
MICHAEL P. WOLCOTT

Professor of Civil and Environmental Engineering
Louisiana-Pacific Distinguished Professor of Wood Materials and Engineering
Department of Civil and Environmental Engineering
Washington State University
Pullman, WA 99164

EDUCATION

Ph.D. Materials Engineering Science August 1989
Virginia Polytechnic Institute & State University, Blacksburg, VA

M.S. Forestry August 1985
University of Maine at Orono, Orono, ME

B.S. Wood Science December 1982
University of Maine at Orono, Orono, ME

PROFESSIONAL WORK EXPERIENCE

Director August 2008 to present
Washington State University, Institute for Sustainable Design
Pullman, WA

Professor of Civil and Environmental Engineering August 2004 to present
Washington State University, Dept. of Civil and Environmental Engineering
Pullman, WA

Associate Professor of Civil and Environmental Engineering Jan. 1996 to August 2004
Washington State University, Dept. of Civil and Environmental Engineering
Pullman, WA

Research Director Oct. 1998 to present
Washington State University, Wood Materials and Eng. Laboratory
Pullman, WA

Affiliate Faculty Dec. 2000 to present
Washington State University, School of Mechanical and Materials Eng.
Pullman, WA

Member Faculty Jan. 2001 to present
Washington State University, Materials Science Program
Pullman, WA

Interim Director Jan. 1997 to June 1997
Washington State University, Wood Materials and Eng. Laboratory
Pullman, WA

Associate Professor of Wood Science July 1995 to Jan. 1996
West Virginia University, Division of Forestry, Morgantown, WV

Assistant Professor of Wood Science July 1989 to July 1995
West Virginia University, Division of Forestry, Morgantown, WV

HONORS

Career Achievement Award, 2009, College of Natural Resources (Alumnus), Virginia Tech, Blacksburg, VA

Outstanding Teaching Faculty, 2007, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA.

Anjan Bose Outstanding Researcher Award, 2005, College of Engineering and Architecture, Washington State University, Pullman, WA.

Outstanding Research Faculty, 2004, College of Engineering and Architecture, Washington State University, Pullman, WA.

Outstanding Research Faculty, 2004/2005, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA.

Distinguished Alumnus, 2002, College of Agriculture and Forestry, University of Maine, Orono, ME.

Louisiana-Pacific Professorship of Wood Materials and Engineering, Endowed professorship for research in wood materials and engineering. Washington State University, 1998 to present.

Adjunct Professor, 1996, College of Wood Science, Nanjing Forestry University, Nanjing, China.

George Marra Award, 1995, Society of Wood Science and Technology (1st place, two awards annually for excellence in research).

Cahn Award, 1992, Cahn Instruments (awarded annually for research in dynamic contact angle analysis).

George Marra Award, 1991, Society of Wood Science and Technology (1st place, two awards annually for excellence in research).

Wood Award, 1990, Forest Products Research Society (2nd place, two awards annually for outstanding graduate student research).

PATENTS

Dostal, D.F. and **M.P. Wolcott**. 2008. Low-density cellular wood plastic composite and process for formation. U.S. Patent No. 7,431,872. Washington, DC: U.S. Patent and Trademark Office.

Dostal, D.F. and **M.P. Wolcott**. 2007. Low-density cellular wood plastic composite and process for formation. Australia Patent Application No.2002259018. Brisbane, Australia. (accepted).

Dostal, D.F. and **M.P. Wolcott**. 2006. Low-density cellular wood plastic composite and process for formation. NZ Patent No.529062. Intellectual Property Office of New Zealand, Ministry of Economic Development, Lower Hutt, NZ.

Altheimer, E. and **M.P. Wolcott**. 2004. Method for forming an Arundo donax paper product. U.S. Patent No. 6,761,798 B2. Washington, DC: U.S. Patent and Trademark Office.

Whipkey, C.R., P.L. Bloomer, K. Wright and **M.P. Wolcott**. 1997. Portable bridge system. U.S. Patent No. 5,603,134. Washington, DC: U.S. Patent and Trademark Office.

KEYNOTE, FEATURED, AND INTERNATIONAL LECTURES *(total of 12)*

- Wolcott, M.P.** 2008. Natural Fiber Thermoplastic Composites: The State of the Future. *Keynote Speaker*. 9th Pacific Rim Bio-Based Composites Symposium, Rotorua, New Zealand, November 5-8.
- Wolcott, M.P.** 2008. The Role of Wood in Sustainable Building Standards. *Featured Speaker*. Life Cycle Workshop of the 9th Pacific Rim Bio-Based Composites Symposium, Rotorua, New Zealand, November 5-8.
- Wolcott, M.P.** 2008. Strategies for Tomorrow: Re-engineering for a Sustainable Built Environment. *Featured Lecture*. WSU Innovators Lecture Series, Seattle, WA, October 9.
- Wolcott, M.P.** 2007. Developing a nanotechnology program for the US forest products industry. *Industry Sector Keynote Presentation*. NanoQuebec. Montreal, Canada. February 7.
- Wolcott, M.P.** and P.M. Smith. 2005. Wood-plastic composites in emerging products and markets. *Featured Closing Presentation*. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Wolcott, M.P.** 2004. Opportunities and challenges for woodfibre-plastic composites in structural applications. *Keynote Presentation*. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 10-11.
- Wolcott, M.P.** 2003. Production methods and platforms for wood plastics. *Featured Speaker*. Non-Wood Substitutes for Solid Wood Products Conference, Melbourne, Australia, October 20-22.
- Wolcott, M.P.** 2002. Polymer platforms for the next generation of wood composites. *Keynote Presentation*. The 6th Pacific Rim Bio-Based Composites Symposium & Workshop on the Chemical Modification of Cellulosics, Portland, OR.
- Wolcott, M.P.** 2001. Wood-plastic composite technologies. *Featured Speaker*. Forest Industries Engineering Association (FIEA) Conference, Nelson, New Zealand.
- Wolcott, M.P.** 2001. Wood-plastic composite technologies. University of Auckland; Carter Holt Harvey National Headquarters, and Fletcher Challenge National Headquarters (New Zealand's two largest forest products firms) in Auckland, NZ; Forest Research Institute, Rotorua, NZ.
- Wolcott, M.P.** 2000. Development of wood-plastic composites in North America. *Featured Plenary Presentation and Discussion*. Ibero-American Forest Products Conference. Univ. of Bio-Bio, Concepcion, Chile.
- Wolcott, M.P.** 1996. Current consolidation theories for wood strand composites. *Invited Lecturer*, Nanjing University. Nanjing, China.

REFEREED JOURNAL ARTICLES^{*}, ^{**}, ^{***} (total of 70 with 586 citations)

- Migneault, S., A. Koubaa, F. Erchiqui, A. Chaala, K.R. Englund, C. Krause, and **M.P. Wolcott**. Effect of Processing Method and Fibre Size on the Microstructure and Properties of Wood-Plastic Composites. Composites Part A. (accepted)
- Schildmeyer, A.J.^{**}, **M.P. Wolcott**, and D.A. Bender. Investigation of the Temperature-Dependent Mechanical Behavior of a Polypropylene-Pine Composite. Journal of Materials in Civil Engineering. (in press)
- Slaughter, A.E.^{**}, **M.P. Wolcott**, and D.I. McLean. Design of a Wood-Plastic Composite Bridge Deck Member. Forest Products Journal. (accepted)
- Wang, J.W.^{**}, M.P.G. Laborie, and **M.P. Wolcott**. Kinetic Analysis of Phenol-formaldehyde Bonded Wood Joints with Dynamical Mechanical Analysis. Thermochemica Acta. (accepted)
- Yang, H.S.^{***}, P. Qiao, and **M.P. Wolcott**. Flexural Fatigue and Reliability Analysis of Wood Flour/High-Density Polyethylene Composites. Journal of Reinforced Plastics and Composites. (accepted).
- Yang, H.S.^{***}, P. Qiao, and **M.P. Wolcott**. Fatigue Characterization and Reliability Analysis of Wood Flour Filled Polypropylene Composites. Polymer Composites. (accepted)
- Harper, D.P.^{**}, **M.P. Wolcott**, and M.P.G. Laborie. 2009. The Impact of Polypropylene-graft-Maleic Anhydride on the Crystallization and Dynamic Mechanical Properties of Isotactic Polypropylene. Journal of Applied Polymer Science. 111(2):753-758.
- Coats, E.R.^{**}, F.J. Loge, **M.P. Wolcott**, K. Englund, and A.G. McDonald. 2008. Production of natural fiber reinforced thermoplastic composites through the use of polyhydroxybutyrate-rich biomass. Bioresource Technology. (99)7:2680-2686.
- Fabiyi, J.S.^{**}, A.G. McDonald, **M.P. Wolcott**, and P.R. Griffiths. 2008. Wood Plastic Composites Weathering: Visual Appearance and Chemical Changes. Polymer Degradation and Stability. 93(8):1405-1414.
- Jiang, L.^{***}, E. Morelius^{*}, J. Zhang, **M. Wolcott**, and J. Holbery. 2008. Study of the Poly(3-hydroxybutyrate-co-3-hydroxyvalerate)/Cellulose Nanowhisker Composites Prepared by Solution Casting and Melt Processing. Journal of Composite Materials. 42(24):2629-2645.
- Jiang, L.^{***}, J. Huang, J. Qian, F. Chen, J. Zhang, **M.P. Wolcott** and Y. Zhu. 2008. Study of Poly(3-hydroxybutyrate-Co-3-hydroxyvalerate) (PHBV) / Bamboo Pulp Fiber Composites: Effects of Nucleation Agent and Compatibilizer. Journal of Polymers and the Environment. 16:83-93.
- Migneault, S., A. Koubaa, F. Erchiqui, A. Chaala, K. Englund, C. Krause, and **M. Wolcott**. 2008. Effect of Fiber Length on Processing and Properties of Extruded Wood-Fiber/ HDPE Composites. Journal of Applied Polymer Science. 110(2):1085-1092.
- Chowdhury, M.J.A.^{***} and **M.P. Wolcott**. 2007. Compatibilizer selection to improve mechanical and moisture properties of extruded wood-HDPE composites. Forest Products Journal. 57(9):46-53.

