hartford, CT* A132 (Poster)
- C21. Flynn BP and **JW Ruberti** (2011). Strain-stabilization – The mechanochemistry of individual collagen fibrils. *Biomedical Engineering Society Meeting Hartford, CT* A100 (Poster)
- C22. Rondinelli, CF, Hemphill MA, Goss JA, DiTonno C, Collins G, **Ruberti JW** and KK Parker (2011). An in vitro approach to studying blast traumatic brain injury (bTBI). *Biomedical Engineering Society Meeting Hartford, CT* B51 (Poster)
- C23. Zareian R, Paten JA, Melotti SA, Saeidi N and **JW Ruberti** (2011). Live, long-term dynamic observation of primary human corneal fibroblast culture subjected to uniaxial strain. *Biomedical Engineering Society Meeting Hartford, CT* A102 (Poster)
- C24. Caner N and **JW Ruberti** (2011). Detection of MMP-13 activity on intentionally strain released type-II collagen network in bovine articular cartilage. *ASME Summer Bioengineering Conference* #53913 (Presentation).
- C25. Hadi MF, Sander EA, **Ruberti JW** and VH Barocas (2011) A Microstructural data driven multiscale model for the enzymatic degradation and remodeling of collagen networks. *ASME Summer Bioengineering Conference* #53623 (Presentation).

- C26. Grytz R, Sigal I, **Ruberti JW** and JC Downs (2011) Microstructure motivated growth and remodeling of the lamina cribrosa in early glaucoma. *ASME Summer Bioengineering Conference #53780* (Presentation).
- C27. Grytz R, Sigal IA, **Ruberti JW** and JC Downs (2011) Lamina cribrosa thickening in early glaucoma is predicted by a biomechanically-driven growth and remodeling approach. *ARVO 2011 #4810* (Presentation)
- C28. Zareian R, Saeidi N, Melotti SA, Patenaude J and **JW Ruberti** (2010). Method for long-term dynamic observation of cell-matrix interaction. *ARVO 2010 #425* (Poster)
- C29. Saeidi N and **JW Ruberti** (2010). Molecular Crowding: Towards explaining the genesis of matrix organization with application to corneal tissue engineering. *ARVO 2010 #6203* (Poster)
- C30. Bueno-Hoyos EM, Saeidi N and **JW Ruberti** (2010). Medium formulation more effective than initial cell density at increasing thickness and organized matrix secretion in corneal stromal constructs. *ARVO 2010 #6225* (Poster)
- C31. **Ruberti JW.**, Zareian R., Flynn B., Camp R. and A. Bhole (2010). Multiscale, experimental investigations of collagen strain-enhanced stability. 6th World Congress of Biomechanics. Singapore (Presentation).
- C32. Camp RJ and **JW Ruberti** (2009) Mechanochemical assay for studying single type I collagen monomers. *BMES Fall 2009 OP10-28C* (Presentation)
- C33. Zareian R, Saeidi N and **JW Ruberti** (2009). Strain-influenced degradation of native collagenous tissue in a very low-volume, environmentally-controlled bioreactor. *ASME IMECE Fall 2009 (IMECE2009-13084 Paper/Poster)*
- C34. Saeidi N, Sander E and **JW Ruberti** (2009). Real-time observation and quantification of shear-induced collagen self-assembly. *ASME Summer Bioengineering Conference #206773* (Mow Symposium Talk)
- C35. Patenaude JA, **Ruberti JW**, Desjarlais A, Kornfeld J, Lee M, McGrath M and J Perry (2009) Design of optically accessible, ultra low-volume, tissue loading bioreactor. *ASME Summer Bioengineering Conference #206675* (poster)
- C36. Flynn BP, Bhole A, DiMarzio C and **JW Ruberti** (2009) A novel, label-free method for quantifying collagen fibril formation and degradation using DIC microscopy, electromagnetic wave theory and image processing. *ASME Summer Bioengineering Conference #206592* (poster)
- C37. Saeidi N, Ren R, Guo XQ, Melotti SA, Hutcheon AEK, Zieske JD, Trinkaus-Randall V and **JW Ruberti** (2009) Collagen stability in long-term 3-D culture systems for corneal stromal tissue engineering. *ARVO abstract; IOVS 50 (suppl), 2550* (Presentation)
- C38. **Ruberti JW** and JB Sokoloff (2008) A potentially low-dissipation mechanism for load support by articular cartilage. *MRS Fall conference Boston 2008 (Presentation Z2.7)*
- C39. Portale K, Saeidi N, Kowalski G and **JW Ruberti** (2008). Design of a cell-free biomimetic collagen printer or nanoloom. *ASME IMECE Fall 2008 (Poster: IMECE2008-66333)*
- C40. Zareian R and **JW Ruberti** (2008). Influence of mechanical load on enzymatic cleavage of native collagen. *ASME IMECE Fall 2008 (Poster/paper: IMECE2008-68117)*
- C41. Saeidi N, Portale K and **JW Ruberti** (2008) Smart Molecules: Organization and morphology of the self-assembled collagen fibrils formed from a solution of densely packed collagen monomers. *ASME Summer Bioengineering Conference (Poster-SBC2008-193025)*

