Michael "Mick" Leroy Peterson, Jr.

College of Engineering, Libra Foundation Professor
5711 Boardman Hall
Mechanical Engineering Department
University of Maine
Orono, ME 04469-5711
Cell Phone (207)409-6872
Phone (207) 581-2129 Fax (207)581-2379
e-mail: michael.peterson@maine.edu

Education:

Ph.D.	Northwestern University, Evanston, IL, September 1993.
M.S.	Northwestern University, Evanston, IL, 1987.
B.S.M.E.	General Motors Institute, Flint, MI, 1985.

Additional education:

Two years additional graduate work at Yale University, Cornell University and University of Connecticut in material science, mathematics, mechanics and signal processing.
Two year certificate -- Basic Program in Adult Education, University of Chicago

Thesis Topics:

Ph. D. Dissertation: Ultrasonic Monitoring of High Temperature Materials Processing.
M. S. Thesis: Ultrasonic Scattering from a Model of an Intergranular Stress Corrosion Crack: Comparison of Theory and Experiment
B. S. Thesis: Buick Motor Factory #03: An Evaluation of Alternative Methods of Producing Steel Chassis Coil Springs

Academic Experience:

University of Maine		
Orono Maine	Libra Foundation Professor	2008-Present
	Professor Mechanical Engineering	2007-Present
	Affiliated Faculty Climate Change Institute	2009-Present
	Associate Dean for Research, New Projects.	2007-2008
	Associate Professor Mechanical Engineering	2002-2006
	Cooperating Faculty, Animal and Veterinary Sciences	2005-Present
	Affiliated Faculty, Civil Engineering	2004-Present
	Affiliated Faculty, School of Marine Sci.	2002-Present
	Assistant Professor Mechanical Engineering	1999-2002
University of Colorado		
Boulder Colorado	Member of the Graduate Faculty	2000-2003
Colorado State University		
Fort Collins Colorado	Affiliated Faculty, Clinical Sciences	2004-Present
	Affiliate Faculty Member Mechanical Eng.	1999-2004
	Assistant Professor Mechanical Engineering	1994-1999
	Civil Engineering Joint Faculty Appt.	1996-1999
	Rockwell Anderson Chair	1996-1998

Peterson, Michael "Mick", Ph.D.
Northwestern University

Post-Doctoral Research Associate/Instructor 1993-1994
Teaching responsibility for undergraduate dynamics course for non-civil engineering majors.

Current Research:

Energy
- Tidal energy
- Environmental evaluation of tidal and ocean energy impacts
- Economic and social costs and benefits of renewable and distributed energy
- Heating system integration and control

Veterinary Engineering
- Strain Rate Testing and Behavior of Granular Composite Materials
- Horse Racing Hoof Soil Interface Measurement
- Soil testing for racing
- Cetacean Biomechanics

Waves in Porous Materials
- Characterization of Porous Materials for Biopharmaceutical and Water Treatment
- Materials and monitoring for high temperature and pressure separations

Teaching:

Primary teaching focus: Capstone design and project based teaching
Teaching responsibility: in the areas of Mechanics, Materials and Design.
Specific courses taught include: Advanced Mechanics (dynamics), Anisotropic Elasticity, Sr. Design I and II, Advanced System Dynamics, Advanced Mechanics – Graduate Level Dynamics, Vibrations in Engineering, Machine Design (Design II), Kinematics and Design of Mechanisms (Design I), Dynamics, Materials

Service:

Department Level

Graduate Coordinator, Mechanical Engineering	2002-2008
Faculty Advisor - Human Powered Submarine	2001- 2009
Faculty Advisor - SAE Clean Snowmobile	2000- 2009
Faculty Advisor - American Society of Mechanical Engineers	1999-2002
Faculty Advisor – CSU - ASME Human Powered Vehicle Team	1997-1999
Host SAE Walking Machine Decathlon - Fort Collins CO.	1995
Faculty Advisor SAE Walking Machine Decathlon Team,	1994-1998

Team won first place for three years of in Canada, Mexico and US.

University Level

Executive Committee Faculty Senate, Co-Chair of Research and Public Service Committee	2005-2007
Executive Committee Faculty Senate, Chair of Academic Affairs	2004-2005
College Representative University Strategic Planning Committee	2005-2006
Member University Strategic Planning Implementation Committee	2006
Member University Research Committee	2005-2007
Faculty Senate	2004-present
Executive Board, Graduate School	2003-2006
Graduate Board	2002-2008

Service (cont.):

National Level

Vice-Chair, Dynamic Response of Materials, Applied Mechanics Division ASME 2008-2010

Chair, Equipment and Systems ASME, 2009-2010

Executive committee member of the Non-Destructive Testing Division ASME 2004-2010

Executive Committee, Applied Mechanics Division ASME 2005-2009

Chair of the Biological Materials and Systems Technical Division of the Society for Experimental Mechanics (SEM) 2006-2008

Vice-Chair of the Biological Materials and Systems Technical Division of the Society for Experimental Mechanics (SEM) 2003-2006

Secretary Biological Materials and Systems Technical Division Society for Experimental Mechanics 2000-2003

Secretary of the Dynamic Response of Materials Technical Committee of the Applied Mechanics Division of ASME 2002-2004

Co-founder of Biological Materials and Systems Technical Division SEM 1999

Other Experience:

Racing Surfaces Testing Laboratory
Industry Supported 501c3 based on Orono Maine

Executive Director 2009-present

Co-Founder 2009

Industrial Research and Consulting: 1994-present

Biologically Applied Engineering LLC/Stillwater River Technologies 2004-present

Founder Racetrack Testing Services for the Thoroughbred Industry including ground penetrating radar, strain rate dependent track properties and technology for track maintenance.

Tidal Energy Demonstration and Evaluation Center (TEDEC) 2009-present

Member of Board of Directors

Sebek Technologies 2004-present

Engineer, designer and co-owner. Focused on fuel spill technologies for marine applications

Pall Corporation 2005-2007

Acoustic Characterization of Membranes

Exxon-Mobil Corporation 2005-2008

Development of ultrasonic process monitoring technologies

Millipore Corporation 1999-2007

Acoustic Monitoring of Membrane Separation Processes

Kodak Colorado Division 1996-1998

Manufacturing analysis and support, structural dynamics and vibration control

Storage Technology Corporation 1995-1999

Process evaluation, manufacturing development and system analysis for lapping.

Bandag Corporation 1993-2002

Non-destructive testing, analysis and pattern recognition

Association of American Railroads 1997-1999

Peterson, Michael "Mick", Ph.D.

Non-destructive testing and structural characterization of timber structures
Field testing of timber rail structures

Hewlett-Packard Corp. 1998

Integration of reliability into design a short course given in Guadalajara, Mexico

Electric Boat Division - General Dynamics Corporation Full Time 1987-1988

Engineer, Nuclear Engineering Analysis, Structural Acoustics

- Developed models of machinery resilient mounts for high and low frequency structural acoustics analysis. Assisted in design of fixture and performed modeling of resilient mounts in experimental test fixture. Developed statistical energy analysis and finite element analysis in models of 5M10,000 resilient mounts as a IRAD project.
- Pioneered use of automated modal comparison in finite element models with structural modifications. Performed analysis of systems and structures in support of structural dynamics design in Los Angeles and Seawolf Class Submarines.