* Undergraduate Student

** Graduate Student

*** Post-doctoral Researcher

- Coats, E.R.** , F.J. Loge, **M.P. Wolcott**, K. Englund, and A.G. McDonald. 2007. Synthesis of polyhydroxyalkanoates in municipal wastewater treatment. *Water Environment Research*. 79(12):2396-2403.
- Coats, E.R.** , F.J. Loge, W.A. Smith, D.N. Thompson, and **M.P. Wolcott**. 2007. Functional stability of a mixed microbial consortium producing PHA from waste carbon sources. *Applied Biochemistry and Biotechnology*. 137:909-925.
- Jiang, L.***, J. Zhang, and **M.P. Wolcott**. 2007. Comparison of polylactide/nano-sized calcium carbonate and polylactide/montmorillonite composites: reinforcing effects and toughening mechanisms. *Polymer*. 48(26):7632-7644.
- Jiang, L.***, **M.P. Wolcott**, J. Zhang, and K. Englund. 2007. Flexural properties of surface reinforced wood/plastic deck board. *Polymer Engineering and Science*. 47(3):281-288.
- Wang, J.W.** , M.P.G. Laborie and **M.P. Wolcott**. 2007. Comparison of model-fitting kinetics for predicting the cure behavior of commercial phenol-formaldehyde resins. *Journal of Applied Polymer Science*. 105(3):1289-1296.
- Wang, J.W.** , M.P.G. Laborie, and **M.P. Wolcott**. 2007. Application of beam mechanics to sensing the cure development of wood-phenolic joints by dynamic mechanical analysis. *Thermochimica acta*. 465(1-2):18-24.
- Yadama, V.** , **M.P. Wolcott**, and D.G. Pollock. 2007. Out-of-plane strand deviation in oriented strand composites. *Wood and Fiber Science*. 39(4):603-613.
- Yang, H.S.***, **M.P. Wolcott**, H.S. Kim, S. Kim, and H.J. Kim. 2007. Effect of different compatibilizing agents on the mechanical properties of lignocellulosic material filled polyethylene bio-composites. *Composite Structures*. 79(3):369-375.
- Harper, D.P.** and **M.P. Wolcott**. 2006. Chemical imaging of wood-polypropylene composites. *Applied Spectroscopy*. 60(8):898-905.
- Jiang, L.***, **M.P. Wolcott**, and J. Zhang. 2006. Study of biodegradable polylactide/poly(butylene adipate-co-terephthalate) blends. *Biomacromolecules*. 7(1):199-207.
- Li, T.Q.*** and **M.P. Wolcott**. 2006. Rheology of wood plastics melt: 2. Effects of lubricating systems in HDPE/maple composites. *Polymer Engineering and Science*. 46(4):464-473.
- Li, T.Q.*** and **M.P. Wolcott**. 2006. Rheology of wood plastics melt: 3. Non linear nature of the flow. *Polymer Engineering and Science*. 46(1):114-121.
- Schirp, A.***, F.J. Loge, K.R. Englund, **M.P. Wolcott**, J.R. Hess, T.P. Houghton, J.A. Lacey, and D.N. Thompson. 2006. Pilot-scale production and material properties of extruded straw-plastic composites based on untreated and fungal-treated wheat straw. *Forest Products Journal*. 56(10):90-96.
- Schirp, A.***, F. Loge, S. Aust, P. Swaner*, G. Turner, and **M.P. Wolcott**. 2006. Production and characterization of natural fiber reinforced thermoplastic composites using wheat straw modified with the fungus *Pleurotus ostreatus*. *Journal of Applied Polymer Science*. 102(6):5191-5201.
- Schirp, A.*** and **M.P. Wolcott**. 2006. Fungal degradation of wood-plastic composites and evaluation using dynamic mechanical analysis. *Journal of Applied Polymer Science*. 99(6):3138-3146.

- Smith, P.M. and **M.P. Wolcott**. 2006. Opportunities for wood/natural fiber-plastic composites in residential and industrial applications. Forest Products Journal. 56(3):4-11.
- Yadama, V.** , **M.P. Wolcott**, and L.V. Smith. 2006. Elastic properties of wood-strand composites with undulating strands. Composites Part A. Applied Science and Manufacturing. 37(3):385-392.
- Yadama, V.** and **M.P. Wolcott**. 2006. Elastic properties of hot-pressed aspen strands. Wood and Fiber Science. 38(4):742-750.
- Yang, H.S.***, **M.P. Wolcott**, H.S. Kim, S. Kim, and H.J. Kim. 2006. Properties of Lignocellulosic Material Filled Polypropylene Bio-Composites Made with Different Manufacturing Processes. Polymer Testing. 25(5):668-676.
- Englund, K.R.** and **M.P. Wolcott**. 2005. Friction of nonwoven wood-polypropylene fiber mats on heated steel platens. Journal of Thermoplastic Composite Materials. 18(2):95-105.
- Li, T.Q.*** and **M.P. Wolcott**. 2005. Rheology of wood plastics melt: Part 1. Capillary rheometry of HDPE filled with maple. Polymer Engineering and Science. 45(4):549-559.
- Schirp, A.*** and **M.P. Wolcott**. 2005. Influence of fungal decay and moisture absorption on mechanical properties of extruded wood-plastic composites. Wood and Fiber Science. 37(4):643-652.
- Wang, J.W.** , M.P.G. Laborie, and **M.P. Wolcott**. 2005. Comparison of model-free kinetic methods for modeling the cure kinetics of commercial phenol-formaldehyde resins. Thermochemica Acta. 439(1-2):68-73.
- Yang, H.S.***, **M.P. Wolcott**, H.S. Kim, and H.J. Kim. 2005. Thermal Properties of Lignocellulosic Filler-Thermoplastic Polymer Bio-Composites. Journal of Thermal Analysis and Calorimetry. 82(1):157-160.
- Englund, K.R.** , **M.P. Wolcott**, and J.C. Hermanson. 2004. The compression of wood/thermoplastic fiber mats during consolidation. Composites Part A. Applied Science and Manufacturing. 35(2):273-279.
- Harper, D.P.** and **M.P. Wolcott**. 2004. Interaction between coupling agent and lubricants in wood-polypropylene composites. Composites Part A. Applied Science and Manufacturing. 35(3):385-394.
- Houghton, T.P., D.N. Thompson, J.R. Hess, J.A. Lacey, **M.P. Wolcott**, A. Schirp***, K. Englund***, D. Dostal, and F. Loge. 2004. Fungal upgrading of wheat straw for straw-thermoplastics production. Applied Biochemistry and Biotechnology. 113:71-93.
- Li, T.Q.*** and **M.P. Wolcott**. 2004. Rheology of HDPE-wood composites I. Steady state shear and extensional flow. Composites Part A. Applied Science and Manufacturing. 35(3):303-311.
- Wang, X.P., R.J. Ross, D.W. Green, B. Brashaw, K. Englund** and **M. Wolcott**. 2004. Stress wave sorting of red maple logs for structural quality. Wood Science and Technology. 37(6):531-537.
- Tucker, B.J.** , D.A. Bender, D.G. Pollock, and **M.P. Wolcott**. 2003. Ultrasonic plate wave evaluation of natural fiber composite panels. Wood and Fiber Science. 35(2):266-281.
- Wolcott, M.P.** and E.L. Shutler**. 2003. Temperature and moisture influence on compression-recovery behavior of wood. Wood and Fiber Science. 35(4):540-551.

- Wolcott, M.P.** 2003. Formulation and process development of flat-pressed wood polyethylene composites. Forest Products Journal. 53(9):25-32.
- Pendleton, D.E., T.A. Hofford, T. Adcock***, B. Woodward, and **M.P. Wolcott.** 2002. Durability of an extruded HDPE/wood composite. Forest Products Journal. 52(6):21-27.
- Peters, J.J**, D.A. Bender, **M.P. Wolcott,** and J.D. Johnson. 2002. Selected properties of hybrid poplar clear wood and composite panels. Forest Products Journal. 52(5):45-54.
- Harper, D.P.**, **M.P. Wolcott,** and T.G. Rials. 2001. Evaluation of cure kinetics of the wood/pMDI bondline. Int. Journal of Adhesion and Adhesives. 21(2):137-144.
- Harper, D. P.**, **M.P. Wolcott,** and T.G. Rials. 2001. Evaluating cure of a pMDI-wood bondline using spectroscopic, calorimetric, and mechanical methods. Journal of Adhesion. 76(1):55-74.
- Rials, T.G., **M.P. Wolcott,** and J. Nassar**. 2001. Interfacial contributions in lignocellulosic fiber reinforced polyurethane composites. Journal of Applied Polymer Science. 80(4):546-555.
- Peyer, S.M., **M.P. Wolcott,** and D.J. Fenoglio. 2000. Reducing moisture swell of densified wood with polycarboxylic acid resin. Wood and Fiber Science. 32(4):520-526.
- Wolcott, M.P.,** S. Yin***, and T.G. Rials. 2000. Using dynamic mechanical spectroscopy to monitor the crystallization of PP/MAPP blends in the presence of wood. Composite Interfaces. 7(1):3-12.
- Davalos, J.F., P. Madabhushi-Raman*, P. Qiao, and **M.P. Wolcott.** 1998. Compliance rate change of tapered DCB specimen with hybrid interface bonds. Theoretical and Applied Fracture Mechanics. 29(2):125-139.
- Rials, T.G. and **M.P. Wolcott.** 1998. Morphology-property relationships in wood fibre-based polyurethanes. Journal of Materials Science Letters. 17(4):317-319.
- Wolcott, M.P.,** R.J. Tichy, H. Yukun, and Z.D. Guo. 1997. The development of OSB in the People's Republic of China. Forest Products Journal. 47(1):19-25.
- Lang, E.*** and **M.P. Wolcott.** 1996. A model for viscoelastic consolidation of wood-strand mats Part II: Static stress-strain behavior of the mat. Wood and Fiber Science. 28(3):369-379.
- Lang, E.*** and **M.P. Wolcott.** 1996. A model for viscoelastic consolidation of wood-strand mats Part I: Structural characterization of the mat via Mote Carlo simulation. Wood and Fiber Science. 28(1):100-109.
- Liu, F.P.**, D.J. Gardner, and **M.P. Wolcott.** 1995. A model for the description of polymer surface dynamic behavior 1: Contact angle vs. polymer surface treatments. Langmuir. 11(7):2674-2681.
- Wolcott, M.P.** and T.G. Rials. 1995. In-situ cure monitoring of isocyanate adhesives using micro-dielectric analysis. Forest Products Journal. 45(2):72-77.
- Gunnells, D.W.**, D.J. Gardner, and **M.P. Wolcott.** 1994. Temperature dependence of wood surface energy. Wood and Fiber Science. 26(4):447-455.
- Liu, F.P.**, **M.P. Wolcott,** D.J. Gardner, and T.G. Rials. 1994. Characterizing the interface between cellulosic fibers and a thermoplastic. Composite Interfaces. 2(6):419-432.