- C42. Zareian R, Church K and **JW Ruberti** (2008) Influence of mechanical load on the degradation of corneal collagen. ASME Summer Bioengineering Conference (Poster – SBC2008-193036)
- C43. Saeidi N, Portale KN, Guo XQ, Melotti SA, Hutcheon AEK, Trinkaus-Randall V, Zieske JD and **JW Ruberti** (2008). Atelo-collagen monomers encode the information necessary to produce aligned collagen “lamellae” de novo. ARVO abstract; IOVS 49, 3921 (Poster)
- C44. Hutcheon AEK, Ren R, Guo XQ, Melotti SA, **Ruberti JW**, Zieske JD and V. Trinkaus-Randall. (2008) Glycosaminoglycans are present in long-term 3-D cultures of human corneal fibroblasts. ARVO abstract, IOVS 49, 3919 (Poster)
- C45. **Ruberti JW**, Melotti SA, Guo XQ, Saeidi N, Hutcheon AEK, Trinkaus-Randall V and JD Zieske. (2008) Human corneal fibroblasts secrete locally-organized collagen arrays on disorganized collagen substrates. ARVO abstract, IOVS 49, 3920 (Poster).
- C46. Bueno-Hoyos EM, Saeidi N and **JW Ruberti** (2008) In vitro characterization of corneal stromal fibroblast cell and matrix morphology in response to bovine serum and insulin-transferrin-selenium. ARVO abstract, IOVS 49, 4041 (Presentation)
- C47. Zareian R, Church KP and **JW Ruberti** (2008). Influence of mechanical load on the degradation of corneal collagen. ASME Summer Bioengineering Conference (Poster)
- C48. Bueno EM, Saeidi N and **JW Ruberti** (2008). Stratification is necessary for the secretion of aligned collagen fibrils by corneal stromal fibroblasts in vitro. SPBRM (conf) Jan 9-11. (Presentation).
- C49. Portale K, Saeidi N, Kowalski G, Nowak W and **JW Ruberti** (2007). Design of cell free collagen printer or nanoloom. BMES Annual Fall Meeting Sept 26-29 p3.157 (Poster)
- C50. **Ruberti JW**, Guo XQ, Melotti SA, Hutcheon AE, Saeidi N, Trinkaus-Randall V and JD Zieske (2007). Primary human corneal fibroblasts synthesize organized matrix on disorganized collagen. BMES Annual Fall Meeting Sept 26-29 p5.156 (Poster)
- C51. Mundra A, Oliveira S, Church KP, Barabino G and **JW Ruberti** (2007). Design of compression bioreactor for mechanical stimulation of native and engineered cartilage. BMES Annual Fall Meeting Sept 26-29 p5.161 (Poster)
- C52. Church KP and **JW Ruberti** (2007). Influence of mechanical load in the degradation kinetics of collagen in native tissue. BMES Annual Fall Meeting Sept 26-29 p5.149 (Poster)
- C53. Saeidi N, Portale KN and **JW Ruberti** (2007). Organization and morphology of self-assembled cholesterically dense collagen matrices. BMES Annual Fall Meeting Sept 26-29 p4.158 (Poster)
- C54. Bhole AP and **JW Ruberti** (2007) Strain stabilizes reconstituted collagen network during fibrolysis. BMES Annual Fall Meeting Sept 26-29 p3.156 (Poster)
- C55. Bueno EM, Saeidi N and **JW Ruberti** (2007). Live, long-term monitoring of in vitro matrix synthesis and organization by bovine corneal fibroblasts. BMES Annual Fall Meeting Sept 26-29 p2.93 (Poster)
- C56. **Ruberti JW**, Guo XQ, Melotti SA, Hutcheon AE, Trinkaus-Randall V and JD Zieske (2007). Fibril organization and morphology in stromal constructs synthesized by primary human corneal fibroblasts. IOVS 48 (suppl) #1867
- C57. Saeidi N, Portale KN and **JW Ruberti** (2007). Direct optical and quick freeze deep etch imaging of self-assembled, cholesterically dense collagen gels. IOVS 48 (suppl) #1865 (Poster)

- C58. Bueno-Hoyos EM, Saeidi N and **JW Ruberti** (2007). Live, long-term monitoring of in vitro matrix synthesis and organization by bovine corneal fibroblasts. IOVS 48 (suppl) #1499 (Poster)
- C59. Hutcheon AE, Guo XQ, **Ruberti JW** and JD Zieske. (2007) Characterization of an in vitro model of human corneal fibrosis. IOVS 48 (Suppl) #1490 (Poster)
- C60. Saeidi N, Melotti SA and **JW Ruberti**. (2007) Dynamic observation of collagen assembly and degradation. Society for Biomaterials. #351 (Poster)
- C61. **Ruberti JW**, Guo X, Melotti SA, Hutcheon A, and JD Zieske. (2006) Evolution of cells and collagen organization in tissue engineered corneal stromas. BMES Conference abstract 2006 (prg# 790) Chicago, IL
- C62. Chitnis CV, Zareian R and **JW Ruberti**. (2006) Dynamic optical visualization of collagen degradation. BMES conference abstract (prg# 1064) Chicago, IL
- C63. Church KP, Cahill R, Jaworski B, and **JW Ruberti**. (2006) Miniature load and strain-controlling bioreactor for direct observation of tissue remodeling. BMES conference abstract (prg# 1073) Chicago, IL
- C64. Bueno EM and **JW Ruberti**. (2006) Collagen transport through nanoporous track-etched membranes. BMES conference abstract (prg# 1237) Chicago, IL
- C65. **Ruberti JW** and N Saeidi. Nucleation, growth and alignment of collagen fibrils produced by shear-influenced self-assembly for corneal tissue engineering templates. (2006) World Congress of Biomechanics (presentation) Munich, Germany
- C66. Zieske JD, Guo XQ, Melotti SA, Hutcheon AE and **JW Ruberti**. (2006) Spatial Organization of Engineered Corneal Stroma. Is there a need for contact guidance or direct mechanical stimulus? World Congress of Biomechanics (Invited Talk) Munich, Germany
- C67. **Ruberti JW**, Guo XQ, Melotti SA, Hutcheon AE and JD Zieske. (2006) Three dimensional organization of cells and matrix in stromal constructs secreted by human primary corneal fibroblasts. IOVS 47 (suppl) 3948 (poster) Ft. Lauderdale, FL
- C68. Saeidi, N and **JW Ruberti**. (2006) Kinetics of tethered collagen assembly in shearing flow assessed by dynamic optical imaging. IOVS 47 (suppl) 3949 (poster) Ft. Lauderdale, FL
- C69. Huang JD, **Ruberti JW**, Dabholkar AS, Menco BM, Presley JB, Curcio CA and M Johnson (2005). Ultrastructure of Age-Related changes in human Bruch's membrane as seen by Quick Freeze Deep Etch (QFDE) IOVS 46 (suppl) (poster). Ft Lauderdale, FL
- C70. **Ruberti JW** and Hallab NJ (2004). Smart Matrix: Mechanical load protects fibrillar collagen against enzymatic degradation. BMES (poster) Philadelphia, PA
- C71. **Ruberti JW** and Melotti SA (2004) Corneal and scleral collagens assessed by modulated differential scanning calorimetry. IOVS 45 (suppl) 3827 (poster). Ft. Lauderdale, FL
- C72. Zieske J, Guo XQ, Hutcheon AEK and **Ruberti JW** (2004) Alignment of human corneal fibroblasts in vitro. IOVS 45 (suppl) 3933 (poster). Ft Lauderdale, FL
- C73. **Ruberti JW**, Melotti SA and GJC Braithwaite (2003). Nanoscale engineering of type I collagen to mimic the multiple layers of aligned lamellae in cornea. IOVS **44**(4) S4218 (paper) Ft. Lauderdale, FL
- C74. Fishbarg J, Sanchez JM, Li YS, Rubashkin A, Iserovich P, Wen Q, **Ruberti JW**, Kuang KY, Diecke FPJ (2003) Electro-osmosis in fluid transport by corneal endothelium. FASEB J. 17(5) A901-A902 Part 2 (suppl).
- C75. Bass EC, Wistrom EV, Diedrich CJ, Nau WH, Pellegrino R, **Ruberti JW** and JC Lotz. In situ stresses inhibit thermal denaturation of annulus fibrosus. ISSLS abstract 2002