Buick Motor Division - General Motors Corporation Full Time 1984-1985

Manufacturing Engineer - Chassis Coil Springs 1984-1985.

- Lead engineer responsible for manufacturing and tooling design for the 1986 H-Car front and rear coil springs. Supervised salaried, skilled trades and unskilled workers assigned to project. Developed specifications for the purchase of high volume production equipment costing $3 million.
- Performed fatigue testing and process development for design certification and production launch of H-Car coil spring. Design introduced cylindrical progressive rate springs in G.M. products.
- One of two engineers responsible for manufacturing support in a spring and forge shop producing six million springs a year.

Cooperative Engineering Student - Buick Spring and Forge 1982-1984.

- Alternated three-month periods of work and school throughout undergraduate years.
- Debugged first computer controlled hot coiling spring machine for in the U.S.
- Provided manufacturing support as one of two manufacturing engineers in plant. Continued work on a part time basis while attending school full time.

Cooperative Engineering Student - Buick Motor Division 1980-1982.

- Rotated through engineering and manufacturing operations at Buick Motor Flint Headquarters. Assigned to both design and manufacturing areas.
- Experience in work rotations included product engineering in V-6 engine design and manufacturing experience in production of Buick V-6 engine.

Awards and Honor Societies

Steve Gould Award for Service to the University 2009	University of Maine
Elasticon Research Award, 2008,	Grayson-Jockey Club Research Foundation
Dean's Award of Excellence in Teaching, 2001	University of Maine
Engineering Early Career Research Award, 2001	University of Maine
Engineering Faculty Award of Excellence, 1998 recipient	Colorado State University
Sigma Xi	Colorado State University
Walter P. Murphy and Cabell Fellowships, 3 years total	Northwestern University.
Olin Prize Fellowship	Yale University
University Fellowship	Yale University.
General Motors Fellowship/Deferred Employment	Cornell University
Tau Beta Pi Engineering Honor Societies	General Motors Institute
Pi Tau Sigma, Mechanical Engineering Honor Societies	General Motors Institute

Post-Doctoral/Visiting Scholars Supervised

- Jean-Paul Kabche, Ph.D., 2006-2007, Modeling of Constitutive Response of Fabric
- Jianmin Chen, Ph.D., 2005-2006, Modeling of Constitutive Response of Fabric
- Zongmu Wang, Ph.D. 1999-2001, Computational Mechanics for Elastodynamics,
- Xiaobin Le. Ph.D., 1997-1998, Reliability and Fatigue in Mechanical Systems

Thesis and Dissertations Supervised

(Only Principal Advisor Listed, except as noted serving as a Co-Advisor)

1. Anna Demeo, Ph.D., “Renewable Energy Systems in a Closed System” Expected Spring 2013
2. Raul Urbina, Ph.D. (Co-Advised, Rich Kimball), “Tidal Energy System Analysis and Test”, Expected Spring 2013
3. C Kaitlyn Allen, Ph.D., “Acoustics in the Bay of Fundy”, Expected Fall 2011
4. Patrick Bates, M.S., “A Power Output Measurement System for Model Cross-Flow Turbines”, Expected Fall 2011
5. Christie Mahaffey, Ph.D., “The Dynamic of Natural Surfaces used for Equestrian Arena and Race Tracks”, Expected Fall 2011
6. Lin Lin, Ph.D., “The Role of Slow Waves and Detection of Porosity in Polymeric Materials” Spring 2011
7. John Bridge, Ph.D., “Wax Binders used in Sports Surfaces”, Fall 2011
8. Doug Read, Ph.D., “Intelligent Optimization of Design for Surface Ships”, Summer 2009
9. Pei-Hsin “Patrick” Kuo, M.S., “Thermal Acoustics of Granular Composites”, Spring 2009
10. B. Woodward, Ph.D., “Underwater Performance of Free Ranging Cetaceans” Spring 2006
11. Amala Mamilla M.S., “High Temperature Couplants for the Characterization of Carbon-Carbon Composite Materials”, Summer 2004
12. A. Puckett, Ph.D., “Model Based Waveguide Time Reversal Mirrors as a High Temperature Sensor Candidate”, Spring 2004
13. Lin Lin, M.S., “ Plate Wave Propagation in Porous Polymeric Materials” Summer 2003
14. Anish Senan, M.S., “Visco-elastic Response of Polymeric and Elastomeric Matrix Composites” Summer 2003
15. S. Bunker, M.S., “In-Situ High Temperature Monitoring of Oxidation of Carbon-Carbon”, Summer 2002
16. Miao Sun, M.S., “Experimental Recovery of General Anisotropic Material Properties”, Summer 2002.
17. P. Zhang, Ph.D., “Modeling and Experiments for Wave Propagation in Layered Anisotropic Materials”, Spring 2003.
18. R. Laverty, Ph.D., “Pulse Propagation in Layered Cylindrical Waveguides”, Summer 2001.
19. T. Gerler, M.S., ““Electromechanical Design of a Wicket Gate System” Spring 2001

20. Raul Urbina, M.S. “Layered Anisotropic Inspection System Design”, Fall 2000.
21. R. Reisser, Ph.D., “Biomechanics of Recumbent Cycling” Spring 2000.
22. T. Druffel, M.S., “Modeling and Experiment for Design of a Wedge Retention System” M.S. Summer 2000.
23. Puckett, M.S., “Computational Modeling of Waves in a Homogeneous Isotropic Waveguide”, Fall 2000.
24. M. Gang, M.S., “Acoustic Emission Sensing for Monitoring the Effect of Slurry Resupply in Chemical Mechanical Planarization” Spring 1999.
25. K. Nair, M.S., “Design and Implementation of a Visualization Strategy for Maintaining the Integrity of Large Data Sets”, Fall 1998.
26. Woodward, M.S., “Horse Race Track Interaction with Inertia Effects” Summer 1998.
27. K. Dayton, M.S. “Ultrasonic Measurement of Surface Roughness for Lapping Machine Feedback”, Summer 1998.
28. B. Jeffery, M.S. “Assessment of Steel Rail Inspection Data” Summer 1998.
29. Chin-Gwo Chiou, M.S., “A Simple Analysis of the Effect of Construction Materials on Bridge Impact Factors”, Spring 1998
30. R. Kumar, M.S., “Machine Vision Implementation for High Precision Grinding”, Spring 1997.
31. S. Santhanam, M.S., Co-Advisor with S. James, “Influence of Argon, Cutting Speed and Power on Cutting Forces During Electrosurgery” Spring 1996,
32. S. Srinath, M.S., “High Resolution Low Frequency Acoustic Microscopy for Biomedical Applications” Fall 1996.
33. J. Bilodeau, M.S., “Dynamic Event Monitoring Across Taper Roller Bearings”, Summer 1996.
34. J. McKinley, M.S., “Cost Effective Strategies for Flat Lap Capability Improvement”, Summer 1996.
35. M. Ellis, M.S., “Advanced Visualization and Automated Flaw Detection for Truck Tire Casing Inspection”, Fall 1995.

