

ARCHIVAL JOURNAL PUBLICATIONS

1. J. Furmanski and L. Pruitt, "Peak stress intensity dictates fatigue crack propagation in UHMWPE," submitted to *Polymer* for publication (2007).
2. N. Gundiah, M. Ratcliff, and L. Pruitt, "Mechanics of Arterial Elastin," submitted to *Journal of Experimental Biology* for publication (2007).
3. D.M. Ebenstein, D. Coughlin, J. Chapman, C. Li, and L. Pruitt, "Structure-property relations of atherosclerotic plaque tissue," submitted to *Journal of Biomedical Materials Research* for publication (2007).
4. J. Furmanski, S. Gupta, A. Chawan, A. Kohm, B. Jewett, L. Pruitt, and M. Ries, "Extensive Surface Cracking in a Highly Crosslinked Acetabular Liner Associated with a Non-Spherical Femoral Head Counterface," *Journal of Bone and Joint Surgery*, accepted for publication (2007).
5. S. Gupta, F. Carrillo, C. Li, L. Pruitt, and C. Puttlitz, "Adhesive Forces Significantly Affect Elastic Modulus Determination of Soft Polymeric Materials in Nanoindentation," *Journal of Materials Science Letters* 61(2):448-451(2007).
6. N. Gundiah, M. Ratcliffe, and L. Pruitt, "A new constitutive model for arterial elastin: I. Comparison of purification methods for mechanical tests and material symmetry of arterial elastin," *Journal of Biomechanics* accepted for publication (2007).
7. N. Gundiah, D. Chang, P. Zhang, L. Pruitt, P. Ursell, and M.B Ratcliffe, "Biomechanical and Structural Changes in Healing Myocardial Infarct Tissue," submitted to American Physiological Society for publication (2007).
8. C. Li, L.Pruitt, and K. King, "Nanoindentation Differentiates Tissue-Scale Properties of Native Articular Cartilage," *Journal of Biomedical Materials Research* Sep 15;78(4):729-38 (2006).
9. D.M. Ebenstein and L. Pruitt, "Nanoindentation of Biological Materials," *Nano Today* 1(3) 27-33 (2006).
10. N. Gundiah and L. Pruitt, "Role of elastin and collagen in constitutive properties of arteries: experiments using elastase and collagenase" submitted to *Journal of Biomechanical Engineering* for publication (2006).
11. K. Cheng, L. Pruitt, C. Zaloudek, and M. D. Ries, "Osteolysis is caused by Tibial Component Debonding in Total Knee Arthroplasty," *Clinical Orthopaedics and Related Research* 443 333-336 (2006).
12. M.D. Ries, T. Petrie, L. Al-Marashi, E. Young, P. Goldstein, A. Hetherington and L. Pruitt, "In-vivo Behavior of Acrylic Bone Cement in Total Hip Arthroplasty," *Biomaterials*, 27(2) 256-261 (2006).
13. K. Simis, A. Bistolfi, A. Bellare and L. Pruitt, "The Combined Effects of Crosslinking and Elevated Crystallinity on the Microstructural and Mechanical Properties of Ultra High Molecular Weight Polyethylene," *Biomaterials* 27(9) 1688-1694 (2006).
14. A.P.D. Elfick, K. Healy, A.Unsworth, L. Pruitt, "The Importance of Protein Physisorption in BioMEMs/NEMs Applications: A Nanotribological Study" in "Life Cycle Tribology" (Eds Dowson D, Priest M, Dalmaz G, Lubrecht AA), p835-844, Tribology and Interface Engineering Series, No 48, Elsevier, Amsterdam, (2005).
15. S. Gupta, F. Carrillo, M. Balooch, L. Pruitt, C.M. Puttlitz, "Simulated Soft Tissue Nanoindentation – A Finite Element Study," *Journal of Materials Research* 20(8) 1979-1994 (2005).
16. M. Ries and L. Pruitt, "Effect of Crosslinking on the Microstructure and Mechanical Properties of UHMWPE," *Clinical Orthopaedics and Related Research*, 440:149-156 (2005).
17. F. Carrillo, S. Gupta, M. Balooch, S.J. Marshall, G.W. Marshall, L. Pruitt, C.M. Puttlitz, "Nanoindentation of Polydimethylsiloxane Elastomers:Effect of crosslinking, work of adhesion, and fluid environment on elastic modulus" *Journal of Materials Research*, 20(10) 2820-2830 (2005).
18. L. Pruitt, "Deformation, Yielding, Fracture and Fatigue Behavior of Conventional and Highly Cross-linked Ultra High Molecular Weight Polyethylene," *Biomaterials* 26 (8) 905-915 (2005).
19. L. Bradford, D. Baker, M.D. Ries, and L. Pruitt, "Fatigue Crack Propagation Resistance of Highly Crosslinked Polyethylene," *Clinical Orthopaedics and Related Research*, (429): 68-72 (2004).
20. D. M. Ebenstein, A. Kuo, J.J. Rodrigo, A. H.Reddi, M.D. Ries, and L. Pruitt, "A Nanoindentation Technique for Functional Evaluation of Cartilage Repair Tissue," *Journal of Materials Research*, 19(1), 273-281 (2004).