- C76. **Ruberti JW**, Curcio CA, Millican L, Menco BPM, Huang JD and M Johnson (2002) An Age Related 'Lipid Wall' in Human Bruch's Membrane. [ARVO abstract] IOVS **43**(4) S2785 2002 (poster). Ft. Lauderdale, FL
- C77. Guo XQ, Hutcheon AEK, **Ruberti JW** and J.D. Zieske. Human Corneal Organotypic Cultures Using Untransformed Cells. [ARVO abstract] IOVS **43**(4) S3211 2002 (poster) Ft. Lauderdale, FL
- C78. Negahban K, **Ruberti JW**, Qui G and H Gong, Regional variation of corneal endothelial density, implications for sampling in eye bank eyes. [ARVO abstract] IOVS **43**(4) S3175 2002 (poster). Ft. Lauderdale, FL
- C79. **Ruberti JW**, Curcio CA and M Johnson. Quick Freeze/Deep Etch (QFDE): A better imaging method to extract micro-scale specific hydraulic conductivity (SHC) from Bruch's membrane. [ARVO abstract] IOVS **42**(4) S1204 2001 (poster) Ft. Lauderdale, FL
- C80. Iserovich P, Sanchez JM, Li Y, **Ruberti JW**, Kuang K, Wen Q, and J. Fischbarg. Electroosmotic fluid transport by corneal endothelium could provide a novel explanation for the phenomenon of corneal volume regulation. [ARVO abstract] IOVS **42**(4) S2700 2001 (poster). Ft Lauderdale, FL
- C81. Gong H, Overby D, **Ruberti J**, Freddo T and M Johnson. Human outflow pathway viewed by quick freeze deep etch. [ARVO abstract] IOVS **42**(4) S749 2001 (poster) Ft. Lauderdale, FL
- C82. Karon MD, Klyce SD, Schilleci JT and **JW Ruberti**. Effect of inhibition of inflammatory mediators on trauma induced stromal edema. [ARVO abstract] IOVS **42**(4) S4846 2001 (poster) Ft. Lauderdale, FL
- C83. Karon MD, Klyce SD, Schelleci JT and **JW Ruberti**. Corneal stromal swelling dynamics after epithelial debridement. (ASME Bioengineering Conference 2001)
- C84. **Ruberti JW**, Gong H, Freddo TF, Klyce SD and M Johnson, Macromolecular gradients in corneal stroma [EMBS abstract]. Proceedings of BMES & EMBS Joint Conference **1**:214 1999 (presentation)
- C85. Johnson M, Overby D, **Ruberti J**, Freddo TF and H Gong. Hydrodynamics of aqueous humor outflow. Proceedings of BMES & EMBS Joint Conference **1**:215 1999 (presentation)
- C86. **Ruberti JW**, Gong H, Freddo TF, Klyce SD and M Johnson, Outward flow may enhance large mobile molecule concentration gradients in corneal stroma [ARVO abstract]. *IOVS*, **40**(4):B397 1999 (Poster). Ft. Lauderdale, FL
- C87. Klyce SD, Karon MD, **Ruberti JW**, Smolek MK and T Goto. Epithelial debridement initiates acute anterior stromal edema [ARVO abstract]. *IOVS*, **40**(4):1019 1999 (Presentation). Ft. Lauderdale, FL
- C88. Johnson M, Overby D, **Ruberti JW**, Freddo TF, and H Gong, Source of outflow resistance in the normal human eye [ARVO abstract]. *IOVS*, **40**(4):1042 1999 (Presentation). Ft. Lauderdale, FL
- C89. **Ruberti JW** and SD Klyce. Investigation of Corneal Endothelial Response to NaCl Osmotic Perturbations [ARVO abstract]. *IOVS*, **39**(4):S906 1998 (Presentation). Ft. Lauderdale, FL
- C90. Klyce SD and **JW Ruberti**. Epithelial debridement alters stromal properties. Abstracts of Aegean Cornea IV, June 26-28, 1998, Santorini Island, Greece. (Presentation)
- C91. **Ruberti JW** and SD Klyce. Dynamics of the corneal stroma. (Invited) *Exp Eye Res* **67**(S1):S206, 1998. (Presentation)

- C92. **Ruberti JW** and SD Klyce. Evidence of Corneal Endothelial Membrane Permeability and Transport Modulation by Osmotic Shock [ARVO abstract]. *IOVS*, **38**(4):S683 1997 (Presentation). Ft Lauderdale, FL
- C93. **Ruberti JW** and SD Klyce. A Computational Transport Model for Membrane Bound Soft Tissue., *Faseb Journal* **11**(3):A20 1997. (Presentation)
- C94. **Ruberti JW** and SD Klyce. New Computational Model of Corneal Hydration Dynamics [ARVO abstract]. *IOVS*, **37**(3):S352 1996. (Poster) Ft. Lauderdale, FL
- C95. Asbury CL, **Ruberti J**, Peattie RA and EI Bluth. (1993) Investigation of steady flow in rigid models of abdominal aortic-aneurysms. A240 Part 1, Feb 19.

INVITED CONFERENCE TALKS AND SYMPOSIA

- C1. Ruberti JW and Paten J (2016). Collagen Synthesis and Modulation: A force for good? Force structure causality in the matrix. Mechanochemistry Muscle-Tendon Function: Cell-Matrix Interplay. Copenhagen, Denmark.
- C2. **Ruberti JW** (2015). Rheology, kinetics and potential of drawing aligned fiber from small droplets of collagen solution. Third Workshop in Micro- and Nanotechnologies for Medicine at Brigham and Women's Hospital. July 31, 2015
- C3. **Ruberti JW** (2015). How are corneas made? The case for guided molecular crowding and mechanical allostery in soft-tissue regeneration. 5th Annual International Vision Restoration: Regenerative Medicine in Ophthalmology CME conference. June 25-26, Pittsburgh, PA
- C4. **Ruberti JW** (2015). Collagen degradation and assembly dynamics: A case for mechanical allostery in animal structure formation. NEMB2015-7825. (invited session keynote).
- C5. **Ruberti JW** and JA Paten (2014). Mechanochemistry of Collagen Degradation and Assembly. World Congress of Biomechanics, Boston, MA 14-IS-28-WCB (invited podium presentation)
- C6. **Ruberti JW** and Zareian R (2014). Patterning and Mechanodynamics: Live-cell examination of human fibroblasts' journey from seeding to matrix production in vitro. World Congress of Biomechanics, Boston, MA, 14-IS-5432-WCB (invited podium presentation)
- C7. Susilo M, Paten JA and **JW Ruberti** (2014). Effect of tensile loading to dense disorganized collagen substrates. World Congress of Biomechanics, Boston, MA (invited podium presentation)
- C8. **Ruberti JW** (2012) Mechanochemistry of Collagen. Does load Protect Fibrils From Enzymes? Matrix Symposium, Royal Academy of Sciences, Copenhagen, Denmark. Summer 2012 (paid travel)
- C9. **Ruberti JW** (2012) Building Beautiful Matrix. *Gordon Research Conference: Biology and Pathology of the Cornea*. Ventura CA, Spring 2012 (paid travel)
- C10. **Ruberti JW** (2012) Collagen remodeling. SIG presentation ARVO conference Ft Lauderdale, FL May 2012
- C11. **Ruberti JW** (2011). Materials of Mechanics: Does Biology Benefit from a "Material Assist" to Produce Efficient Load-Bearing Structure? October 1. New England Workshop on the Mechanics of Materials and Structures. MIT, Cambridge, MA (Plenary Talk).
- C12. **Ruberti JW** (2011). Multiscale collagen mechanochemistry. *Gordon Research Conference on Collagen*. July 2011. (paid travel)
- C13. **Ruberti JW**, Saeidi N, Zareian R, Flynn BP, Camp RJ. Smart Matrix: The role of mechanochemistry and molecular crowding in producing optimized structural materials in