Refereed Journal Publications:

58. J. W. Bridge, M. L. Peterson, C. W. McIlwraith, and R. M. Beaumont, “Temperature Effects on Triaxial Shear Strength of Granular Composite Sport Surfaces”, *Journal of ASTM International*, Vol. 7, No. 9
57. Pries, Malte, Holger Militz, Barry Goodell, Xinfeng Xie, Yuhui Qian, Michael Peterson, Roberto Lopez-Anido, A Note on Reinforcement of Polymer Matrix Composites Using Carbon Residues Derived From Woody Biomass, Journal of Composite Materials Online, First, published on February 25, 2010 as doi:10.1177/0021998309360935,
56. M.L. Peterson, Raoul F. Reiser, II, Pei-Hsin Kuo, Donald W. Radford, C. Wayne McIlwraith , The effect of temperature on 6 furlong times on a synthetic racing surface, *Equine vet. J.* 42, 2010 351-357.
55. J.W. Bridge, M.L. Peterson, D.W. Radford, C.W. McIlwraith, Thermal transitions in high oil content petroleum-based wax blends used in granular sport surfaces, *Thermochimica Acta* (2008), doi:10.1016/j.tca.2009.10.009, 2010, vol. 498, No. 1-2, pp. 106-111
54. L. Lin, Z.Wang, M. L. Peterson, “Conditions for Bifurcation of the Longitudinal Wave in a Porous Medium”, *Acta Acustica United with Acustica*, Volume 95, No. 2, March/April 2009, pp. 373-378.
53. Xinfeng Xie, Barry Goodell, Zhang, Dajie, Nagle, Dennis C., Qian, Yuhui, Peterson, Michael and Jody Jellison, “Characterization of carbons derived from cellulose and lignin and their oxidative behavior”, *Bioresource Technology*, v 100, n 5, March, 2009, p 1797-1802
52. Lin Lin and M. L. Peterson, Alan R. Greenberg and Benjamin A. McCool, “*In situ* measurement of permeability, JASA Express Letters, J. Acoust. Soc. Am. 125 _4_, April 2009, EL123-125.
51. Xie, Xinfeng Goodell, Barry; Qian, Yuhui; Peterson, Michael; Jellison, Jody, “Significance of the Heating Rate on the Physical Properties of Carbonized Wood”, *Horzforschung*, Vol. 62, (2008), pp. 591-596
50. Michael Peterson, C Wayne McIlwraith, Raoul F Reiser, System Development for In-Situ Characterization of Horse Racing Track Surfaces, *Biosystems Engineering* Vol. 101 No. 2 (October, 2008) 260 – 269
49. M. L. Peterson and C.W. McIlwraith, Effect of track maintenance on mechanical properties of a dirt racetrack: A preliminary study, *Equine Veterinary Journal*, Vol. 40, No. 6. (September 2008), pp. 602-605.
48. Jeffrey J. Thomason, Michael L. Peterson, Biomechanical and Mechanical Investigations of the Hoof-Track Interface in Racing Horses, *Veterinary Clinics of North America, Equine Practice*, 24 (2008) 53–77
47. Barry Goodell, Xinfeng Xie, Yuhui Qian, Geoffrey Daniel, Michael Peterson, and Jody Jellison, Carbon Nanotubes Produced from Natural Cellulosic Materials, *Journal of Nanoscience and Nanotechnology*, Vol.8, 2008, 1–3,
46. Jeremy P. Winn, Becky L. Woodward, Michael J. Moore, Michael L. Peterson and John G. Riley, Modeling Whale Entanglement Injuries: An Experimental Study of Tissue Compliance, Line Tension and Dray Length, *Marine Mammal Science*, Volume 24, Number 2, April 2008 326-340

45. Senthilkumar Ramaswamy, Alan R. Greenberg, Michael "Mick" Peterson, 2007, "Ultrasonic Detection of Defects in Highly Porous Polymeric Membranes", Vol. 49 No. 11, *Insight – Non-Destructive Testing and Condition Monitoring*
44. Turner, Adam W., Jean Paul Kabche, M. L. Peterson, William G. Davids, (2007) "Tension/Torsion Testing of Inflatable Fabric Tubes". *Experimental Techniques*. Volume March/April 2008 32 (2) , 47–52
43 Elmira Kujundzic, A. Cristina Fonseca, Emily A. Evans, Michael Peterson, Alan R. Greenberg and Mark Hernandez, "Ultrasonic Monitoring of Early-Stage Biofilm Growth on Membranes and Polymeric Surfaces." *J. Microbiological Methods*, **68**, Volume 68, Issue 3, March 2007, Pages 458-467 (2007).
42. Davids, W.G., Zhang, H., Turner, A. and Peterson, M. (2007). "Beam Finite-Element Analysis of Pressurized Fabric Tubes" *Journal of Structural Engineering*, ASCE, July 2007, Vol. 133, No. 7, Pages 990-998
41. L Lin, M L Peterson and A R Greenberg (2007) "Generation and propagation of ultrasonic plate wave in fluid-loaded porous polymeric membrane", *Insight – Non-Destructive Testing and Condition Monitoring*, Vol 49 No 4 April 2007, P 213-216.
40. E.N. Brown, M.L. Peterson, K.J. Grande-Allen, Biological Systems and Materials: A Review of the Field of Biomechanics and the Role of the Society for Experimental Mechanics, *Experimental Techniques***,** March 2006. Vol. 30 p 21-28
39. Woodward, Becky L., Jeremy P. Winn, Michael J. Moore and Michael L. Peterson, Experimental Modeling of Large Whale Entanglement Injuries, *Marine Mammal Science*, Vol. 22, April 2006, p. 299-310.
38. Davids, W., Botting, J., and Peterson, M.L., "Development and Structural Testing of a Composite-Reinforced Timber Highway Guardrail", *Construction and Building Materials*, Vol. 20(9):November 2006, 733-743
37. Puckett, Anthony D. and M.L. Peterson, "<u>The contribution of individual longitudinal Pochhammer-Chree modes in observed experimental signals</u>", *Journal of Acoustic Society of America, Acoustics Research Letters On-Line,* Vol. 6, No. 4, October 2005, p. 268-273
36. Anthony D. Puckett and M. L. Peterson, "<u>A semi-analytical model for predicting multiple propagating axially symmetric modes in cylindrical waveguides</u>", *Ultrasonics* Vol. 43, 2005, p. 197-207
35. Senthilkumar Ramaswamy, Alan R. Greenberg and Michael L. Peterson, "Non-Invasive Measurement of Membrane Morphology via UFDR: Pore-Size Characterization", *Journal of Membrane Science* Vol. 239, 2004, p. 143-154.
34. Anthony D. Puckett and M. L. Peterson, "Technique for determining the pressure distribution on the face of a contact ultrasonic transducer", *Experimental Techniques* Vol. 26, No. 5, 2003, p 37-39.
33. Raoul Reiser, Jon Watt and M.L. Peterson, "Cycling on Rollers: The Influence of Tire Pressure and Cross Section on Power Requirements", *Sports Biomechanics*, Vol. 2 No. 2, 2003. p. 237-249.
32. Reiser, R. Peterson, M., & Broker, J., "Instrumented Bicycle Pedals for Dynamic Measurement of Propulsive Cycling Loads", *Sports Engineering* Vol. 6, No. 1, 2003, p. 41-48.
31. Anthony D. Puckett, M. L. Peterson, "<u>A time reversal mirror in a solid circular waveguide using a single time reversal element</u>", *Journal of Acoustic Society of*