- Wolcott, M.P.**, F.A. Kamke, and D.A. Dillard. 1994. Fundamental aspects of wood deformation pertaining to manufacture of wood-based composites. Wood and Fiber Science. 26(4):496-511.
- Davalos, J.F., D.A. Kish**, and **M.P. Wolcott**. 1993. Bending stiffness of stress-laminated decks with butt joints. Journal of Structural Engineering. 119(5):1670-1676.
- Gardner, D.J., N.C. Generalla, D.W. Gunnells*, and **M.P. Wolcott**. 1991. Dynamic wettability of wood. Langmuir. 7(11):2498-2502.
- Kamke, F.A. and **M.P. Wolcott**. 1991. Fundamentals of flakeboard manufacture: Wood-moisture relationships. Wood Science and Technology. 25(1):57-71.
- Wolcott, M.P.**, F.A. Kamke, and D.A. Dillard. 1990. Fundamentals of flakeboard manufacture: Viscoelastic behavior of the wood component. Wood and Fiber Science. 22(4):345-361.
- Wang, J.Z., **M.P. Wolcott**, F.A. Kamke, and D.A. Dillard. 1990. Transient moisture effects in fibers and composite materials. Journal of Composite Materials. 24(9):994-1009.
- Li, M., **M.P. Wolcott**, F.A. Kamke, and D.A. Dillard. 1990. Small specimen compression testing in a pressurized steam environment. Experimental Techniques. 3:17-19.
- Wolcott, M.P.**, B. Kasal, F.A. Kamke, and D.A. Dillard. 1989. Testing small wood specimens in transverse compression. Wood and Fiber Science. 21(3):320-329.
- Wolcott, M.P.**, J.F. Philip, J.E. Shottafer, and R.K. Shepard. 1986. Preparation and testing of microbending specimens. Forest Products Journal. 36(11): 69-71.

BOOKS, CHAPTERS, PROCEEDINGS, AND REVIEWS *(total of 17)*

- Englund, K.R. and **M.P. Wolcott**. 2008 Processing performance of extruded wood-polymer composites. In: Wood Polymer Composites. Oksman, K., and M. Sain, Eds. Woodhead Publishing Limited. Cambridge, UK. pp .
- Schirp, A., R.E. Ibach, D.E Pendleton, and **M.P. Wolcott**. 2008. Biological degradation of wood-plastic composites (WPC) and strategies for improving the resistance of WPC against biological decay. In: Development of Commercial Wood Preservatives. Schultz, T., and D. Nicholas; Eds. Oxford University Press. pp 480-508.
- Smith, P.M., A. Zink-Sharp, D.D. Stokke, **M.P. Wolcott**, and S.M. Shaler. 2004. Setting the research agenda for wood - If not now, when? Wood and Fiber Science. 36(3):289-290.
- Wolcott, M.P.** 2001. Wood-plastic composites. In: Encyclopedia of Materials Science and Technology. Buschow *et al.*, Eds. Elsevier Press, NY, NY. pp. 9759-9763.
- Adcock, T. and **M.P. Wolcott**. 2001. Non-structural wood composite panels. In: Encyclopedia of Materials Science and Technology. Buschow *et al.*, Eds. Elsevier Press, NY, NY. pp. 9678-9683.
- Wolcott, M.P.** and R.J. Tichy, Editors. 2001. 35th International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 216 pp.
- Wolcott, M.P.** and R.J. Tichy, Editors. 2000. 34th International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 223 pp.

- Wolcott, M.P.**, R.J. Tichy, and D.A. Bender, Editors. 1999. 33rd International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 209 pp.
- Tichy, R.J., D.A. Bender, and **M.P. Wolcott**, Editors. 1998. 32nd International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 201 pp.
- Wolcott, M.P.**, Editor. 1997. 31st International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 227 pp.
- Wolcott, M.P.**, Editor. 1996. 30th International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA. 321 pp.
- Rials, T.J. and **M.P. Wolcott**. 1996. Chapter III. Structure and physical properties of fibers. In: Paper and composites from agro-based resources. R.M. Rowell, R.A. Young, and J.K. Rowell, Eds. CRC Handbook. CRC Press, Lewis Publishers, Boca Raton, FL.
- Wolcott, M.P.**, Editor. 1994. Opportunities for the hardwood industry to address environmental challenges. Proceedings of the 27th Annual Hardwood Symposium. Hardwood Research Council, Memphis, TN. 108 pp.
- Wolcott, M.P.**, Editor. 1993. Wood fiber/polymer composites: Fundamental concepts, processes, and material options. Forest Products Society, Madison, WI. 134 pp.
- Wolcott, M.P.** 1990. A review of: Cellular solids: Structure and properties. Materials Science and Engineering. A123:282-283.
- Wolcott, M.P.** 1989. Modeling viscoelastic cellular materials for the pressing of wood composites. PhD Dissertation. VPI&SU, Blacksburg, VA.
- Wolcott, M.P.** 1985. Age and growth rate relationships to selected mechanical properties in red spruce. MS Thesis. University of Maine, Orono, ME.

OUTREACH PUBLICATIONS *(total of 6)*

- Bender, D.A., **M.P. Wolcott** and J.D. Dolan. 2007. Wood plastic composites - structural design and applications. Structure magazine. March:43-46.
- Wolcott, M.P.**, P.M. Smith and K.R. Englund. 2006. Technology and market issues driving wood-plastic product development. Wood Design Focus. 16(3):3-5.
- Bender, D.A., **M.P. Wolcott** and J.D. Dolan. 2006. Structural design and applications with wood-plastic composites. Wood Design Focus. 16(3):13-16.
- Jiang, L., J. Qian, **M.P. Wolcott** and J. Zhang. 2005. Investigation of toughening of poly(lactic acid) by poly(butylene adipate-co-terephthalate). Polymeric Materials: Science & Engineering Preprints. 93:397-398.
- Davalos, J.F., **M.P. Wolcott**, J. Brokaw, and B. Dickson. 1992. Quality assurance and inspection manual for timber bridges. Pennsylvania Dept. of Transportation. 200 pp.

Wolcott, M.P., R.K. Shepard, and J.E. Shottafer. 1987. Age and thinning effects on wood properties of red spruce (*Picea rubens* Sarg.). Maine AES Tech Bull 127. University of Maine, Orono, ME.

PAPERS IN PROCEEDINGS *(total of 67)*

Wolcott, M.P., P.M. Smith and D.A. Bender. 2009. Natural Fiber Thermoplastic Composites for Naval Facilities. In: Proceedings of the SAMPE '09 Conference, Baltimore, MD, May 18-21.

Wolcott, M.P. 2008. Natural Fiber Thermoplastic Composites: The State of the Future. In: Proceedings of the 9th Pacific Rim Bio-Based Composites Symposium, Rotorua, New Zealand, November 5-8.

Wolcott, M., L. Jiang, J. Zhang, and J. Holbery. 2007. Study of the PHBV/cellulose whisker nanocomposites. In: Proceedings of the 22nd Annual American Society for Composites Technical Conference, Seattle, WA, Sept. 17-19. pp. 167-176.

Yadama, V. and **M.P. Wolcott**. 2007. Influence of structure on the elastic behavior of engineered strand composites. In: Proceedings of the 22nd Annual American Society for Composites Technical Conference, Seattle, WA, Sept. 17-19. pp. 44-56.

Anderson, S., J. Qian, J. Zhang and **M.P. Wolcott**. 2007. Natural fiber and polyhydroxyalkanoate composites: performance enhancement. In: Proceedings of Ninth International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23. pp. 211-212.

Gacitua E., W. and **M.P. Wolcott**. 2007. Morphology of wood species affecting wood-plastic interaction: mechanical interlocking and mechanical properties. In: Proceedings of Ninth International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23. pp. 123-133.

Harper, D.P., T. Stortz, T.G. Rials, G. Dorsey, W.L. Griffith, K. Englund and **M.P. Wolcott**. 2007. Electron-beam curable additives for Wood-Plastic Composites. In: Proceedings of Ninth International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23. pp. 117-121.

Kaboorani, A., A. Cloutier and **M.P. Wolcott**. 2007. Effects of water absorption on mechanical properties of high-density polyethylene wood composites. In: Proceedings of Ninth International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23. pp. 175-183.