- vertebrates. 16th US National Congress of Theoretical and Applied Mechanics June 2010 (invited presentation - 1164)
- C14. **Ruberti JW** (2008) New view of an old material: Collagen as an intelligent, self-organizing, load-responsive structural building block. MRS Fall conference, Boston 2008. (Symposium DD1.8).
- C15. **Ruberti JW** (2007) Collagen fibrillogenesis in vitro. IOVS 48 (Suppl.) #341. (symposium) ARVO annual conference, Ft. Lauderdale, FL
- C16. **Ruberti JW** (2005) Fibrillar collagen (with its complement enzyme as a load-adaptive “smart” engineering material. Implications of engineering of connective tissue. 25th Biennial Corneal Conference, Boston, MA
- C17. **Ruberti JW** and Hallab NJ (2004). Mechanical load protects fibrillar collagen against enzymatic degradation. 8th Cardiff Corneal Conference. Cardiff, UK. (paid travel)
- C18. **Ruberti JW** (1999). Detection and quantification of anomalous swelling response to debridement in cornea. 21st Biennial Corneal Conference, Schepens’s Eye Research Institute.

NON-CONFERENCE SEMINARS (since 2004)

1. Case Western Reserve University, Cleveland OH (Fall 2019 – paid travel)
2. Dalhousie University, Biomedical Engineering, Halifax, NS (Summer 2019 – paid travel)
3. Trinity College, Ireland, UK. Research Capability talk with AMBER (June 2019 – paid travel)
4. University of Washington, Biophysics Department, Seattle, WA (Fall 2016 – paid travel)
5. Northeastern University, Biology Department, Boston, MA (Fall 2016)
6. Massachusetts Eye and Ear Infirmary, Harvard University, Boston (Spring 2016)
7. The Ohio State University, Columbus OH (Fall 2015 – paid travel)
8. The University of Florida, Gainesville, FL (Fall 2015 – paid travel)
9. The Forsythe Institute, Boston Ma (Fall 2015)
10. Tulane University, Department of Biomedical Engineering (Spring 2015)
11. National Cancer Institute, Physics of Cancer Center Program Steering Committee invitation to speak on Matrix Energetics (Fall 2014 - paid travel)
12. John’s Hopkins University Department of Mechanical Engineering (Fall 2014 –paid travel)
13. Georgia Institute of Technology, Department of Biomedical Engineering (Fall 2014 – paid travel)
14. Boston University Biomedical Engineering’s Seminar Series: Soft Matter Agora. Fall 2013
15. Columbia University combined Mechanical and Biomedical Engineering Seminar. Fall 2013 (paid travel)
16. Rich Lecture Guest Speaker, Department of Ophthalmology, University of Alabama at Birmingham. Fall 2013 (paid travel; honorarium)
17. Massachusetts Institute of Technology, Koch Institute, Langer Lab Seminar, Spring 2013
18. Harvard University, SEAS and Wyss Institute, Mooney Lab Seminar, Spring 2013
19. Stanford University, Mechanical Engineering Summer 2013
20. University of California, Berkeley, Bioengineering Summer 2013
21. University of California, San Diego, Bioengineering Summer 2013
22. University of California, Los Angeles, Bioengineering Summer 2013
23. University of California, Irvine, Bioengineering Summer 2013
24. Tufts University Physics Colloquium. Medford, MA Spring 2012

25. University of Pittsburgh. Innovations in Vision Restoration. Fox Center Lecture Series. Pittsburgh, PA Spring 2012 (Paid Travel)
26. Harvard School of Engineering and Applied Sciences Colloquium Series, Harvard University, Cambridge, MA. Fall 2011
27. Dalhousie School of Biomedical Engineering, Distinguished Visiting Scientist Lecture. Spring 2011 (Paid Travel)
28. New England College of Optometry, Boston, MA. Summer 2011
29. Forefront lecture Tissue Engineering Regenerative Medicine – North America (TERMIS-NA) and American Society for Matrix Biology (ASMB), Fall 2010 (paid travel)
30. Boston University, Department of Biomedical Engineering, Fall 2009
31. Devers Eye Institute, Portland Ore, Fall 2009 (paid travel)
32. Rensselaer Polytechnic Institute, Biomedical Engineering Dept. Fall 2009 (paid travel)
33. Northeastern University, Pharmaceutical Sciences Dept. Fall 2009
34. Brookhaven National Laboratory, National Synchrotron LS, Summer 2009 (paid travel)
35. Brandeis University, Physics Department, MRSEC lecture Spring 2009
36. Northeastern University, Physics Department, CIRCS lecture Fall 2008
37. University of Florida, Dept. Materials Engineering 2008 (paid travel)
38. UCLA, Department of Pathology, Spring 2008 (paid travel)
39. Tufts University, Department of Pathology, Fall 2007
40. Cardiff University, Department of Biophysics, Fall 2007 (paid travel)
41. Tufts University Department of Biomedical Engineering, Fall 2007
42. Lehigh University, Department of Mechanical Engineering, Fall 2006 (paid travel)
43. Northeastern University, Dept of Biology, Fall 2006
44. Harvard University, Schepen's Eye Research Institute, Fall 2006
45. Boston University, Department of Ophthalmology, Summer 2006
46. Harvard University, Center of Engineering in Medicine, Spring 2006
47. University of Minnesota, Department of Biomedical Engineering, Fall 2005 (paid travel)
48. Brown University Division of Engineering, Fall 2005

PATENTS

Patents issued

1. Spiegelberg SH, **Ruberti JW** and GJC Braithwaite. System and methods for reducing interfacial porosity in cements. US Pat No. 6,884,264. April 26, 2005 (assignee – Cambridge Polymer Group)
2. Braithwaite GJC and **Ruberti JW**. Layered aligned polymers and methods of making same. US Pat No. 7,048,963 May 23, 2006 (assignee – Cambridge Polymer Group)
3. Muratoglu OK, Spiegelberg SH, **Ruberti JW** and Abt Niels. US PVA Hydrogel Pat. No. 7,235,592 June 26, 2007 (assignee – Cambridge Polymer Group/Zimmer)
4. **Ruberti JW** and GJC Braithwaite. Systems and methods for controlling and forming polymer gels. US Pat No. 7,485,670. February 3, 2009. (assignee – Cambridge Polymer Group).
5. **Ruberti JW** and GJC Braithwaite. Systems and methods for controlling and forming polymer gels. US Pat No. 7,619,009. November 17, 2009. (assignee – Cambridge Polymer Group).