America, Acoustics Research Letters On-Line, Vol. 4, No. 2, April 2003, p. 31-36

30. Cihat Tascioglu, Barry Goodell, Roberto Lopez-Anido Michael Peterson, William Halteman, and Jody Jellison, “Monitoring Fungal Degradation of E-Glass/Phenolic Fiber Reinforced Polymer (FRP) Composites used in Wood Reinforcement” *International Biodeterioration and Biodegradation* Vol. 51, 2003, p. 157-165.
29. Wang, Z.M., Peterson, M.L. and Grigorenko, Y.M., “Hybrid equilibrium finite elements for wave diffraction problems” *Prikladnaya Mekhanika*, V. 39, No. 2, 2003, p 135-144.
28. Radford, D.W., Fitzhorn, P.A., Senan, A., Peterson, M.L., “Application of Dynamic Mechanical Analysis to the Evaluation of Tire Compounds” *SAE 2002 Transactions – Journal of Passenger Cars: Mechanical Systems*, Society of Automotive Engineers, Warrendale PA, 2002.
27 Bruck, H.A., Evans, J.J. and Peterson, M.L., “The Role of Mechanics in Biological and Biologically Inspired Materials”, *Experimental Mechanics*, Vol. 42, No. 4, December 2002, p. 361-371.
26. Radford, D.W., VanGoethem, D., Gutkowski, R.M., and Peterson, M.L., “Composite Repair of Timber Structures”, *Construction and Building Materials, JCBM* Vol. 16, No. 7, October 2002, p. 417-425.
25. B. Woodward, M.L. Peterson and J. Winn, “Refining Crossbow Deployment Techniques of Suction Cup Attached Tags for Cetacean Field Studies”, *Marine Science Technology Journal* Vol. 36, No. 2, Summer 2002, p. 50-57.
24. Reiser, Raoul F. Peterson, M. L., & Broker, Jefferey P., “Influence of Hip Orientation on Wingate Power Output and Cycling Technique” *Journal of Strength and Conditioning Research* Vol. 16, No. 4, 2002, p. 556-560.
23. M.L. Peterson and K. Dayton, “Experimental Ultrasonic Characterization of Machining Damage from Loose Abrasive Processes”, *Non-Destructive Testing and Evaluation* Vol. 17, 2002, p. 325-340.
22. Z. M. Wang and M. L. Peterson, “Variational Principles for Softening Gradient Dependent Plasticity”, *International Journal of Solids and Structures* Vol. 38, No. 48-49, November 2001, p. 8685-8700.
21. R. M. Gutkowski, A. M. T. Shigidi, T. A. Vihn and M. L. Peterson, “Field Studies of Strengthened Timber Railroad Bridge”, *Transportation Research Record*, No. 1770, 2001, p. 139-148.
20. Raoul Reiser, M. L. Peterson and Jeffrey Broker, “Anaerobic Cycling Power Output with Variation in Recumbent Body Configuration”, *Journal of Applied Biomechanics* Vol. 17, No. 3, 2001, p. 204-216.
19. M. L. Peterson, Brandon D. Jeffrey, R. M. Gutkowski, “Limitations in Size and Type of Detectable Defects in Rail Flaw Inspection”, *Insight, the Journal of the British Institute of Non-Destructive Testing* Vol. 42, No. 5. May 2000, p. 306-311.
18. Raoul Reiser, III, M. L. Peterson and Jeffrey Broker, “Inertial Effects on Mechanically Braked Wingate Power Calculations”, *Medicine and Science in Sports and Exercise* 32(9): 2000, p. 1660-1664
17. Xiaobin Le, and M. L. Peterson, Xiaobin Le, and M. L. Peterson, “Statistical Description of Preston's Coefficient for Loose Abrasive Processes”, *Machining Science and Technology* Vol. 4, No. 1, 2000, p 59-80.
16. Raoul Reiser, M. L. Peterson, C.W. McIlwraith and B. Woodward, “Simulated Effects on Racetrack Material Properties on the Vertical Loading of the Equine Forelimb”,

Sports Engineering Vol. 3 (1), 2000, p. 1-11.

15. Xiaobin Le and M. L. Peterson, "A Method for Fatigue Based Reliability When the Loading of the Component is Unknown", *International Journal of Fatigue*, Vol. 21, 1999, p. 603-610.
14. J. Downs, P. Zhang and M. L. Peterson, "A High-Speed High-Resolution Ultrasonic Inspection Machine", *IEEE/ASME Transactions on Mechatronics* Vol. 4, No. 1, Sept. 1999, p. 301-311.
13. Xiaobin Le and M.L. Peterson, "Material Removal Rate in Flat Lapping", *Journal of Manufacturing Processes*, Vol. 1, No. 1, 1999, p. 71-78.
12. M.L. Peterson, "Prediction of Longitudinal Disturbances in a Multi-Mode Cylindrical Waveguide", *Experimental Mechanics* Vol. 39, No. 1, 1999, p 36-42.
11. M.L. Peterson, S. Srinath, T. Lambert, D. Woodham and M. Schuller, "Wavelet Display of Dispersion in Concrete Using Paul and Morlet Wavelets", *Non-Destructive Testing and Evaluation* Vol. 15, 1999, p. 151-169.
10. Raoul Reiser and M.L. Peterson, "Lower Extremity Power Output in Recumbent Cycling: A Literature Review", *Human Power*, Vol. 13, No. 3, 1999, p. 6-12.
9. M.L. Peterson and R.M. Gutkowski, "Evaluation of the Structural Integrity of Timber Bridge Structures", *NDT&E International* Vol. 32, No. 1, 1999, p. 43.
8. M. L. Peterson, Xiaobin Le and David McKinley, "Monitoring the Material Removal Rate in Flat Lapping", *Journal of Advanced Materials* Vol. 30, No. 4, 1998, p. 41-55.
7. M.L. Peterson, R. M. Gutkowski, S. Srinath and C. Mittlestadt, "A Method for Predicting In-situ Strength of Timber Beams Based on Higher Order Elastic Coefficients", *Forest Products Journal* Vol. 48 No. 10, 1998, p. 89-93.
6. M. L. Peterson, S. Srinath and J. Murphy, "A Waveguide Based Acoustic Microscope", *Ultrasonics* Vol. 36, 1998, p. 855-863.
5. E. N. Landis, S.F. Selleck, M.L. Peterson, S.P. Shah and J.D. Achenbach, "Ultrasonic Investigation of Concrete with Distributed Damage", *ACI Materials Journal* Vol. 95, No. 1, 1998, p. 27-36.
4. M. Peterson, "A Method for Increased Accuracy of the Measurement of Phase Velocity", *Ultrasonics* Vol. 35, No 1, 1997, p. 17-29.
3. M.L. Peterson and M.E. Ellis, "Advanced Visualization for Interpretation of C-Scan Data", *Materials Evaluation* Vol. 55, No. 5, 1997, p. 548-554.
2. B. Beardsley, M. Peterson and J.D. Achenbach, "A Simple Scheme for Self-Focusing of an Array", *Journal of Non-Destructive Evaluation*, Vol 14, No. 4, 1995, p. 169-179.
1. M.L. Peterson, "A Signal Processing Technique for Measurement of Multi-Mode Waveguide Signals: An Application to Monitoring of Reaction Bonding in Silicon Nitride", *Research in Nondestructive Evaluation*, Vol. 5, p. 239-256, 1994