21. J. Zhou, A. Chakravartula, L. Pruitt, and K. Komvopoulos, "Tribological and Nanomechanical Properties of Unmodified and Crosslinked Ultra-High Molecular Weight Polyethylene for Total Joint Replacements," *Journal of Tribology ASME Trans.*, **126(2)**, 386-394 (2004).
22. L. Bradford-Collons, D.A. Baker, J. Graham, A. Chawan, M.D. Ries, L. Pruitt, "Wear and Surface Cracking in Early Retrieved Highly Crosslinked Durasul Acetabular Liners," *Journal of Bone and Joint Surgery* 86:1271-1282 (2004).
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CONFERENCE PAPERS

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2. J. Furmanski, S. Atwood, J. Tang, E. Feest, M. Hoang, and L. Pruitt, "Effect of α -Tocopherol on Fatigue Resistance of Cross-linked UHMWPE," 53rd Annual Meeting of the Orthopaedic Research Society, San Diego, CA, February 2007.
3. J. Furmanski, S.R. Kane, S. Gupta and L. Pruitt, "Work in Progress: Problem-Based Learning and Assessment of Competence in an Engineering Biomaterials Course," 36th ISEE/ASEE Frontiers in Education Conference, San Diego, CA October 2006.
4. C. Li, K. King, and L. Pruitt, "Changes in Biomechanical Properties in Articular Cartilage due to Cyclic Loading," Annual Meeting of the Biomedical Engineering Society, Chicago, IL, October 2006.
5. S. Kane and L. Pruitt, "PEGylation of UHMWPE to reduce mechanical adhesion," American Chemical Society National Meeting, San Francisco, September 2006.
6. A. Chakravartula, B. Ando, C. Li, S. Gupta and L. Pruitt, "Undergraduate Students Teaching Children: K-8 Outreach within the Core Engineering Curriculum," Conference Proceedings of the American Society for Engineering Education, 1310.1- 1310.14, Chicago, June 2006.
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8. L. Pruitt, "The Origins of Wear in Ultra High Molecular Weight Polyethylene used in Total Joint Arthroplasty," 13th International Meeting on the Deformation, Yield and Fracture of Polymers," Eindhoven, Netherlands, April 2006.
9. A. Kohm, J. Fermanski, and L. Pruitt, "Effect of α -Tocopherol on UHMWPE Fatigue Resistance," Annual Meeting of the Orthopaedic Research Society, 662, Chicago, March 2006.
10. N. Gundiah, M. Ratcliff, and L. Pruitt, "Role of Elastin and Collagen in Arterial Mechanics," First International Conference on Mechanics of Biomaterials & Tissues, Waikoloa, HI, December 2005.
11. L. Pruitt, C. Li, S. Gupta, and D. Coughlin, "Multiscale Mechanical Characterization of Cartilage and other Structural Tissues," in *Mechanical Behavior of Biological and Biomimetic Materials*, Annual Meeting of the Materials Research Society, Boston, December, 2005.
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CURRICULUM VITAE