6. **Ruberti JW** and GJC Braithwaite. Systems and methods for controlling and forming polymer gels. US Pat No. 7,745,532. June, 29, 2010. (assignee – Cambridge Polymer Group).
7. **Ruberti JW** and GJC Braithwaite. Systems and methods for controlling and forming polymer hydrogels. US Pat No. 7,776,352. August 17, 2010. (assignee – Cambridge Polymer Group).
8. Muratoglu OK, Spiegelberg SH, **Ruberti JW** and N Abt. PVA Hydrogel. US Pat No 7,985,781. July 26, 2011 (assignee – Zimmer GMBH).
9. **Ruberti JW**, Kowalski GJ, Burkey D. Nanoloom for controlling polymer assembly. US Pat No 8,206,773. June 26, 2012 (assignee-Northeastern University)
10. Saeidi N and **JW Ruberti**. Collagen Fibrillar Construction. US Pat No. 8,338,570. December 25, 2012 (assignee-Northeastern University).
11. Larson D, **Ruberti JW**, Slusarz J, Goulas N, Rush E, Ehret T. Systems, methods and devices for frozen sample distribution. International App# PCT/US/001094 filed 01/16/2007. US Pat No 8,448,456 (Assignees Harvard and Northeastern University)
12. Larson D, **Ruberti JW**, Slusarz J, Goulas N, Rush E, Ehret T. Systems, methods and devices for frozen sample distribution. US Pat No 8,713,948 May, 6 2014. (Assignees Harvard and Northeastern University)
13. Saeidi N and **Ruberti JW**. Collagen Fibrillar Construction. US Pat. No. 9018355. March 28, 2013 (Assignee - Northeastern university)
14. **Ruberti JW** and Saeidi N. Microparticle Organization. US Pat. No. 9187329. November 17, 2015.
15. Larson D, **Ruberti JW**, Slusarz J, Goulas N, Rush E, Ehret T. Systems, methods and devices for frozen sample distribution. US Pat No 9,363,991 June 14, 2016. (Assignees Harvard and Northeastern University)
16. Saeidi N and **Ruberti JW**, Collagen Fibrillar Construction. US. Pat No 9518106. Dec 13, 2016 (Assignee: Northeastern University)
17. **Ruberti JW** and J Paten. Mechanochemical Collagen Assembly. US Pat No 10213523. Feb 16, 2019
18. **Ruberti JW** and J Paten. Mechanochemical Collagen Assembly. US Pat No 16/284,160. Sept 10 2020.

Published patent applications

19. **Ruberti JW**, Schechter D, Cote N, Myers R, Patel J, Ouellette M, and L. Guo. Microvascular anastomotic coupler and methods of using same. Provisional application filed (PCT/International) US Pat App# 20140081415 03/20/2014
20. Ritzakis N. and **Ruberti JW**. Methods and systems for minimization of mechanical effects of impact velocity during tissue preservation. (Assignee – Northeastern University). US Pat App #20140331696 11/13/2014.
21. Mega Y, DiMarzio CA, McLean J, **Ruberti JW**, Robitaille M and Zareian R. Image processing methods and systems for fiber orientation. PCT/International filing 14/578,8869. US Pat App#20150221092
22. **Ruberti JW** and N Saeidi. Microparticle Organization. US Pat App#20160096733 04/07/2016.
23. Paten JA and **JW Ruberti**. Collagenous Tissue Repair Device. US Pat App#20170360986 12/21/2017

Provisional Patents Filed

24. Liquid Crystalline Collagen Materials and Their Use in Connective Tissue Repair. Provisional Patent Application No. 62/760,903. Nov. 30, 2018

Licenses for Patents/Patents Pending

1. **Ruberti JW** and GJC Braithwaite. Systems and methods for controlling and forming polymer gels. Pat No. 7,485,670. February 3, 2009. (assignee – Cambridge Polymer Group). This patent has been licensed to **Hydrospine, Inc.** for use in intervertebral disk repair.
2. Larson D, **Ruberti JW**, Slusarz J, Goulas N, Rush E, Ehret T. Systems, methods and devices for frozen sample distribution. US Pat No 9,363,991 June 14, 2016. (Assignees Harvard and Northeastern University). This patent application was licensed to **Cryoextract Instruments, LLC**. Dr. Ruberti and his Capstone students are responsible for the linear oscillating coring bit design

THESIS**Ruberti, JW**

THEORETICAL AND COMPUTATIONAL INVESTIGATION OF CORNEAL HYDRATION DYNAMICS.
Ph.D. Thesis. Department of Biomedical Engineering. Tulane University, New Orleans, LA 70112.
Co-Advisors: Professor Stephen D. Klyce (LSU Eye Center) and Professor David Rice (Tulane University)

HONORS

2021 Constantinos Mavroidis Translational Research Award. College of Engineering, Northeastern University
2011 Dean's Service Award, College of Engineering, Northeastern University
2008 Soren Buus Outstanding Research Award, College of Engineering, Northeastern University
Journal cover for April 2003 IOVS (QFDE micrograph of macular lipids)
Tau Beta Pi (Engineering honor society) - inducted April 1993
Alpha Eta Mu Beta (Biomedical engineering honor society) - inducted April 1999)

EXTERNAL FUNDING HISTORY

Research Funding Secured as PI: **\$5,175,000**
Research Funding Secured as CO-I: **\$2,861,000**
Total Research Funding Secured: \$8,036,000
Training funding secured as CO-I: **\$2,700,000**
Total of all Funding Secured: \$10,736,000

CURRENTLY FUNDED PROPOSALS**R21 EY029167****09/01/2018-08/31/2020 (NCE)**

NIH/NEI

\$431,000

Exploring flow-induced crystallization as a critical mechanism driving corneal stromal lamellogenesis

Role: Principal Investigator (Co-I DiMarzio)

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

NSF 1828506

09/01/2018-08/31/2021

MRI: Division of Biological Infrastructure

\$1,077,500

Acquisition of a Lumick's SuperC-Trap correlative optical tweezers and Fluorescence Microscope (CTFM) system

Role: Co-Principal Investigator (PI Mark Williams)

Grant12663973

01/01/2019-08/31/2020 (NCE)

CDMRP PRMRP DDRA

\$199,983.80

Ultrasound assisted stabilization of active collagen for enhanced patellar tendon repair

Role: Consultant (PI: Regenx, Dr. Hacking)

NSF 2026007

09/14/2020-09/13/2021

SBIR

\$255,206

SBIR Phase I: An injectable Treatment for the repair of damaged tendons and ligaments

Role: Consultant (PI: Dr. Hacking- RegenX)

NIH RADx Tech awarded under U54HL119893

8/15/2020-8/14/2021

NHLBI Accelerated Innovation COVID-19

\$200k (\$12k)

BlowFISH: A Non-invasive collection system for fast COVID-19 Detection.