Patents, Books and Chapters in Books:

1. Michael Peterson; Stephen, Scarks; Stefan, Dow; William, *Fuel overflow prevention device*, U.S. patent #7,360,565, issued April 22, 2008
2. Michael L. Peterson, Jr, Anthony DiLeo, Zong Mu Wang, Alan Greenberg, *Ultrasonic Detection of Porous Medium Characteristics*, U.S. Patent #6,959,602, issued Nov. 1, 2005.
3. Michael Leroy Peterson, *Overflow Prevention System and Method Using Laminar to Turbulent Flow Transition*, U.S. Patent # 6,729,367, issued May 4, 2004.

4. M. L. Peterson, “Elastic Properties of Wood and Forest Products”, in *Handbook of Elastic Properties of Solids Liquids and Gasses,* Levy, Bass and Stern editors. *Volume II: Elastic Properties of Solids: Biological and Organic Materials, Earth and Marine Sciences* 2001, Academic Press, New York.

Conference Proceedings (Reviewed):

1. Bridge, J. W., Kiziltas, A., Gardner, D. J., Peterson, M. L., McIlwraith, C.W., “Rheological and Dynamic Strain Rate Studies of Wax-Coated Granular Composites Used in Sports Surfaces”, The Minerals, metals & Materials Society TMS 2011 Annual Meeting, San Diego, California, Feb 28 – Mar 4, 2011.
2. Urbina, R., Bates, P. M., Peterson, M. L., Kimball, R. W., Modeling and Validation of a Cross Flow Turbine using Free Vortex Models and an improved 2D Lift Model, Oral Presentation and Paper at the OCEANS 2010 MTS/IEEE Seattle Conference, Seattle, Washington, USA, September 20th-23rd , 2010. Conference website: http://www.oceans10mtsieeeseattle.org/
3. Bridge, J., Peterson, M, McIlwraith, "Dynamic Strain Rate Response with Changing Temperatures for Wax-Coated Granular Composites", SEM Annual Conf, Indianapolis, IN, June 7-10, 2010
4. Urbina, R., Bates, P. M., Peterson, M. L., Kimball, R. W., The Characterization and Design of High Solidity Cross-Flow Tidal Turbines, Oral Presentation and Poster at the 4th INORE Symposium, Devon, UK, May 9th-14th , 2010. Symposium website: http://www.inore.org/news/fourth_annual_symposium_debrief/
5. Michael “Mick” Peterson, Ph.D., Jeffrey J. Thomason, Ph.D., Becky Woodward, Ph.D., Wayne McIlwraith, BVSc. Ph.D., “Engineering tools to support the development of safer racing surfaces, Proceedings of the International Conference of Racing Analysts and Veterinarians, Queenstown, New Zealand, 7th -13th March 2010
6. Christie A. Mahaffey, Mark Johnson and Michael Peterson, Use of the complex Morlet wavelet transform to characterize dynamic cetacean gaits in locomotion studies, Podium session, 18th Biennial Conference on the Biology of Marine Mammals, Society for Marine Mammalogy, Quebec, Canada, 12-16 October, 2009
7. Michael L. Peterson, Sean K. Todd, J. Kaitlyn Allen, Christie A. Mahaffey, Jessica K. Damon, Jessica L. Hamilton and Robert D. Kenney, Assessing Geographic and Acoustic Mysticete Shipstrike Risk in the Gulf of Maine, Poster, 18th Biennial Conference on the Biology of Marine Mammals, Society for Marine Mammalogy, Quebec, Canada, 12-16 October, 2009
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Reports, Presentations without Proceedings and Paper Summaries

1. Cameron, M., H. Xue, R. Kimball, and M. Peterson, 2010. Wake Measurements for a Cross-Flow Turbine. NortekUSA Technical Symposium in Newport, RI, 17 March 2011.
2. Michael “Mick” Peterson, C. Wayne McIlwriath, “Laboratory Testing for Racing Surfaces”, Invited Talk, 9th annual Racetrack Superintendents’ Meeting, Des Moines, Iowa , June 23-25, 2009
3. Michael “Mick” Peterson, “Racing Surfaces”, Invited Talk, Fifth Racing Congress, Bellagio Resort and Casino, Las Vegas, February 2-6, 2009.
4. Michael “Mick” Peterson, “Safety of the Horse and the Role of Surface Testing”, National HBPA Congress, Invited Talk, Hollywood Florida, Jan. 29-Feb. 3, 2009
5. Michael “Mick” Peterson, “Laboratory and In-Situ Testing for Safety of the Horse”, Presentation to the Board of the Jockey Club, Lexington KY, October 13, 2008
6. Michael Peterson, “Regional Energy and the Needs of Maine”, New England Regional National Society of Professional Engineering, Portland October 2-4, 2008.
7. Michael “Mick” Peterson, Track Maintenance and Testing, Invited Talk, 8th annual Racetrack Superintendents’ Meeting, Lexington Kentucky, June 1-3, 2008
8. Michael “Mick” Peterson, Wellbeing of the Competitive Horse, Invited Talk to the Kentucky International Equine Summit, Lexington, Kentucky April 28-29, 2008
9. Michael “Mick” Peterson, Track Surfaces Research, Jockey Club Welfare and Safety of the Racehorse Summit, Lexington, Ky., March 17 and 18, 2008.
10. Michael “Mick” Peterson, “In-Situ Characterization of Horse Racing Surfaces”, Invited talk, UMBC Seminar Series, October 30, 2007,
11. Michael “Mick” Peterson, “Race Track Surface Safety”, Invited talk to RCI Annual Convention, for Racing Commissioners International, April 23-27, 2007 Jackson Hole Wyoming
12. Lin Lin, Michael "Mick" Peterson, Alan Greenberg, "Critical frequency measurement of slow wave in porous materials" ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2006 Chicago Illinois
13. Mick Peterson, Racetrack Surface Research, Invited Talk to the The Welfare and Safety of the Racehorse Summit, Keeneland Sales Pavilion, Lexington, Kentucky, October 16-17, 2006
14. M.L. Peterson, “Dynamic Response of Racing Surfaces using Biomechanics and Material Characterization” invited talk, AQHA Racing Committee, Research Update, March 3-7, 2006, Seattle Washington.
15. M.L. Peterson, “Characterization of the Response of Racing Surfaces with Ground Penetrating Radar” invited talk, Racetrack Superintendent’s Field Day, August 7-9, 2005, Del Mar California.
16. M.L. Peterson, Raoul Reiser, C. Wayne McIlwriath and Rob Gillette, invited talk American Quarter Horse Association Racing Committee, “Race Track Surface Characterization”, November 5, 2004, Houston Texas
17. M.L. Peterson, Raoul Reiser, C. Wayne McIlwriath and Rob Gillette, “Measuring Track Surface Resistance” invited talk 3’rd Annual Greyhound Safety and Racing Surface Seminar, September 13-14, 2004, La Marque Texas.