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- Wolcott, M.P.** 2001. Wood-plastic composite extrusion. Plastics Encounters, Los Angeles, CA. April 9-10.
- Wolcott, M.P.** 2001. Interface and commercial developments in wood-plastic composites. Honeywell Corp., Specialty Polymers Group, Morristown, NJ. January 30-31.
- Wolcott, M.P.** 2000. New advances in wood-fiber polymer formulations. Wood-Plastic Conference sponsored by Plastics Technology and Polymer Process Communications, Baltimore, MD. Dec. 5-6.
- Wolcott, M.P.**, A. Bozo, J. Linville. 2000. Spatial variation in wood composites. Ibero-American Forest Products Conference. Univ. of Bio-Bio, Concepcion, Chile.
- Harper, D.P., **M.P. Wolcott**, and T.G. Rials. 2000. Assessment of pMDI cure in saturated steam environments. Wood Adhesives 2000. South Lake Tahoe, NV. June 22-23.
- Wolcott, M.P.** 2000. Engineered wood composites for naval waterfront facilities. Progress in Woodfibre-Plastic Composites Conference sponsored by Materials and Manufacturing Ontario and the University of Toronto, Toronto, Canada. May 25-26.

- Adcock, T., **M.P. Wolcott**, and J.C. Hermanson. 1999. Simplex analysis of a multi-component wood-plastic system in relation to material properties. 5th International Conference on Woodfiber-Plastic Composites, Madison, WI.
- Adcock, T., **M.P. Wolcott**, and M.T. Lentz. 1999. The use of hybrid resin systems for strawboard manufacture. Eastern Canadian Section Meeting of the Forest Products Society, Winnipeg, Manitoba.
- Adcock, T., **M.P. Wolcott**, and S.M. Peyer. 1999. Urea formaldehyde / diphenylmethane diisocyanate copolymer adhesives: Possible use as an adhesive system for straw based particleboard. 3rd European Panel Products Symposium, Llandudno, Wales. October 6-8.
- Cofer, W.F., D.G. Pollock, **M.P. Wolcott**, Y. Du, and V. Yadama. 1999. Modeling non-linear connection performance in wood structures. Partnership for Natural Disaster Reduction, University Research Consortium (URC) Collaborator's Meeting, Idaho National Engineering and Environmental Laboratory (INEEL), Idaho Falls, ID.
- Hermanson, J.C, T. Adcock, and **M.P. Wolcott**. 1999. Material modeling of wood-plastic composites. Annual Meeting of the Society of Experimental Mechanics, Cincinnati, OH.
- Peyer, S.M., **M.P. Wolcott**, and D.J. Fenoglio. 1999. Treating aspen flakes with polycarboxylic acid resin to improve dimensional stability. 33rd International Particleboard/Composite Materials Symposium. Washington State University, Pullman, WA, April 13-15.
- Smith, P.M., G.M. Carter, T.M. Smith, and **M.P. Wolcott**. 1999. Applications needs and market pull for wood-plastic composites. 33rd International Particleboard/Composite Materials Symposium. Washington State University, Pullman, WA. April 13-15.
- Wolcott, M.P.** and K. Englund. 1999. A technology review for wood-plastic composites. 33rd International Particleboard/Composite Materials Symposium Proceedings. Washington State University, Pullman, WA, April 13-15.
- Suzhou, Y., T.G. Rials, and **M.P. Wolcott**. 1999. Crystallization behavior of polypropylene and its effect on wood fiber composite properties. 5th International conference on Woodfiber-plastic Composites, Madison, WI, May 26-27.
- Wolcott, M.P.** 1999. Engineered wood-plastic composites for waterfront facilities. 5th International conference on Woodfiber-plastic Composites, Madison, WI, May 26-27.
- Harper, D.P., **M.P. Wolcott**, and T.G. Rials. 1998. Chemical and physical interpretation of MDI cure in saturated steam environments. 2nd European Panel Products Symposium, Llandudno, Wales, October 21-22.
- Wolcott, M.P.** 1997. Creep in wood-plastic composites. 4th Biannual Conference for Wood-Fiber/Plastic Composites. Madison, WI. May 12-14.
- Rials, T.G. and **M.P. Wolcott**. 1997. Viewing wood-plastics as interpenetrating networks. 4th Biannual Conference for Wood-Fiber/Plastic Composites. Madison, WI. May 12-14.
- Wolcott, M.P.** 1997. Hardwood engineered lumber products. Eastern Hardwood Products Conference. Harrisburg, PA. April 28-30.
- Hua, W. and **M.P. Wolcott**. 1996. Creep mechanisms in OSB. 50th Annual Meeting of the Forest Products Society. Minneapolis, MN.

- Englund, K. and **M.P. Wolcott**. 1996. The use of synthetic gypsum as an inorganic binder in waste-paper fiberboard. 50th Annual Meeting of the Forest Products Society. Minneapolis, MN.
- Wolcott, M.P.** and C.C. Hassler. 1996. Reusable timber bridges for logging operations. 50th Annual Meeting of the Forest Products Society. Minneapolis, MN.
- Wolcott, M.P.** and T.M. Maloney. 1996. Wood composites: Past, present, and future. 50th Annual Meeting of the Forest Products Society. Minneapolis, MN.
- Wolcott, M.P.** and E. Lang. 1996. The application of viscoelasticity to the consolidation of wood composites. 1996 Conference on Experimental Mechanics, Society of Experimental Mechanics, Nashville, TN.
- Wolcott, M.P.** 1996. The role of thermoplastics in convention wood composites. 30th International Particleboard/Composite Materials Symposium. Washington State University, Pullman, WA.
- Gardner, D.J., **M.P. Wolcott**, L. Wilson, Y. Huang, and M. Carpenter. 1995. Our understanding of wood surface chemistry in 1995. Wood Adhesives, 1995. Portland, OR.
- Lang, E.M. and **M.P. Wolcott**. 1995. A model for the viscoelastic consolidation of wood-strand mats. 49th Annual Meeting of the Forest Products Society. Portland, OR.
- Wolcott, M.P.** and T.G. Rials. 1995. In situ cure monitoring of adhesives for wood-based composites. 29th International Particleboard/Composite Materials Symposium. Washington State University, Pullman, WA.
- Rials, T.G., **M.P. Wolcott**, and R.E. Ysbrandy. 1995. Thermal properties of wood-fiber/polystyrene composites. 3rd Biannual Conference for Wood-Fiber/Plastic Composites. Madison, WI.
- Liu, F.P., T.G. Rials, **M.P. Wolcott**, and D.J. Gardner. 1995. Interactions between wood-fibers and amorphous polymers. 3rd Biannual Conference for Wood-Fiber/Plastic Composites. Madison, WI.
- Lang, E.M. and **M.P. Wolcott**. 1995. Modeling the consolidation of wood-strand mats. The 1995 Joint ASME Applied Mechanics and Materials Summer Meeting. Los Angeles, CA.
- Wolcott, M.P.**, J. Nassar, R. Ysbrandy, D.J. Gardner, and T.G. Rials. 1994. Recycled wood-fiber urethane composites. 2nd Pacific Rim Bio-Based Composites Symposium, Univ. of British Columbia, Vancouver, Canada.
- Gardner, D.J., F.P. Liu, **M.P. Wolcott**, and T.G. Rials. 1994. Improving interfacial adhesion between wood fibers and thermoplastics: A case study examining chemically modified wood and polystyrene. 2nd Pacific Rim Bio-Based Composites Symposium, Univ. of British Columbia, Vancouver, Canada.
- Wolcott, M.P.** 1994. Closing the press. Structural Board Association Research Technical Forum, Montreal, Canada.
- Fuchs, S., C.C. Hassler, **M.P. Wolcott**, and C. West. 1994. Market opportunities for structural wood products in the factory-built housing industry. 48th Annual Meeting of the Forest Products Society, Portland, ME.
- Lang, E. and **M.P. Wolcott**. 1994. Modeling the consolidation of yellow-poplar flake mats. 48th Annual Meeting of the Forest Products Society, Portland, ME.

- Wolcott, M.P.,** T.G. Rials, and D.J. Gardner. 1994. Characterizing the interface in wood fiber/polymer composites. 48th Annual Meeting of the Forest Products Society, Portland, ME.
- Wolcott, M.P.** 1994. Mechanisms of creep and creep-rupture. ASTM D07 Meeting, Madison, WI
- Gardner, D.J., D.W. Gunnells and **M.P. Wolcott**. 1993. Chemical characteristics of short term aged wood surfaces. 67th Colloid and Surface Science Symposium, Toronto, Canada.
- Huang, Y., D.J. Gardner and **M.P. Wolcott**. 1993. A study of the rate process of heat-induced inactivation of wood surface using dynamic contact angle analysis. 67th Colloid and Surface Science Symposium, Toronto, Canada.
- Wolcott, M.P.,** T.G. Rials, and D.J. Gardner. 1993. Recycled wood fiber-urethane composites. Polymer Processing Society Meeting, Morgantown, WV.
- Rials, T.G., **M.P. Wolcott**, and J. Nassar. 1993. Wood fiber reinforced urethane composites. 2nd Wood Fiber-Plastic Composite Conference, Madison, WI.
- Wolcott, M.P.** 1992. Modular timber bridges for temporary stream crossings on logging roads. Society of Wood Science and Technology Visiting Scientist. February 12. NC State University, Raleigh, NC.
- Wolcott, M.P.** 1992. Hybrid wood/synthetic composites. Society of Wood Science and Technology Visiting Scientist. February 13. NC State University, Raleigh, NC.
- Wolcott, M.P.** 1992. Free volume interpretations of wood-moisture relationships. Society of Wood Science and Technology Visiting Scientist. February 14. NC State University, Raleigh, NC.
- Wolcott, M.P.** 1992. Free volume interpretations of wood-moisture relationships. Virginia Polytechnic Institute and State University. March 2. Blacksburg, VA.
- Gunnells, D.W., **M.P. Wolcott**, and D.J. Gardner. 1992. Measuring the glass transition of wood using dynamic contact angle analysis. 66th Colloid and Surface Science Symposium. American Chemical Society. June 15. Morgantown, WV.
- Wolcott, M.P.,** D. Moore, and J.J. Janowiak. 1992. Bending properties and nondestructive evaluation of red maple lumber. 46th Annual Meeting of the Forest Products Research Society. June 21-24. Charleston, SC.
- Wolcott, M.P.,** D.J. Gardner, N. Generalla, and S.S. Shaler. 1992. Diffusion of thermosetting adhesives in wood. 46th Annual Meeting of the Forest Products Research Society. June 21-24. Charleston, SC.
- Liu, P.F., **M.P. Wolcott**, and D.J. Gardner. 1992. Application of the microdebond test to lignocellulosic fibers. 46th Annual Meeting of the Forest Products Research Society. June 21-24. Charleston, SC.
- Gardner, D.J., **M.P. Wolcott**, and D.W. Gunnells. 1992. Using dynamic contact angle analysis to study wood surface aging. 46th Annual Meeting of the Forest Products Research Society. June 21-24. Charleston, SC.
- Wolcott, M.P.** 1992. Future opportunities for recycled wood-based materials. 1st National Recycling Biobased Materials Conference. August 13-14. Oregon City, OR.