Role: (Co-PI Lead: Kavehpour; Main PI: Palazzo)

PENDING PROPOSALS

N/A

PREVIOUSLY FUNDED PROPOSALS

NSF #2032501

05/06/2020-05/05/2021

RAPID

\$150k (\$30k)

Collaborative Research: Low-cost, Non-Invasive, Fast Sample Collection System for COVID-19 Viral Load Level Diagnosis: Point of Care and Environmental Testing

Role: (PI – Multi PI)

NSF #1309579

09/01/13-08/31/17

NSF DMR/BMAT

\$660k (NEU share \$300k)

Collaborative Proposal: Biomimetic bone: from nano to micro

Collaborator: Laurie Gower (Univ Florida)

Role: **Principal Investigator**

R01-EY015500

09/04/12-9/03/16

NIH/NEI

\$1.1M

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

“Mechanobiology of Matrix Production by Corneal Fibroblasts”

The major goal of this project is to investigate the processes responsible for the synthesis and organization of extracellular matrix and utilize the information to control the synthesis of an in vitro corneal stroma.

Role: **Principal Investigator**

R01-EY020868 (PI-Malek@Duke University)
NIH/NEI

05/01/11-04/30/16

\$2.0M (NEU share ~\$250k)

“Lipid Activated Nuclear Receptors in Age-Related Macular Degeneration”

The major goal of this project is to investigate signaling pathways used by dietary lipids that cause phenotypic pathology in of early “dry” AMD.

Role: **Co-investigator**

R21-EB015750 (PI-Rebecca Carrier)
NIH/NIBIB (NCE)

08/01/2012-07/31/2014

\$429k

“Impact of Lipids on Intestinal Mucus Transport and Structural Properties”

The major goal of this project is to examine the intestinal mucosal transport pathway alterations caused by lipids

Role: **Co-investigator** (co-advising a student).

R01-EY015500-ARRA
NIH/NEI

10/01/09-9/30/12

\$785k

“Engineering Biomimetic Corneal Constructs”

The major goal of this project is investigate the processes responsible for the synthesis and organization of extracellular matrix and utilize the information to control the synthesis of an in vitro corneal stroma.

Role: **Principal Investigator**

1R21EB007317-01
NIBIB

03/01/07 – 02/28/10

\$420k

“Cell-free assembly of organized collagen arrays”

The purpose of the study is to develop methods to produce organized 3-dimensional arrays of collagen fibrils on the benchtop *de novo*. The motivation for the study is provide an alternative to degradable polymer scaffoldings for load-bearing tissue engineering.

Role: **Principal Investigator**

NSF 050433
NSF/NIH/NCI

10/012005-9/30/2010

\$2.7M

“IGERT – Nanomedical Science and Technology”

This is a training grant for interdisciplinary studies at the interface of nanotechnology and medicine.

Role: **Co-Principal investigator** (PI: Sri Sridhar – Northeastern University)

R01-EY015500-01:04
NIH/NEI

2/01/05-9/30/09

\$1.75M

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

“Engineering Biomimetic Corneal Constructs”

The major goal of this project is investigate the processes responsible for the synthesis and organization of extracellular matrix and utilize the information to control the synthesis of an in vitro corneal stroma.

Role: **Principal Investigator**

TATRC FY05 SUB1

9/1/05-8/31/08

DOD

\$99K NEU Subcontract

“Development of Anti-Inflammatory Corneal Bandage”

The major goal of this project is to produce a scaffolding which may be used to support cells and inflammatory mediators as part of an anti-inflammatory bandage for use on the battlefield.

Role: **Co-investigator** (PI: Dartt – Schepen’s Eye Research Institute)

1R21AR053551-01

09/01/06 – 08/31/08

NIAMS/NIH

\$380k

“Investigation of collagen as a smart engineering material”

The purpose of the study is to determine if collagen cleavage by MMPs is sensitive to the application of mechanical force.

Role: **Principal Investigator**

CMS-0541707

9/1/05-8/31/05

Source: NSF/CMS

\$60k

“Development of a collagen nanoloom for the construction of 2 and 3 dimensional templates for tissue engineering”

The major goal of this project is to produce a bioinspired device capable of organizing collagen on the nanoscale for use in tissue engineering.

Role: **Principal Investigator**

3 R01-EY015500-01A1S1

9/14/05

Source: NIH/NEI

\$140k

“Engineering Biomimetic Corneal Constructs”

Supplement to R01 for the purpose of purchasing single molecule force magnetic trap.

Role: **Principal Investigator**

1 R43 YE14280-01 Ruberti (PI)

08/01/2002-01/01/2003

Source: NIH/SBIR/Phase I

\$109k

“A Method to Generate Artificial Cornea Constructs”

The primary focus of this grant is to generate arrays of aligned and uniform diameter collagen fibrils for use as a surrogate corneal stroma.

Role: **Principal Investigator**

NAS9-02011 Spiegelberg (PI)

03/01/2002-03/01/2003

Source: NASA/SBIR/Phase II

\$750k

“A Formation to Control and Constrain Water for Safe and Efficacious Microgravity Hygiene Activities”

The goal of this study is to develop a personal hygiene cleaning agent for use in a microgravity

Curriculum Vitae
environment.

Jeffrey W. Ruberti, Spring 2021

Role: **Co-Investigator**

TEACHING

Courses taught/developed:

MIMU702 4 Capstone Design

MIMU665 4 Musculoskeletal Biomechanics (developed)

BIOE7374 Principles of Bioengineering (developed)

BIOE2355 Quantitative Physiology (developed)

BIOE 4792 Capstone Design (developed)

UNDERGRADUATE RESEARCH ADVISING

Elias Moore Dept: Chemical Engineering (NEU) Start: Sept 2008

Activities: Single molecule investigation of collagen mechanochemistry

John Beale Dept: Chemical Engineering (NEU) Start: June 2009

Activities: Single molecule investigation of collagen mechanochemistry

David Nadeau Dept: Biology (NEU) Start: June 2010

Activities: Cell culture in custom bioreactor

Jeremy Smith: Dept: Biomedical Engineering (RPI) Start: June 2011 (summer)

Activities: Physical chemistry of collagen

Jayson Stoner: Dept: Biochemistry (UMASS) Start: June 2012 and June 2013 (summer)

Activities: Collagen assembly kinetics

Anika Pandit: Dept: Chemistry (Villa Nova) Start: June 2013 (summer)

Activities: Collagen assay/hydroxyproline

Kathryn Rutila: Dept: Biomedical Engineering (Northwestern) Start: June 2013 (summer)

Zachary Flinkstrom: Dept: Bioengineering (NEU) Start: January 2015

Single fibril collagen mechanics

Christina Le: Dept: Bioengineering (NEU) Start: January 2015

Yuki: Dept: Chemical Engineering (NEU) Start: January 2015

Cell traction force microscopy

Conor Messer: Dept: Bioengineering (NEU) Start: January 2015

Cell Tracking for Tissue Eng Paper

Isabel Arthur: Dept: Bioengineering (NEU) Start: March 2016

Mechanical control of collagen assembly

Alexandra Spak: Dept Bioengineering (NEU) Start: January 2017
Collagen/PG Interactions