18. M.L. Peterson, Raoul Reiser, C. Wayne McIlwriath, Dennis Moore and Steve Wood, “Characterization of the Biomechanical Response of Racing Surfaces” invited talk, Racetrack Superintendent’s Field Day, June 14-16, 2004, Houston Texas.
19. M.L. Peterson, “Race Track Surface Testing”, invited talk at the 30’th Annual Symposium on Racing, University of Arizona, Race Track Industry Program Tuesday December 2003, Tucson AZ, http://ag.arizona.edu/rtip/Symposium/2003
20. M. Peterson, Application of Thermo-Acoustic Analysis for the Evaluation of Composite Materials, presented at the 2003 ASME International Mechanical Engineering Congress, November 15-21, 2003, Washington D.C.
21. J. Winn, E. Nagy, M.L. Peterson, E.N. Landis, W.G. Davids, "The Mechanics of Seismonastic Movements in Sensitive Mimosa (Mimosa Pudica)" presented at the Mechanics of Biological and Biologically Inspired Materials and Systems Meeting of the Society for Experimental Mechanics, held in Springfield, Massachusetts on October 2-3, 2003
22. Jianxin Li, Michael Peterson, Siri Nelson, Mark Hernandez and Alan R. Greenberg, “Real-Time Detection and Quantification of Biological Polymers Immobilized on Water-Treatment Membranes Using Ultrasonic Time-Domain Reflectometry”, North American Membrane Society Meeting, Jackson Hole, WY May 19-21, 2003
23. M.L. Peterson, “Composite Quality Control for Maine Boat Builders”, MaineTech 2003, Augusta Maine, May 20, 2003.
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26. S. Bunker and M.L. Peterson, “High Temperature Sensing of the Oxidation of Carbon-Carbon Composites Using Multi-Mode Waveguides”, presented at ASME International Mechanical Engineering Congress and Exposition, , New Orleans Louisiana, November 17-22, 2002
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28. M.L. Peterson and Z. Wang, “Elastic Plate Waves in High Porosity Materials”, 145’th US National Congress of Theoretical and Applied Mechanics, held June 23-28, 2002 in Blacksburg VA
29. Anthony Puckett and M. L. Peterson, “An Analytical Application of a Time Reversal Mirror in a Sensor with Solid Cylindrical Waveguides” 138th Meeting of the Acoustical Society of America, Pittsburg PA, June 4-7, 2002
30. M.L. Peterson, Miao Sun and Anthony Puckett, “ Material Symmetry in Natural and Man-Made Materials”, SEM Annual Conference and Exposition, Milwaukee WI, June 10-12, 2002
31. R. Laverty and M.L. Peterson “Dispersion Curve Modeling of Small Diameter Timber for Evaluation of the Percentage of Juvenile Wood”, SEM Annual Conference and Exposition, Milwaukee WI, June 10-12, 2002

32. M. L. Peterson “Tire Casing Reliability” Presented at the Technical Lecture series at Goodyear R&D Arkon Ohio, April 26, 2002
33. Peterson, M.L., Kainz, J.A. and Laverty, R.R., “Analytical Waveform Inspection; Its Use in Characterization of Small Diameter Timber” presented at Forest Products Society 55th Annual Meeting held June 24-27, 2001, at the Wyndham Baltimore Inner Harbor Hotel, Baltimore, Maryland
34. Peterson, M.L., Panel Member, “A Panel Discussion on Nondestructive Evaluation Needs for Advanced Engineered Wood Composites”, Moderator: James Kainz, Applied Research Associates, *2’nd International Conference, Advanced Engineered Wood Composites*, Bethel Maine, August 14-16, 2001
35. Michael L. Peterson, and L. Thompson, "Dynamic and Static Characterization of Composites Produced in Commercial Manufacturing Processes" Office of Naval Research, ONR334 , Composites for Marine Structures, University of Maryland Inn and Conference Center College Park, MD, 7-9 May, 2001
36. M.L. Peterson, Rich Laverty and Anthony Puckett, “Characterization of Transversely Isotropic Waveguides as a High Temperature Sensor” *2000 International Mechanical Engineering Congress and Exposition*, American Society of Mechanical Engineers, Orlando Florida, November 5-10, 2000.
37. Burleigh, J., Thompson, M., James, S., McIntosh, K., Peterson, M., Hubbeling, C. & Boardman, T. “Binaural Asynchronies: Characterization and Optimization for Enhanced Human Performance in Individuals with Central Auditory Nervous System Dysfunction”, Colorado Alliance for Bioengineering (CAB) Day at Fitzsimons, Poster Session, Aurora, CO., Dec. 6, 2000.
38. Burleigh, J., Thompson, M., James, S., Peterson, M., McIntosh, K. & Boardman, T.(2000). Accommodation of Interaural Timing Differences in Central Auditory Processing Disorders. American Speech-Language-Hearing Association Annual Convention, Technical Platform Session presentation, Washington, D.C., November 16, 2000.
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41. Jeffrey, Brandon and M.L. Peterson, “Assessment of Rail Flaw Inspection Data”, Mountain Plains Consortium Report No. 99-106, August 1999.
42. M.L. Peterson, C. Chiou and R.M. Gutkowski, “A Simple Analysis of the Effect of Construction Materials on Bridge Impact Factors”, Mountain Plains Consortium Report No. 99-105, June 1999.
43. M. L. Peterson, R. Laverty, Ron Wolfe, Joe Murphy, Analytical Waveform Inspection of Small Diameter Timber, presentation for the *Civil Engineering Mechanics Seminar Series*, November 19, 1999, Massachusetts Institute of Technology.
44. Burleigh, J., Thompson, M., James, S., Peterson, M., Boardman, T., & McIntosh, K., “Interaural Time Differences and Central Auditory Nervous System Function”, Paper presented at the meeting of the American Speech-Language-Hearing Association