- Wolcott, M.P.**, P.F. Liu, and D.J. Gardner. 1992. Using the microbond test to mechanically evaluate the wood-fiber/polymer interface. 204th National Meeting of the American Chemical Society Meeting, August 23-28. Washington, DC.
- Wolcott, M.P.** and T.G. Rials. 1992. In-situ cure monitoring of isocyanate adhesives during hot-pressing. Miles Corp. August 31. Pittsburgh, PA.
- Davalos, J.F., **M.P. Wolcott**, and B. Dickson. 1992. Quality assurance and inspection manual for timber bridges. National Hardwood Timber Bridge Conference. October 20. University Park, PA.
- Wolcott, M.P.** 1992. Flexible wood fiber urethane composites. Temple-Inland Corp., Fiber Composite Division. November 24. Diboll, TX.
- Wolcott, M.P.** 1991. Curing kinetics of filled phenol-formaldehyde adhesives. Michigan Technological University, Houghton, MI.
- Gunnells, D., D.J. Gardner, and **M.P. Wolcott**. 1991. The effects of moisture content, temperature, and aging on the dynamic contact angle analysis of wood. 45th Annual Meeting of the Forest Products Research Society, New Orleans, LA.
- Shutler, E.L. and **M.P. Wolcott**. 1991. The recovery of polymeric cellular materials: Relation to increased dimensional stability of wood-based composites. 45th Annual Meeting of the Forest Products Research Society, New Orleans, LA.
- Gardner, D.J., D.W. Gunnells, **M.P. Wolcott**, and L. Amos. 1991. Structural changes in wood polymers during the pressing of wood-composites. Amer. Chem. Soc. Cellulose, Paper, and Textile Div. Meeting, New Orleans, LA.
- Wolcott, M.P.**, D.J. Gardner, and S. Shaler. 1990. The role of cell wall crosslinking in dimensional stability of wood-based composites. Advanced Technology Applications to Eastern Hardwood Utilization. Dept. of Forestry, Michigan State University, East Lansing, MI.
- Gunnells, D., D.J. Gardner, and **M.P. Wolcott**. 1990. An improved adhesive system for bonding dimensionally stabilized wood. Advanced Technology Applications to Eastern Hardwood Utilization, Dept. of Forestry, Michigan State University, East Lansing, MI.
- Wolcott, M.P.**, F.A. Kamke, P.E. Humphrey, and S. Ren. 1990. Mechanical deformation of the mat and wood components during pressing. 44th Annual Meeting of the Forest Products Research Society, Salt Lake City, UT.
- Wolcott, M.P.** 1990. Fundamental aspects of wood deformation pertaining to manufacture of wood-based composites. 44th Annual Meeting of the Forest Products Research Society, Salt Lake City, UT.
- Wang, J.Z., **M.P. Wolcott**, E.H. Teague, F.A. Kamke, and D.A. Dillard. 1990. Experimental techniques to measure fiber and composite response to transient moisture exposure. 1990 Conference on Experimental Mechanics, Society of Experimental Mechanics, Albuquerque, NM.
- Dillard, D.A., J.Z. Wang, F.A. Kamke, T. Ward, G. Wilkes, and **M.P. Wolcott**. 1990. The effects of transient moisture conditions on the viscoelastic behavior of fibers and composites. DURABILITY 1990, Brussels, Belgium.

Wolcott, M.P., B. Kasal, F.A. Kamke, and D.A. Dillard. 1989. Modeling wood as a polymeric foam: An application to wood-based composite manufacture. 3rd Joint ASCE/ASME Mechanics Conference. University of California at San Diego, LaJolla, CA.

RESEARCH LEADERSHIP

Sustainable Design

I am a founding member and the first Director of the Institute for Sustainable Design. Along with Professors Greg Kessler (Director, School of Architecture and Construction Management), Donald Bender (Director, Wood Materials and Engineering Laboratory), and David McLean (Chair, Department of Civil and Environmental Engineering) this Institute was founded in the Fall of 2008 and borne from six years of cooperative projects towards green buildings and materials. The work of this Institute has expanded off this base to include Low-Impact Development (LID), Green Highways, and Sustainable Business Practices. A compilation of fund-raising activities to date:

Wolcott, M.P., D.A. Bender, and G.A. Kessler. 2008. Sustainable Residential Construction. Weyerhaeuser Foundation. \$500,000.

Wolcott, M.P. 2008. College of Engineering and Architecture Berry Family Gift Towards Faculty Development. \$25,000. (*recipient*)

Sustainable Materials Development

I have acted as the principal investigator and project manager for five research contracts from the Office of Naval Research aimed at producing sustainable infrastructure materials with improved environmental and structural performance. In aggregate, the contracts have comprised 37 researchers representing 7 universities, 3 federal laboratories, and 5 companies. In my leadership capacity, I have been responsible for (1) developing the technical research direction, (2) selecting research team members, (3) managing over \$13 million in research funding, and (4) organizing meetings, reports, and deliverables. In addition, I have been the lead researcher on the composite development component of this research. Tangible outputs of our first completed project include (1) test methods used in military performance specifications, proposed ASTM standards, and ICBO testing; (2) development of composite formulations currently used by over one-third of the commercial wood-plastic products; (3) development and deployment of structural prototypes in naval facilities; (4) six invention disclosures and patent applications; (5) thirty-one presentations at national and international meetings; (6) twenty peer-reviewed journal manuscripts; (7) thirteen Masters theses and two PhD dissertations. A compilation of the projects and sub-contracting follows:

Wolcott, M.P. et al. 2006-2009. Foundation Elements for Naval Low-Rise Buildings. Office for Naval Research. \$1,034,996. (*Personally Expended: \$558,091; Managed: \$476,905*).

Subcontracts:

- Washington State University: 2 Co-PI's; \$888,996
- Pennsylvania State University: 1 Co-PI's; \$146,000

Wolcott, M.P. et al. 2003-2006. Durable wood composites for naval low-rise buildings. Office for Naval Research. \$1,877,242. (*Personally Expended: \$922,953; Managed: \$954,289*).

Subcontracts:

- Washington State University: 3 Co-PI's; \$1,452,122
- Pennsylvania State University: 1 Co-PI's; \$195,021
- University of Idaho: 2 Co-PI's; \$230,099
- Naval Facilities Engineering Service Center: 2 Co-PI's; (\$95,000 funded through ONR)

Wolcott, M.P. et al. 2002-2005. Commercialization of navy advanced wood composites. Office for Naval Research. \$1,686,340. (*Personally Expended: \$1,278,147; Managed: \$408,193*).

Subcontracts:

- Washington State University: 3 Co-PI's; \$1,278,147
- Pennsylvania State University: 1 Co-PI's; \$286,467
- University of Idaho: 1 Co-PI's; \$75,226

- Delta Process Engineering: 1 Co-PI's; \$46,5000
- Naval Facilities Engineering Service Center 2 Co-PI's; (\$130,000 funded through ONR)

Wolcott, M.P. et al. 2001-2004. Naval advanced wood composites. Office for Naval Research. \$3,793,541. (*Personally Expended: \$1,919,206; Managed: \$1,874,335*).

Subcontracts:

- Washington State University: 3 Co-PI's; \$2,412,558
- Pennsylvania State University: 1 Co-PI's; \$168,200
- University of Maine: 4 Co-PI's; \$986,500
- University of Massachusetts: 1 Co-PI's; \$104,500
- Honeywell Corp.: 2 Co-PI's; \$121,783
- Naval Facilities Engineering Service Center: 2 Co-PI's; (\$240,000 funded through ONR)
- Naval Research Laboratory: 2 Co-PI's; (\$330,000 funded through ONR)
- US Forest Service, So. Research Laboratory: 1 Co-PI's; (\$149,000 funded through ONR)

Wolcott, M.P. et al. 1997-2001. Engineered wood composites for naval waterfront facilities. Office for Naval Research. \$6,073,000. (*Personally Expended: \$3,248,299; Managed: \$2,824,701*).