Timothy Mastovitch: Dept Bioengineering (NEU) Start: January 2019
Healing of Collagen

GRADUATE ADVISING

Current Students:

Ebraheim Ismail Start: Fall 2011 Ph.D.
Thesis Title: QFDE IMAGING OF MATRIX PRODUCTION BY CORNEAL FIBROBLASTS
Mohammad Siadat Start: Fall 2012 Ph.D.
Thesis Title: MECHANOCHEMISTRY OF COLLAGEN MONOMER INCORPORATION

Graduated Students:

Chinmay Chitnis Completed May 2006 Masters
Thesis Title: Non-Thesis
Kelli Church Completed May 2007 Masters
Thesis Title: EFFECT OF TENSILE MECHANICAL LOAD ON THE DEGRADATION OF NATIVE COLLAGENOUS MATRICES
Anirudha Mundra Completed: May 2008 Masters
Thesis Title: DESIGN OF A COMPRESSION BIOREACTOR FOR THE MECHANICAL STIMULATION OF NATIVE AND ARTIFICIAL CARTILAGE AND THE STUDY OF KINETICS OF ENZYMATIC DEGRADATION OF COLLAGEN FIBRILS IN LOADED CARTILAGE
Katie Portale Completed: May 2008 Masters
Thesis Title: THEORETICAL AND EXPERIMENTAL INVESTIGATION OF A BIOMIMETIC PRINTER OF ANISOTROPIC ARRAYS OF TYPE I COLLAGEN FIBRILS OR “NANOLOOM”
Amit Bhole Completed: August 2008 Masters
Thesis Title: STRAIN STABILIZES RECONSTITUTED COLLAGEN FIBRILLAR NETWORK AGAINST ENZYMATIC CLEAVAGE BY COLLAGENASE
Nima Saeidi Start: July 2005 Ph.D. Completed: August 2009
Thesis Title: ON THE CONTROL OF COLLAGEN FIBRIL ORGANIZATION AND MORPHOLOGY
Robert Camp Start: January 2007 Ph.D. Completed: December 2010
Thesis Title: QUANTIFYING THE MECHANOSENSITIVITY OF THE TYPE I COLLAGEN MONOMER TO ENZYMATIC CLEAVAGE
Blake Sama Start: January 2010 Masters Completed: April 2011
Thesis Title: THE EXTRACTION OF TROPICOLLAGEN AND PROTEOGLYCANS FROM BOVINE EYES AND INVESTIGATION OF THEIR RECOMBINATION USING A NEW METHOD TO QUANTIFY FIBRILLOGENESIS
Nector Ritzakis Start: September 2008 Masters Completed: November 2011
Thesis Title: METHOD AND EVALUATION FOR MINIMIZATION OF MECHANICAL EFFECTS FROM IMPACT VELOCITY FOR THE OPTIMIZATION OF FREEZING QUALITY OF METAL MIRROR IMPACT FREEZERS
Brendan Flynn Start: January 2008 Ph.D. Completed: April 2012

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

Thesis Title: EXPERIMENTAL AND THEORETICAL INVESTIGATIONS ON THE MECHANICAL STABILIZATION AND ENZYMATIC DEGRADATION OF COLLAGEN

Ramin Zareian Start January 2006 Ph.D. Completed: April 2013

Thesis Title: THE EFFECT OF MECHANICS ON MIGRATION, MORPHOLOGY AND MATRIX PRODUCTION BY HUMAN CORNEAL FIBROBLASTS: LONG-TERM DYNAMIC OBSERVATION

Nazli Caner Start: Summer 2010 Masters Completed: December 2013

Thesis Title: Non-Thesis

Jeff Patenaude Start: Sept 2008 Ph.D. Completed: June 2014

Thesis Title: INVESTIGATION INTO THE MECHANO-CHEMISTRY OF DE NOVO COLLAGEN ASSEMBLY

Bilqees Rahman Start: Winter 2017 Masters Completed: Nov 2019

Thesis Title: MECHANICAL EFFECT OF MINERALIZATION OF SINGLE COLLAGEN FIBRILS

Patrick Bradley Start: Fall 2013 Ph.D. Completed: April 2019

Thesis Title: BIOMIMETIC BONE FORMATION

POST-DOCTORAL ADVISING

Current

None

Past

Monica Susilo Ph.D. December 2012-November 2016

Project: Corneal Fibroblast Mechanobiology

Graham Tilburey, Ph.D. June 2009- September 2011

Project: Extract corneal/scleral ECM components for ex vivo assembly.

Melody Liles, Ph.D. February 2008 – January 2009

Project #1 Live dynamic differential interference contrast imaging of fibroblasts constructing matrix

Project #2 Attachment chemistry advising for single molecule enzymatic assays

Ericka Bueno, Ph.D. January 2006 – February 2008

Project #1: Quantification of the transport of collagen through track-etched membranes

Project #2: Live dynamic differential interference contrast imaging of fibroblasts constructing matrix

Project #3: Culturing corneal fibroblastic cells for construct formation

PH.D. THESIS COMMITTEE MEMBERSHIP

Name	Department	Advisor	Status
Ericka Bueno	Chem Eng	Prof. Barabino	Graduated 2005
Jason Nikitzuk	MIE	Prof. Mavroidis	Graduated 2007
Azadeh Khanicheh	MIE	Prof. Mavroidis	Graduated 2007
Nicholas Yang	MIE	Prof. Nayeb-Hashemi	Graduated 2009
Lin Wang	Chem Eng	Prof. Carrier	Graduated 2010
Reza Amini	MIE	Prof. Narusawa	Graduated 2007
John Jagodnik	MIE	Prof. Muftu	Graduated 2010

*Curriculum Vitae**Jeffrey W. Ruberti, Spring 2021*

Prashanth Makaram	MIE	Prof. Busnaina	Graduated 2009
Maricris Silva	MIE	Prof. Gouldstone	Graduated 2011
Ismar Kovacevic	Biology	Prof. Cram	Graduated 2012
Mehmet Sen	MIE	Prof. Kowalski	Graduated 2012
Matt Dubach	BIOE	Prof. Clark	Graduated 2012
Hsuan-Yu Chu	MIE	Prof. Muftu	Graduated 2012
Parnian Boloori-Zadeh	MIE	Prof. Gouldstone	Graduated 2013
Cihan Yilmaz	MIE	Prof. Busnaina	Graduated 2013
Cathy Chaurasiya	Physics	Prof. Williams	Graduated 2013
Michael Robitaille	Bioengineering	Prof. Wan	Graduated 2014
Theresa Tonge	John's Hopkins ME	Prof. Nguyen	Graduated 2014
Amir Bejestan	MIE	Prof. Mavroidis	Graduated 2014
Emily Green	MIE	Prof. Minus	Graduated 2015
Ryan Myers	BIOE	Prof. Ayers	Graduated 2017
Cody Gharagouzloo	BIOE	Prof. Sridhar	Graduated 2016
Taylor Carlson	BIOE	Prof. Carrier	Graduated 2018
Craig Smallwood	BIOE	Prof. Gouldstone	Graduated 2018
Michelle Chen	John's Hopkins, ME	Prof. Nguyen	Graduated 2018
Sam Baldwin	Dalhousie, Biomedical	Prof. Kreplak	Graduated 2019
Aysan Rangchian	UCLA, Biomedical	Prof. Kavehpour	Graduated 2020
Cassandra Martin	Chem and Chem Biol	Prof. Deravi	Graduated 2021