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45. Burleigh, J., Hubbeling, C., James, S., Thompson, M., Boardman, T., Peterson, M., & McIntosh, K., “The Relationship Between Interaural Time Differences and Gait”, Paper presented at the meeting of the American Speech-Language-Hearing Association Convention, San Francisco, CA., November 18-21, 1999.
46. Richard M. Gutkowski, Michael Peterson, Geoffrey C. Robinson, Shakoor Uppal, Diana Oliva-Mall and Duane Otter, “Field Studies of Timber Railroad Bridges”, AAR Research Report R-933, Association of American Railroads, Transportation Technology Center Inc. Pueblo CO. August 1999
47. M.L. Peterson, S. Srinath T. Lambert, Wavelet Decomposition for Characterization of Dispersion, 1997 Joint ASME, ASCE, SES Summer Meeting, June 29-July 2, 1997, Evanston, p. 23.
48. M. L. Peterson, Analytical Waveform Inspection of Small Diameter Timber, *Advanced Engineered Wood Composites Seminar Series*, University of Maine, Nov. 13, 1998.
49. Timber Structures in Railroad Systems - Reliability and Testing - presented at Universidad Panamericana sede Guadalajara and Universidad Panamericana sede Mexico City on August 16 and 20, 1996.
50. High-Speed High-Resolution Ultrasonic Inspection System for Characterization of Damage in Rubber Composites, J. Downs and M.L. Peterson, Eighth International Symposium on Nondestructive Characterization of Materials, Boulder, Colorado, June 15-20, 1997
51. High-Speed, High-Resolution Ultrasonic Inspection for Rubber-Steel Composite Material, J. Downs III and M.L. Peterson, presented at the SPIE Conference on NDE of Materials and Composites, Scottsdale AZ, Dec. 2-5 1996.
52. Speaker Detection for Multi-Participant Video Conferencing Applications, M. Azimi and M. Peterson poster presented at the NSF Optical Computing Systems Center Industry Conference, Boulder CO, Nov. 12, 1996.
53. Evaluation of the Impact of Dispersion on the Phase Velocity in Damaged Concrete, S. Srinath, T. Lambert, M.L. Peterson, M. Schuller and D. Woodham, presented at 3’rd Conference Non-Destructive Evaluation of Civil Structures and Materials, Sept. 1996.
54. Enhancing the Resolution of an Ultrasonic Transducer by Deconvolution of the Point Spread Function, J. Downs III and M.L. Peterson, presented at 1996 ASNT Research Conference and Fifth Annual Research Symposium, March 18-22 1996 Norfolk Virginia.
55. Structural Integrity of Timber Bridge Structures, M.L. Peterson, J. Downs III and R., M. Gutkowski presented at 1996 ASNT Research Conference and Fifth Annual Research Symposium, March 18-22 1996 Norfolk Virginia.
56. Advanced Visualization and Automated Flaw Detection for Truck Tire Casing Inspection, M. Ellis and M.L. Peterson presented at 1996 ASNT Research Conference and Fifth Annual Research Symposium, March 18-22 1996 Norfolk Virginia
57. Ultrasonic Testing of Truck Tires, BANDAG Second Year Progress Report, R. Rogers, M. Peterson and J.D. Achenbach, progress report submitted for evaluation of second year of work on Northwestern University NDE project. Sept. 1992.
58. Ultrasonic Testing of Truck Tires, BANDAG First Year Progress Report, R. Rogers, M. Peterson and J.D. Achenbach, progress report submitted for evaluation of the first year of work on Northwestern University NDE project. July, 1991.
59. Development of Models of 5M10,000 Compression Mounts, Michael L. Peterson and

Kamal W. Matta, Electric Boat Division, Nuclear Engineering Analysis 471, Technical Note NEA #11801, August 1988, (Confidential Security Classification Report).

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Selected Press Coverage of Research

- Bob Fortus, The Times-Picayune, New Orleans, Fair Grounds racing surface, track superintendent getting good reviews, December 18, 2009, http://www.nola.com/horseracing/index.ssf/2009/12/bob_fortus_fair_grounds_racing.html
- Jeffrey McMurray, Associated Press, "Robotic hoof aides in track **conditioning"** Daily Racing News, http://www.dailyracingnews.com/horseracingnews.aspx?id=33564
- T.D. Thornton, Globe Correspondent, For horses' safety, he thinks outside the hocks, http://www.boston.com/sports/other_sports/horse_racing/articles/2009/04/29/for_horses_safety_he_thinks_outside_the_hocks/, April 29, 2009
- John Matson, "After tragedy in last year's Kentucky Derby, is horse racing safer?," http://www.scientificamerican.com/blog/60-second-science/post.cfm?id=after-tragedy-in-last-years-kentuck-2009-05-01, in 60-Second Science Blog
- T.D. Thornton, "Cutting Through the Safety Jargon" The Race for the Triple Crown, New York Times, April 29, 2009, http://therail.blogs.nytimes.com/2009/04/29/cutting-through-the-safety-jargon/?pagemode=print
- Shayla Reaves, World's Top Researcher Tests Churchill Downs Track, http://www.wave3.com/Global/story.asp?S=10209967, *Posted: Apr 19, 2009 5:47 PM EDT Updated: Apr 20, 2009 10:59 AM EDT* ,
- Andrew Wolfson, Courier-Journal, Louisville Kentucky, Horse deaths drop on synthetic tracks, August 18, 2008, http://www.courier-journal.com/article/20080818/EXTRAS03/808180406/Horse-deaths-drop-on-synthetic-tracks
- Statement of Dr. Wayne McIlwraith before the Subcommittee of Commerce, Trade and Consumer Protection, Committee on Energy and Commerce Hearings on "Breeding, Drugs and Breakdowns: The State of Thoroughbred Horseracing and the Welfare of the Thoroughbred Racehorse", June 19, 2008

- http://www.bloodhorse.com/article/45553/daily-track-surface-reports-called-key.htm
- “Mick Peterson: Track Star” The Blood Horse, December 8, 2007, p. 7002
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- “UMaine Professor Reveals Racetrack Defects”, The Associated Press May 28 2007, as published in Thehorse.com Article # 9697
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- “Ghost of Barbaro Looms over Derby Week”, by Tom Goldman, Morning Edition, May 2, 2007, National Public Radio
- “Arlington Polytrack nears completion”, By Marcus Hersh, Daily Racing Form, April 18, 2007,
- House Energy and Commerce Committee Subcommittee on Oversight and Investigations Hearing: “Thoroughbred Horse Racing Jockeys and Workers: Examining On-Track Injury Insurance and Other Health and Welfare Issues” November 17, 2005 Testimony of Craig R. Fravel, Executive Vice President, Del Mar Thoroughbred Club
- How veterinary science, synthetic soils and robotics are changing thoroughbred racing, By Suzanne Clancy, San Diego Union-Tribune. September 7, 2005
- “Horse Racing; Barbaro's Injury Gives Synthetic Surface Urgency” October 8, 2006, Sunday New York Times, By Joe Drape (NYT); Sports Desk, Late Edition - Final, Section 8, Page 9, Column 3, 1194 words
- Arlington Park ruled safe: In good shape thanks to mix of pine bark, Chicago Sun-Times, Aug 11, 2006 by Chris Fusco
- Engineers developing sensors to detect carbon-carbon composite degradation. By Veazey, M V , Materials Performance. Vol. 42, no. 6, pp. 68-69. June 2003
- It's not rocket science — or is it? Nature Materials 2, 349 - 349 (01 Jun 2003)