14. A. M. Chakravartula, L. Pruitt, K. Komvopoulos, and A. Bellare, "Nanoscale Viscoelastic Properties of Microstructurally-modified UHMWPE," Society of Biomaterials Annual Meeting, Memphis, TN. April, 2005.
15. C. Li, S. Gupta, F. Carrillo, C. Puttlitz, and L. Pruitt "Nanoindentation and Unconfined Compression Characterization of Poly dimethyl siloxane," Society of Biomaterials Annual Meeting, Memphis, TN. April, 2005.
16. D. Coughlin and L. Pruitt, "Characterization of Arterial Calcifications Using Fourier Transform Infrared Spectroscopy Imaging," Society of Biomaterials Annual Meeting, Memphis, TN. April, 2005.
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32. A.P.D. Elfick, J. Zhao, K.E. Healy, A. Unsworth, and L. Pruitt, "Lateral Force Microscopy Study of Physisorbed Protein Boundary Lubrication at Low Contact Stresses, American Chemical Society, Anaheim, April (2004).
33. C. Li, D.M. Ebenstein, K. King, and L. Pruitt, "Nanoindentation of Finger Joint Cartilage in a Fluid Cell," 50th Annual Meeting of the Orthopedic Research Society Meeting, San Francisco, CA, March 2004.
34. K.S. Simis, A. Bistolfi, A. Bellare, and L. Pruitt, "Fatigue Behavior of Crosslinked UHMWPE with High Crystallinity," 50th Annual Meeting of the Orthopedic Research Society Meeting, San Francisco, CA, March 2004.

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36. J. Wang and L. Pruitt, "The Contribution of Elastin, Collagen and Smooth Muscle Cells to Residual Strain in Porcine Aorta," Annual Meeting of the Biomedical Engineering Society, 6.P5.126, Oct 2003, Nashville, TN.
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39. A. Elfick, K. Healy, A. Unsworth, L. Pruitt, "Boundary Lubrication and Its Enhancement as a Paradigm for Improved Total Hip Replacement Performance," 16th Annual Symposium for the International Society for Technology in Arthroplasty, San Francisco, September 2003.
40. D.M. Ebenstein, A. Kuo and J.J. Rodrigo, A.H. Reddi, M. Ries, and L. Pruitt "Nanoindentation as a Tool for Measuring Cartilage Repair Tissue Properties," XIX Congress of International Society of Biomechanics, Dunedin, New Zealand, July 2003.
41. T. Petrie, P. Goldstein, A. Heatherington, D. Ebenstein, M. Ries, and L. Pruitt, "Assessment of In-Vivo Mechanical Degradation of Acrylic Bone Cement," Annual Meeting of the Society for Biomaterials," 482, Reno, NV, April 2003.
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44. K. Simis, A. Bellare, A. Bistolfi and L. Pruitt, "The Effect of High Pressure Crystallisation and Crosslinking on the Fatigue Crack Inception Behaviour of Medical Grade Ultra High Molecular Weight Polyethylene," 12th International Conference on the Deformation, Yield and Fracture of Polymers, 69-72, April 2003, Cambridge, UK.
45. G. McKenna, D. Rondinone, and L. Pruitt, "A Three Dimensional Nonlinear Viscoelastic Constitutive Model for Orthopaedic Grade UHMWPE," 12th International Conference on the Deformation, Yield and Fracture of Polymers, 69-72, April 2003, Cambridge, UK.
46. K. Simis, A. Chawan, L. Collons, M. Ries, L. Pruitt, "Analysis of Early Wear Mechanisms in Retrieved Highly Crosslinked Acetabular Liners," Annual meeting of the Orthopedic Research Society, 1417, New Orleans, February (2003).
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49. L. Pruitt, "A Study of Structural Degradation Schemes in Acrylic Bone Cements," National Meeting of the American Chemical Society, Boston (2002)
50. D. Ebenstein, J. Chapman, C. Li, D. Coughlin, J. Rapp, D. Saloner, L. Pruitt, "Nanomechanical and Biochemical Properties of Diseased Artery Tissue", World Congress of Biomechanics, 1084, Calgary (2002).
51. J. Wang, N. Gundiah, L.Pruitt, "The Contribution of Elastin and Collagen to Residual Strain in Porcine Aorta," World Congress of Biomechanics, 43, Calgary (2002).
52. S. Hsu; D. Ebenstein; A. Issever, L. Pruitt, S. Majumdar, "Investigation of Structure-Property Relationships in Human Femoral Trabecular Bone," World Congress of Biomechanics, Calgary (2002).
53. A. Chawan, A. Chakravartula, J. Zhou, M. Ries, L. Pruitt, K. Komvopoulos, "Combined Effects of Crosslink Density and Conformity on the Tribological Performance of Medical-Grade Ultra-High Molecular Weight Polyethylene," Materials Research Society, Spring Annual Meeting, San Francisco (2002).
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