Subcontracts:

- Washington State University: 9 Co-PI's; \$4,123,649
- Michigan Technological University: 2 Co-PI's; \$89,950
- New Mexico Institute of Mining & Tech.: 1 Co-PI's; \$144,818
- Pennsylvania State University: 1 Co-PI's; \$156,500
- University of Maine: 1 Co-PI's, \$343,597
- Center for Forest Products Research: 1 Co-PI's, \$28,564
- BP AMOCO Corp.: 3 Co-PI's, \$820,473
- Perrault & Associates: 1 Co-PI's, \$106,500
- Strandex Corp.: 1 Co-PI's, \$258,949
- Naval Facilities Engineering Service Center: 3 Co-PI's; (\$360,000 funded through ONR)

Bioproducts and Bioenergy

The activities listed below are efforts on my part to provide leadership to the developing area of chemical, materials, and fuels produced from bio-based resources. These efforts include regional and national/international committees, most of which have the goal of developing either new educational or research programs.

<u>Committee</u>	<u>Position</u>	<u>Outputs and Contributions</u>
Agenda 2020 Department of Energy American Forest and Paper Assoc (AFPA)	Member	<ul style="list-style-type: none">- Forest Industry Technology Roadmap- Nanotechnology Research Roadmap- International Conference on Nanotechnology in Forest Products- Review Panels for Agenda 2020 funded research
PNNL-WSU Integration Team Department of Energy Washington State University	Member	<ul style="list-style-type: none">- Integrated Bioproducts Graduate Program- Chair of 1st Student from this program- New bioproducts facility funded and built
Research Initiative Committee Society of Wood Science and Technology	Chair	<ul style="list-style-type: none">- Research Needs Workshop for Nanotechnology in Forest Products funded by NSF- Contributed to RFP language for USDA and NSF program calls- Develop and maintain weblog communicating significant information (swst.research.wsu.edu)
Review Team NSF/American Association for the Advancement of Science Environmental Protection Agency	Member	<ul style="list-style-type: none">- NSF EPSCoR Center on Biorefineries- EPA Projects on Renewable Materials

GRANTS AND CONTRACTS* (total of \$19,104,869: personally expended \$10,727,076)

Washington State University (WSU total of \$17,889,212: personally expended \$9,788,002)

Brown, S., S. Shen, and **M.P. Wolcott**. 2008-2009. Sustainable Roadway Design and Construction: An Online Course. UW/TransNow. \$22,888.

Bahr, D.F., B. Lamb, D.P. Field, **M.P. Wolcott** and S. Medidi. 2007-2010. Development and implementation of an intensive short course, seminar, and mentoring for introducing undergraduates to research in engineering. National Science Foundation. \$148,981.

Wolcott, M.P., D.A. Bender and J.D. Dolan. 2006-2009. Foundation elements for naval low-rise buildings. Office of Naval Research. \$1,034,996. (Controlled: \$558,091, Administered: \$476,905).

McDaniel, C., **M.P. Wolcott**, and D.I. McLean. 2005-2007. Composite material alternatives to timber in the construction of wing walls. Washington State Department of Transportation. \$244,879.

Wolcott, M.P. and F.J. Loge. 2004-2009. Development of renewable microbial polyesters for cost effective and energy-efficient wood-plastic composites. INL/DOE. \$935,681. (Total program funds of \$2.8 million)

Loge, F.J. and **M.P. Wolcott**. 2004-2007. A novel EBM process utilizing renewable biopolymers to manufacture natural fiber reinforced thermoplastic composites. National Science Foundation. \$200,000. (grant now at UC-Davis)

Wolcott, M.P. 2004-2005. Natural fiber reinforced polymer composites I/UCRC. National Science Foundation. \$10,000.

Laborie, M.P. and **M.P. Wolcott**. 2004-2007. Pan American collaboration on wood composites. Office of Naval Research. \$48,956.

Wolcott, M.P. 2003. Santiago Chile travel. Office of Naval Research International Field Office. \$12,657.

Englund, K.A. and **M.P. Wolcott**. 2003-2004. Extrusion of foamed polyvinyl chloride/wood flour composites. Wash. Tech. Center and Shoreline Industries LLC. \$43,174.

Wolcott, M.P. et al. 2003-2006. Durable wood composites for naval low-rise buildings. Office of Naval Research. \$1,877,242. (Controlled: \$922,953, Administered: \$954,289).

Wolcott, M.P. 2002-2004. Extruded wood-plastic composite decking & retaining wall for Coast Guard shore facilities. US Department of Transportation/University of Maine. \$128,676.

Wolcott, M.P. 2002-2004. Micro woodfiber composites. US Dept of Agriculture – CSREES Program/University of Idaho. \$22,284.

Wolcott, M.P. 2002-2004. Extruded wood products for Inland Empire sawmills. USDA – Wood Utilization Research Program. \$47,115.

Wolcott, M.P. et al. 2002-2005. Commercialization of navy advanced wood composites. Office of Naval Research. \$1,686,340. (Controlled: \$1,278,147, Administered: \$408,193).

* Principal Investigator (PI) appears as first name on grant citation, co-PI's follow.

- Wolcott, M.P.** 2001-2004. Extruded wood products for Inland Empire sawmills. USDA – Wood Utilization Research Program. \$82,883.
- Wolcott, M.P.** et al. 2001-2004. Naval advanced wood composites. Office of Naval Research. \$3,793,541. (Controlled: \$1,919,206, Administered: \$1,874,335).
- Wolcott, M.P.**, F. Loge, and J. Petersen. 2001-2003. Distributed physical and molecular separations for selective harvest of higher value wheat straw components. Dept of Energy/Idaho Wheat Commission/INRA. \$319,000.
- Wolcott, M.P.** 2001-2003. Developing advanced polystyrene blends for wood-plastic composites. Wash. Tech. Center and McFarland Cascade Corp. \$150,528.
- Wolcott, M.P.**, D. Pollock, and K. Fridley. 2000-2003. Engineered lumber products and requirements from Inland NW species. USDA – Wood Utilization Research Program. \$73,626.
- Lamb, B., H. Westberg, **M.P. Wolcott**, and R. Folk. 2000-2002. Characterization and emission rate measurements of VOC's from lumber product manufacturing processes. USDA – Wood Utilization Research Program. \$37,257.
- Wolcott, M.P.**, D. Pollock, K. Fridley, S. Shook, and T. Gorman. 1999-2000. Engineered lumber products and requirements from Inland NW species. USDA – Wood Utilization Research Program. \$100,167.
- Lamb, B., H. Westberg, **M.P. Wolcott**, and R. Folk. 1999-2000. Characterization and emission rate measurements of VOC's from lumber product manufacturing processes. USDA – Wood Utilization Research Program. \$49,594.
- Bender, D., and **M.P. Wolcott**. 1999-2000. Screening hybrid poplar clones for new industrial uses. USDA – Wood Utilization Research Program. \$44,658.
- Cofer, W., D. Pollock, and **M.P. Wolcott**. 1998-2001. Modeling non-linear connector performance in wood structures. Idaho National Environmental and Engineering Laboratory. \$437,586.
- Wolcott, M.P.** et. al. 1997-2001. Engineered wood composites for naval waterfront facilities. Office of Naval Research. \$6,073,000. (Controlled: \$3,248,299, Administered: \$2,824,701).
- Wolcott, M.P.** 1997-1998. Measuring and assessing variability in OSB. Structural Board Association. \$40,000.
- Wolcott, M.P.** 1996-1999. Thermoplastics as modifiers of material structure in wood-strand composites. USDA National Research Initiative. \$104,507.
- Wolcott, M.P.** 1996. Creep mechanisms in oriented strand board (OSB) Part II. Structural Board Association. \$35,000.
- Wolcott, M.P.** 1996. In situ cure monitoring of UF bonded particleboard. US Forest Service. \$10,000.
- Wolcott, M.P.** 1996. Creep and creep rupture studies of wood thermoplastic composites. Trex Corp. \$73,996.

West Virginia University (WVU total of \$1,215,657: personally expended \$939,074)

- Wolcott, M.P.** 1994-1995. Mechanical evaluations of wood/thermoplastic interfaces. US Forest Service. \$30,600.
- Wolcott, M.P.** 1994-1995. Creep mechanisms in oriented strand board (OSB) Part I. Structural Board Association. \$28,364.
- Davalos, J., E. Barbero, **M.P. Wolcott**, and D.J. Gardner. 1994-1995. Interface delamination of wood-FRP laminates. Phase II: Mode II fracture under bending-induced shear loading. US Forest Service. \$55,185.
- Wolcott, M.P.** and C.C. Hassler. 1994-1995. Structural uses of Appalachian hardwood timbers. US Forest Service. \$29,300.
- Halebe, U.B., H. Gangarao, and **M.P. Wolcott**. 1993-1994. Nondestructive evaluation of green wood using stress wave timing. US Forest Products Laboratory. \$32,144.
- Wolcott, M.P.** and C.C. Hassler. 1993-1995. Stress wave NDE of yellow-poplar logs. USDA Forest Service. \$35,000.
- Davalos, J., E. Barbero, **M.P. Wolcott** and D.J. Gardner. 1993-1994. Interface delamination of wood-FRP laminates. Phase I: Adhesive/FRP selection and bond characterization. USDA Forest Service. \$56,000.
- Hassler, C.C., **M.P. Wolcott**, and J. Stopha. 1993-1994. Technological and economic feasibility of producing gypsum-fiberboard and cement-fiberboard in North Central West Virginia from power plant waste and recycled wood fiber. Coal and Energy Research Bureau. \$20,000. WEST-MON-TY Resource Conservation and Development Area. \$26,950. Total Budget: \$46,950.
- Stopha, J., C.C. Hassler, and **M.P. Wolcott**. 1993-1994. Market assessment for gypsum-fiberboard and cement-fiberboard manufactured in North Central West Virginia with power plant waste and recycled wood fiber. US Forest Service. \$29,300.
- Hassler, C.C. and **M.P. Wolcott**. 1992-1993. Fabrication, installation, and evaluation of modular timber bridges for temporary logging applications. State of West Virginia, Div. of Forestry. \$39,660.
- Wolcott, M.P.** and D.J. Gardner. 1992-1993. The influence of graft molecular weight on the wood fiber/polymer interface. USDA Forest Service, Southern Experiment Station. \$10,400.
- Gardner, D.J., **M.P. Wolcott**, and L. Wilson. 1992-1994. Molecular response of wood surfaces to environmental influences. National Research Initiative, Competitive Grants Program. \$98,000.
- Wolcott, M.P.** and D.J. Gardner. 1992. Dynamic mechanical analysis instrumentation. National Research Initiative. USDA Granting Agency: \$50,000, State of WV: \$50,000.
- Gardner, D.J., **M.P. Wolcott**, and L. Wilson. 1992. X-Ray photoelectron spectroscopy instrumentation. National Research Center for Coal and Energy at West Virginia University. \$233,000.
- Hassler, C.C. and **M.P. Wolcott**. 1991-1993. Bending properties of beech and hickory. USDA Forest Service. \$20,230, one-year amendment \$19,565. Total: \$39,795.
- Wolcott, M.P.** and Hassler, C.C. 1991-1992. Opportunities in stressed timber deck bridges for logging operations. Technical Assistance Center/WV Tech. \$9,762.