Funded Research Projects

1. Maine Tidal Power Initiative, Year 2, Michael Peterson (PI), Huijie Xue, Richard Kimball, Gayle Zydlewski, Teresa Johns, Department of Energy, FY10, $1,000,000
2. Advanced Water Power Technology Development Subtopic c. Wave and Current Energy Technologies, SBIR Phase II to Ocean Renewable Power Company, September 1, 2010 to September 1, 2011. PI Jarlath McEntee, Department of Energy, UMaine subcontract ~$200,000
3. "Maine Tidal Power Initiative", Michael Peterson (PI), Huijie Xue, Richard Kimball, Gayle Zydlewski, Department of Energy, FY09, The objective of this work is to demonstrate the development of test protocols for characterization of tidal energy test sites. 5 ½ month commitment, 1 month funding, $951,000
4. Advanced Water Power Technology Development Subtopic c. Wave and Current Energy Technologies, SBIR Phase I to Ocean Renewable Power Company, January 1, 2010 to July 1, 2010. PI Jarlath McEntee, Department of Energy, UMaine subcontract $60,000
5. "Development of test codes and test of cross-flow turbine for electricity generation" Michael Peterson, PI, Ocean Renewable Power Company, $100,000+, 1/1/08-present
6. Incidence of nonfatal injuries in racing Thoroughbreds. Grayson Jockey Club Research Foundation, C. Wayne McIlwraith, PI, $44,397, 5/1/09-5/1/10
7. "The Performance Parameters for Engineering Track Management", Grayson-Jockey Club Research Foundation, C. Wayne McIlwarith, PI, $43,838, 6/1/08-6/1/09
8. US Army Center of Excellence in Advanced Materials and Structures for Force Protection, Focus Area (2) Test Methods, Habib Dagher, PI, DOD, $711,160, 7/1/05 – 7/1/07
9. Development of a Towed Telemetry Tag for Tracking Movements of Right Whales, Becky Woodward PI, US Dept. Commerce, $151,483, 9/1/04 – 9/1/05
10. New England Wood Utilization Research, Advanced Carbon Composites using Wood Precursors, Barry Goodell PI, $44,161, 9/1/04 – 9/1/06
11. Non-Linear Non-Destructive Testing of Sandwich Composites, Single PI, NASA, 4/1/03-4/1/05, $120,000, 4/1/03 – 4/1/06
12. Structural Control of Cellular Solids, Co-PI, Eric Lanis PI, NASA from DARPA, $100,000
13. Development of a Whale Tail Lasso, with Becky Woodward, 9-1-03 to 9-1-04, NOAA, $10,250.
14. Characterization of Microporous Membranes with Applications to Filter Cartridges, Single PI, Millipore Corp., 1-1-02 to 1-1-03, $100,222
15. Gas Tank Overflow Prevention Device, Benric Technologies, 1-1-02 to 1-103, $8000
16. Modular Advanced Composite Hull Form Technology, Co-PI with Vince Cacesse as PI, Office of Naval Research, 7/1/01 to 6/30/02, $2,247,634
17. Development of Cetecean Biomechanics Facilities, Single PI, Maine Science and Technology Foundation, 7/1/00 to 6-30-02, $53,000
18. Measurement of Anisotropic Elastic Constitutive Properties at High Temperatures, PI with V. Cacesse as Co-PI, Ballistic Missile Defense Organization, 4-1-00 to 4-1-03, $458,707
19. Characterization of Material Properties in Regions of UT Indications, Single PI, BANDAG Inc., Muscatine, Iowa, 7-1-00 to 7-1-01, $46,198

20. Proof-of-Concept Study: Application of Ultrasonics for Defect Detection in Microporous Membrane Filter Cartridges, Single PI, Millipore Corp., 4-1-00 to 4-1-01, $68,514
21. Advanced Hull Forms In-Shore Demonstrator Program, Co-PI with Vince Cacesse as PI, Office of Naval Research, 6/1/00 to 7/15/01, $871,000
22. Characterization of the Dynamic Response of Thick Composite Structures, PI taking over from R. Messier as PI, Office of Naval Research, 4-1-96 to 4-1-00, $228,486
23. Slip, Trip and Fall Injuries in Construction and Transportation, Single PI, NIH/NIOSH, 2-1-00 to 2-1-02, $67,775
24. Wave Propagation in Small Diameter Round Timbers. Single PI, USDA Forest Products Laboratory, Co-operative Research Agreement, 6-1-99 to 6-1-01, $20,005
25. Navy Composites 2, Co-PI, with H. Dagher, PI, 6/1/00-6/1/02, Office of Naval Research, $1,000,000
26. Design Fabrication and Testing of a Pod/Strut for the Advanced Hull Forms Inshore Demonstrator Program, Co-PI, with V. Caccese PI, 6/1/00 – 7/15/01. Office of Naval Research/Bath Iron Works, $871,000
27. Determination of Mechanical Properties of Composites at Very High Temperatures, Co-PI, with V. Caccese PI, 9-1-99 – 9-1-00, Applied Thermal Sciences, $100,000
28. Characterization of Multiple Size Tire Casings, Single PI, Bandag Inc., 5-30-98 – 7-1-00, $49,882
29. Graduate Fellowships in Mechanical Engineering, Co- PI, S. James PI CSU Mech. Eng. 3 other Co-PI’s , U.S. Department of Education, Graduate Assistantships in Areas of National Need, 9-1-97 to 9-1-01, $494,019
30. Acquisition and Development of Equipment for Orthopedic Research, Co- PI, S. James PI CSU Mech. Eng. and 4 Co-PI’s in Vet. Med. 9-1-95 to 8-30-98, $270,732
31. Research Experiences for Undergraduates in Mechanical Engineering at Colorado State, Co-PI, S. James PI, CSU Mechanical Engineering, National Science Foundation 2-1-96 – 1-31-99, $127,748
32. System for Non-Destructive Testing of Tire Sidewalls, PI, Sub-Contract Eta-Sys Corp, 5-06-97 to 11-06-97, $68,657
33. Process Evaluation of Contour Lapping, Single PI, Storage Technology Corp. 6-1-96 to 8-15-97 $86,236
34. Acoustic Sensors for Range and Motion Detection. CO-PI with Mahmood Azimi CSU Elec.Eng., NSF Center for Opto-Electronic Computing, 9-15-96 to 9-14-97, $40,000
35. Dynamic Load Impact Factors for Design of Low Volume Bridges, Single PI, MPC - USDOT, 7-1-96 to 6-30-97 $9,000
36. Full Scale Laboratory Testing of a Timber Trestle Railroad Bridge, Co-PI with PI R. M. Gutkowski, Civil Eng., MPC - USDOT, 7-1-96 to 6-30-97 $34,707
37. Meyer Burger Machine Upgrade, Single PI, Storage Technology Corp. 2-1-96 to 5-30-97 $27,546
38. Fabrication of Ultrasonic Scanner for Bandag, Single PI, Bandag Inc. 2-1-96 to 1-31-97 $44,508
39. Acoustic Emission Monitoring for Non-Destructive Load Rating of Bridges, PI with Co-PI R. M. Gutkowski, Civil Eng., MPC - USDOT, 7-1-96 to 6-30-97 $21,896