SERVICE/PROFESSIONAL DEVELOPMENT (EXTERNAL)**Conference Program Chair**

SB3C2020 Program Chair

SB3C2021 Program Chair

World Congress of Biomechanics (Boston-2014)

Organizing committee member

Organized all student workers

Organized all meetings alongside

Conference Session Organizer

World Congress of Biomechanics, Session: Biomechanics and Cell and Tissue Engineering of the Anterior Segment, Munich 2006

Northeast Bioengineering Conference 2014. Chair Biomechanics and Mechanobiology session

SES Conference (Boston – 2017)

Track organizer – Mechanobiology: Molecular and Cellular Tissue Mechanics

Conference Session Moderator

World Congress of Biomechanics (Boston-2014)

Session chair – Protein Mechanics
Session chair – Molecular and Cellular Experimental Tools
ARVO 2008, Session: Stroma and Keratocytes
ASME summer bioengineering conference 2008, Session: Soft Tissue Mechanics
II

Review Panels (40+)

1. NIH: Ad Hoc/Conflict of interest Panel Reviewer for NIH/NEI R01/R03 (AED) grants 2003
2. NIH: Ad Hoc/Conflict of interest Panel Reviewer for NIH/NEI R01/R03 (AED) grants 2004
3. NIH: Ad Hoc/Conflict of interest Panel Reviewer for NIH/NEI R01/R03 (AED) grants 2005
4. NIH: Ad Hoc Panel Reviewer VISA 2005
5. NSF CMS Panel Reviewer BioNano 2005
6. NIH: Ad Hoc/Conflict of interest Panel Reviewer for NIH/NEI R01/R03 (AED) grants 2006
7. NIH/NEI Ad Hoc Panel Reviewer Visual Systems SBIR 2006
8. NIH/NEI Ad Hoc Panel Reviewer Visual Systems SBIR 2007
9. NIH/NEI Ad Hoc Panel Reviewer Visual Systems K99 Pathway 2007
10. NIH/NEI Ad Hoc Panel Reviewer Anterior Eye Disease 2008
11. NIH/NEI Ad Hoc Panel Reviewer Visual Systems SBIR 2009
12. NIH: Ad Hoc Conflict of interest Panel Reviewer for NIH/NEI R01/R03 (AED) grants 2009
13. NIH RC1 RFA OD-09-003 Challenge Grants ZRG1 BST Panel #12 2010
14. NIH RC1 RFA OD-09-003 Challenge Grants ZRG1 ETTN Panel #4 2010
15. NSF NanoBio Panel January 2011
16. NIH/NEI Ad Hoc Panel Reviewer AED 2011
17. NIH: Ad Hoc/Conflict of Interest Panel Reviewer ZRG BDCN grants 2011
18. NIH/NEI Ad Hoc Panel Reviewer BNVT 2012
19. NEI Audacious goals Panel reviewer Feb 2013
20. NIH/NEI Ad Hoc Panel Reviewer BSVS June 2013
21. NIH/NEI Ad Hoc Panel Reviewer BNVT Oct 2013
22. NSF/DMR/BMAT Career Award Reviewer – Oct 2013
23. NIH/CSR Ad Hoc Panel Reviewer BCMB-A 2014
24. NIH/NEI Ad Hoc Reviewer BVS Feb 2014
25. NIH/NEI Ad Hoc Panel Reviewer BNVT June 2014
26. NIH/NEI Ad Hoc Panel Reviewer BNVT Oct 2014
27. NIH/NEI Ad Hoc Panel Reviewer ZRG1 ETTN Oct 2014
28. NIH/NEI Ad Hoc Reviewer BNVT Feb 2014
29. NSF DMR Panel 2017
30. (12 panels) NIH/NEI BNVT **Appointed Full Panel Member** – June 2015-June 2019

Journal Reviewing

Annals of Biomedical Engineering
Acta Biomaterialia
Biomechanics and Modeling in Mechanobiology
Biophysical Journal
Cell Motility and the Cytoskeleton
Experimental Eye Research
Frontiers in Bioscience
Investigative Ophthalmology and Visual Science
Journal of Biomechanical Engineering
Journal of Biomechanics
Journal of Material Science
Journal of Ocular Pharmacology
Journal of the American Chemical Society

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

Ocular Surface
Osteoarthritis and Cartilage
PLoS One
Proceedings of the National Academy of Science
Royal Society Interface
Soft Matter
Tissue Engineering

Editorships

Associate Editor – ASME Journal of Biomechanical Engineering 2012-2019

Memberships

BMES member 2000-2010
ASME member 2004-2010
Association for Research in Vision and Ophthalmology (ARVO) member
1996-2010

Advisorship/Diversity

Advisor: High School Girls STEM Program advisor (www.explo.com) 2017
Judge: New England Science Symposium 2017-2019

SERVICE/PROFESSIONAL DEVELOPMENT (INTERNAL)

University

Enrollment and Admissions Policy Committee - 2015
Patent Committee member – 2005-2010

College

Sabbatical Committee – 2015, 2016, 2017
Tenure and Promotions Committee – 2010, 2015, 2016
Member: Working group to establish Bioengineering Department - 2013
Chairman: Committee to develop Ph.D. Program in Bioengineering: 2008-2009
Status: Program began in fall 2009
Program Coordinator – Ph.D. Program in Bioengineering: 2009-2018
Member Chemical Engineering Search Faculty Committee: 2009-2010
Tenure and Promotions Committee – College level 2010

Department

Faculty Searches

Member - Applied Mechanics: 2005-6
Member – Applied Mechanics: 2006-7
Chair – Biomedical Engineering: 2006-7
Chair – Nanobiomechanics Search 2009-10
Chair – MIE department Chairman Search 2010-11
Member – Bionanomechanics Search 2011-2012
Member – Bioengineering Chair Search 2013-2015
Member – Bioengineering Faculty Search 2014-2015
Member – Bioengineering Faculty Search 2015-present

Curriculum Vitae

Jeffrey W. Ruberti, Spring 2021

Seminar Series

Co-Chair – Academic Years: 2006-8

Curriculum

Developed new course: Bioengineering Capstone design: 2018

Developed new course: Quantitative Physiology: 2014

Developed new course: Principles of Bioengineering: 2010

Developed Minor in Biomedical Engineering (Biomechanics): 2005

Developed new course: Musculoskeletal Biomechanics: 2005