- Hassler, C.C. and **M.P. Wolcott**. 1991-1992. Assessing value-added manufacturing alternatives for the output of the Columbia-West Virginia plant in Craigsville, WV. Technical Assistance Center/WV Tech. \$9,515.
- Gardner, D.J. and **M.P. Wolcott**. 1991-1992. Wood-synthetic composites for bridge applications: Wood reinforced with pultruded fiber reinforced composites. USDA Forest Service. \$25,000.
- Wolcott, M.P.** 1991-1993. A model for the viscoelastic consolidation of particle/fiber mats. National Research Initiative Competitive Grants Program. \$93,000.
- Wolcott, M.P.** and D.J. Gardner. 1990-1992. The role of cell wall crosslinking in dimensional stability of wood-based composites. USDA/CSRS Wood Utilization Research Special Grant. \$25,000.
- Gardner, D.J. and **M.P. Wolcott**. 1990-1992. An improved adhesion system for bonding dimensionally stabilized wood. USDA/CSRS Wood Utilization Research Special Grant. \$25,000.
- Davalos, J., **M.P. Wolcott**, H. Gangarao, and C.C. Hassler. 1990-1991. A timber bridge inspection manual. Pennsylvania Department of Transportation (PennDOT). \$80,000 (9 months).
- Janowiak, J.J., H.B. Manbeck, **M.P. Wolcott**, and J. Davalos. 1990-1992. Preliminary refinement of hardwood design stress values. Pennsylvania Department of Transportation (PennDOT). \$50,000.
- Gangarao, H., J. Davalos, **M.P. Wolcott**, and B. Dickson. 1990-1992. Structural monitoring of stress-laminated bridges constructed in West Virginia. USDA Forest Service. \$34,682.

GRADUATE STUDENTS CHAIRED** (total of 34)

Fang Chen, PhD. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

Lee-Wen Chen**, MS. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

Ines De Sainte Marie, MS. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

Alicia Haskins, MS. (*In Progress*). Environmental Science, Washington State University, Pullman, WA.

Dan Howe, PhD. (*In Progress*). Chemical Engineering, Washington State University, Pullman, WA.

Melissa King, PhD. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

Brent Olson, PhD. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

Elena Ten, PhD. (*In Progress*). Materials Science, Washington State University, Pullman, WA.

Meng Hsin Tsai, PhD. (*In Progress*). Civil Engineering, Washington State University, Pullman, WA.

William G. Escobar, PhD. 2008. Influence of wood species on properties of wood/HDPE composites. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: 5 (*Pres:4, Proc:1*)
- Assistant Professor, Universidad Del Bio-Bio, Chile

Mark Hatch, MS. 2008. Processing, mechanical, and environmental performance of engineering polymer wood-plastic composites. Civil Engineering, Washington State University, Pullman, WA.

- Project Engineer, Beaudette Consulting Engineers

Zachary Rininger**, MS. 2008. Utilization of Small Diameter Timbers in Pultuded Long Strand Composites. Civil Engineering, Washington State University, Pullman, WA.

Scott Anderson**, MS. 2007. Wood Fiber reinforced bacterial biocomposites: effects of interfacial modifiers and processing on mechanical and physical properties. Mechanical Engineering, Washington State University, Pullman, WA.

- Publication output: 1 (*Pres:1*)
- Materials Research Engineer, Michelin Tire Company

Jinwu Wang**, PhD. 2007. Cure kinetics of wood phenol-formaldehyde system. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: 3 (*Pres:2, PRPub:1, PRPub-pending:2*)
- Engineer, Weyerhaeuser

Andrew Schildmeyer, MS. 2006. Temperature and time dependent behaviors of a wood polypropylene composite. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: (*PRPub-pending:1*)
- Design Engineer, Putnam Collins Scott Associates.

Matthew Chastagner, MS. 2005. Slit die rheology of HDPE and ABS based wood plastic composites. Mechanical Engineering, Washington State University, Pullman, WA.

** Indicates students co-chaired.

- Publication output: 2 (*Pres:1, Proc:1*)
 - PhD Candidate, University of Michigan
- Erik Coats **, PhD. 2005. Sustainable production of biodegradable thermoplastics through wastewater treatment, and a new theory on biological phosphorus removal. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 4 (*Pres:1, PRPub:3*)
 - Assistant Professor, University of Idaho, Moscow, ID
- Kristin DuChateau **, MS. 2005. Structural design and performance of composite wall-foundation connector elements. Civil Engineering, Washington State University, Pullman, WA.
- Structural Engineer, Wiss, Janney, Elstner Associates, Inc., Minneapolis, MN
- Ryan Kobbe, MS. 2005. Creep behavior of a wood-polypropylene composite. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: (*PRPub-pending:2*)
 - Assistant Lecturer, University of Wyoming
- Andrew Slaughter, MS. 2004. Design and fatigue of a structural wood-plastic composite. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: (*PRPub-pending:3*)
 - PhD Candidate, Montana State University
- David Harper, PhD. 2003. Structure property relations in wood/plastic composites. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 12 (*Pres:5, Proc:3, PRPub:4*)
 - John Osborne Outstanding Graduate Student, 2002
 - William Wiley Graduate Student Exposition Award, 2nd Place, 2002
 - Assistant Professor, University of Tennessee
- Alejandro Bozo, PhD. 2002. Spatial variation of wood composites. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 2 (*Pres:1, Proc:1, PRPub-pending:3*)
 - Assistant Professor, University of Chile
- Sang Yeob Lee **, MS. 2002. Transcrystallization behavior and interfacial strength of a semicrystalline polymer combined with thermomechanical pulp (TMP) fibers. Forest Products, University of Idaho, Moscow, ID.
- Publication output: 2 (*Pres:1, Proc:1*)
 - Honorable Mention, Wood Award, 2001
 - Post-Doctoral Research Associate, Mississippi State University
- Vikram Yadama **, PhD. 2002. Out-of-plane strand orientation effects in wood-strand composites. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 5 (*Pres:2, PRPub:3, PRPub-pending:2*)
 - William Wiley Graduate Student Exposition Award, 1st Place, 2002
 - Assistant Professor and Extension Specialist, Washington State University
- Karl Englund, PhD. 2001. Consolidation and friction mechanisms of wood composites and their influence on pultrusion processing. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 5 (*Pres:2, Proc:1, PRPub:2, PRPub-pending:1*)
 - Assistant Research Professor and Extension Specialist, Washington State University

- Kristin Meyers, MS. 2001. Impact of strand geometry and orientation on mechanical properties of strand composites. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: (*PRPub-pending:2*)
 - Research Engineer, Trus Joist Corp.
- Jeff Linville, MS. 2000. The Influence of a horizontal density distribution on moisture related mechanical degradation of oriented strand composites. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 2 (*Pres:1, Proc:1, PRPub-pending:2*)
 - Technical Director, American Institute for Timber Construction (AITC)
- Scott Lockyear, MS. 1999. Mechanical analysis of transversely loaded wood/plastic sections. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: (*PRPub-pending:1*)
 - Engineer, American Forest & Paper Association
- David Harper, MS. 1998. The evaluation of 4-4' diphenylmethane diisocyanate cure in a saturated steam environment. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 4 (*Pres:2, PRPub:2*)
 - Assistant Professor, University of Tennessee
- Wenhua Hua, MS. 1997. Creep mechanisms in oriented strand board. Civil Engineering, Washington State University, Pullman, WA.
- Publication output: 3 (*Pres:1, Proc:2*)
 - Engineer Trainer/Supervisor, Trus Joist Corp.
- Fei Peng Liu PhD. 1994. Characterizing interfacial adhesion between wood fibers and a thermoplastic matrix. Forest Resource Sciences, West Virginia University, Morgantown, WV.
- Publication output: 8 (*Pres:4, Proc:2, PRPub:2*)
 - Project Leader and Research Scientist, Huber Corp.
- John Nassar, MS. 1994. Production and analysis of wood-fiber polyurethane composites. Forestry, West Virginia University, Morgantown, WV.
- Publication output: 3 (*Pres:2, PRPub:1*)
 - Technical Service Engineer, Borden Chemicals
- Gene Shutler, MS. 1992. Relating the compression and recovery of cellular materials to dimensional stability of wood composites. Forestry, West Virginia University, Morgantown, WV.
- Publication output: 2 (*Pres:1, PRPub:1*)
 - Technical Manager, Weyerhaeuser Corp.
- Douglas A. Kish**, MS. 1991. Longitudinal bending stiffness of stress-laminated timber decks. Civil Engineering, West Virginia University, Morgantown, WV.
- Publication output: 1 (*PRPub:1*)
 - Design Engineer

POST-DOCTORAL FELLOWS SUPERVISED *** (total of 11)

<u>Name</u>	<u>Dates</u>	<u>Research Topic</u>
Long Jiang***	2005-2008	Biopolymer Blends and Reinforced Natural Fiber Thermoplastics
Han-Seung Yang	2004-2008	Fatigue and Damage Modeling of Natural Fiber Thermoplastics
Tieqi Li	2001-2004	Rheological Assessment of Natural Fiber Filled Thermoplastics
Anke Schirp***	2001-2004	Agro-Fiber Modification Using Fungal Treatment
Karl Englund	2001-2003	Moisture and Photo Stable Formulations for Wood Composites
Jahangir Chowdhury	2000-2002	Coupling Agent Development for Polyolefin Wood Composites
Suzhou Yin	1999-2001	Polyolefin-Wood Interphase Evaluation
John Hermanson	1998-1999	Mechanical Evaluation of Thermoplastic Wood Composites
Tim Adcock	1998-1999	Thermoplastic Wood Composite Development
Elemer Lang	1993-1995	Structure-Property Modeling of Wood Strand Composites
John Ysbrandy***	1992-1993	Natural Fiber Reinforced Urethanes

EXTERNAL GRADUATE COMMITTEES AND REVIEWER (total of 11)

<u>Name</u>	<u>Degree</u>	<u>Year</u>	<u>Research Topic</u>
Marie LeBaillif	PhD	2008	Extrusion of Cellulose Fibers Polypropylene Composites (Norwegian University of Science and Technology)
Daniel Bondeson	PhD	2007	Biopolymer-based Nanocomposites: Processing and Properties (Norwegian University of Science and Technology)
James Fabiyi	PhD	2007	Weathering Processes of WPC (U Idaho)
Roya Khalil	PhD	2007	Impact of the surface chemistry of rice hull ash on the properties of its composites with polypropylene (RMIT University, Australia)
Marcia Vidal Bastias	PhD	2006	Modeling of Composite Hot Pressing (Laval University, Canada)
Angelo Facca	PhD	2006	Micromechanical Models for Natural Fiber Reinforced Composites (U Toronto, Canada)
Lance W. Gallagher	MS	2006	Micronized Wood Thermoplastic Composites (U Idaho)
Martin Keane	PhD	2006	Vibration Analysis of Composites for Pianos (U Auckland, NZ)
Narayana Srinivasan	PhD	2006	Thermoforming of Wood Composites (U Auckland, NZ)
Yan Li	MS	2006	Fungi and Alkali Treated Hemp Fibre for Reinforcement in Composites (U Waikato, NZ)
Smith T. Sundar	MS	2005	Chemical Modification of Wood Fiber to Enhance the Interface Between Wood and Polymer in Wood Plastic Composites (U Idaho)

GRADUATE COMMITTEES MEMBER AND REVIEWER (total of 25)

<u>Name</u>	<u>Degree</u>	<u>Year</u>	<u>Research Topic</u>
Derek Brosious	MS	2008	Nonlinear Material Behavior and Fatigue-Accumulated Damage of Wood Plastic Composites
Steve Michael	MS	2008	Thermoplastic Encapsulation of Wood Strand Composites Using a Tie-Layer

*** Indicates Post-Docs co-supervised

Sudip Chowdhury	MS	2006	A Mechanism to Improve Durability of Oriented Strand Composite
Barun Gupta	MS	2006	Development of a Coating Technology for Wood Plastic Composites
Jun Qian	MS	2006	Investigation of Crystallization of Poly(3-Hydroxybutyrate-co-3-Hydroxyvalerates) and their Bamboo Pulp Reinforced Composites
Yuefei Wu	MS	2005	Dynamic Analysis of Ferry Vessels on Wingwall Structures with Wood Plastic Composite Rubbing Blocks
Phillip Johnson	MS	2003	NIR Spectroscopy of Solid Wood
Kirk D. Kludt	MS	2003	NIR Spectroscopy of Solid Wood
Matthew W. Zawlocki	MS	2003	Dissipative Energy Methods for Wood-Plastic Composites
Peter J. Cates	MS	2002	Connection Performance of Structural Wood Composites
Christopher W. Brandt	MS	2001	Duration of Load Behavior of Wood-Plastic Composites
William R. Parsons	MS	2001	Connection Design for Hollow Wood Composites
Douglas J. Pooler	MS	2001	Creep and Fatigue of Wood-Plastic Composites
Brian J. Tucker	PhD	2001	Stress-Wave Analysis of Wood Composite Plates
Kevin J. Haiar	MS	2000	Mechanics of Wood-Plastic Composite Sections
Thanadon Sattabongkot	MS	2000	Dowel Bearing Strength of Wood Composites
Jeffrey J. Peters	MS	1999	Engineering Properties of Hybrid Poplar Composites
Sudarshan Rangaraj	MS	1999	Creep and Fatigue of Wood-Plastic Composites
Stephen J. Carstens	MS	1998	Bolt Bearing Behavior of Engineered Wood Composites
Tom Merz	MS	1998	FE Modeling of Structure in Wood Strand Composites
Douglas F. Knotts	MS	1995	VOC Emissions for Wood Drying
Somnath S. Sonti	MS	1995	FRP Reinforced Wood Composites
Gangadhar M. Bidigalu	MS	1994	FRP Reinforced Wood Composites
Yubo Huang	MS	1994	Surface Characterization of Wood
David W. Gunnells	MS	1992	Surface Energetic of Wood Exposed Thermal Cycles

UNDERGRADUATE AND INTERNATIONAL STUDENTS SUPERVISED

(total of 10)

<u>Name</u>	<u>Year</u>	<u>Program</u>
Christophe Parroco	2008	EPF, France
Joel Turtle	2008	NSF-REU, WSU
Ines de Sainte Marie	2007	EPF, France
Goran Grubbstrom	2007	Lulea University of Technology, Sweden
Kristen Howard	2007	NSF-REU, WSU
Sebastien Migneault	2006	University of Quebec-Abitibi-Temiscamingue, Canada
Patrice Soulounganga	2006	Laval University, Quebec, Canada
Guillaume Menier	2005	ENSTIB, University of Nancy, France
Joel Soucy	2005	University of Quebec-Abitibi-Temiscamingue, Canada
Pierre Blanchet	2001	Laval University, Quebec, Canada

UNDERGRADUATE COURSES TAUGHT *(total of 8)*

Washington State University

Structural Composite Material Design. 3 credits. Behavior, analysis and design of fiber-reinforced plastic composite structures; micro, ply and laminate mechanics; reinforcement of concrete and wood.

Year(Enrollment, Evaluation): 2008(19, 3.89).

Innovation in Design. 2 credits. Engineering and architectural creativity; role, function, enhancement, integration in design methods. Team taught. *Year(Enrollment, Evaluation): 1997(75, NA).*

Statics. 3 credits. Forces, moments, resultants, equilibrium, analysis of structures, section properties, and shear/moment diagrams. *Year(Enrollment, Evaluation):2006(61, 4.58); 2003(110, 4.34), 2002(105, 4.29).*

Dynamics. 3 credits. Kinematics and kinetics of particles and rigid bodies. Energy methods and impulse/momentum solutions to dynamic problems. *Year(Enrollment, Evaluation): 1998(39, 4.53).*

Statics and Strength of Materials. 4 credits. Force and moment systems, force resultants, equilibrium, truss analysis, stress, strain, material properties, tension and compression loading, beam theory. *Year(Enrollment, Evaluation): 1997(48, 4.44), 1996(46, 4.52).*

West Virginia University

Wood-Based Composites. 3 credits. Lecture and laboratory course covering wood composite materials, manufacture, and design. *Year(Enrollment, Evaluation): 1994(7, 4.5), 1993(6, 3.8).*

Mechanical Properties of Wood. 3 credits. Lecture and laboratory course on wood mechanics for wood science students. Lecture covers an introduction to statics, strength of materials, anisotropic elasticity, beam theory. Laboratory focuses on material evaluation. *Year(Enrollment, Evaluation):1994(10, 4.0), 1993(13, 4.1), 1992(13, 3.3), 1991(6, 4.3), 1990(9, 4.1), 1989(6, 3.9).*

Wood Technology. 3 credits. Introduction to wood science for forestry students. General wood properties and products; wood identification. *Year(Enrollment, Evaluation):1990(22, 3.0).*

GRADUATE COURSES TAUGHT *(total of 7)*

Washington State University

Natural Fiber Thermoplastic Composites. 3 credits. Lecture and laboratory course on the design and manufacture of natural fiber thermoplastic composites. Fundamentals of natural fibers and polymers. Fundamentals of natural fibers and polymers, compounding, die design, material structure, short fiber composite theory, creep, creep-rupture, applications, and product engineering. *Year(Enrollment, Evaluation):2005(18, 4.58).*

Engineered Wood Composites. 3 credits. Lecture course on the design and use of engineered wood composite materials. Beam and plate elements are included. *Year(Enrollment, Evaluation): 1996(5, 4.75).*

Design and Processing of Wood Composites. 3 credits. Lecture and laboratory on the theory and practice of manufacturing non-veneer wood composites. *Year(Enrollment, Evaluation): 1998(11, NA), 2000(7, 4.50).*

Advanced Mechanics of Materials. 3 credits. Theory of stress and strain, anisotropic elasticity, viscoelasticity, failure theories, and energy methods. Advanced topics in classical mechanics of materials: prismatic sections and thick cylinders in torsion, curved beams, beam on an elastic foundation. *Year(Enrollment, Evaluation):2005(5,NA), 2000(8, 4.32), 1998(14,4.21), 1997(10, 4.44), 1996(10, 3.50).*

Graduate Seminar. 1 credit. Lectures and reports on current developments in research and practice. *Year(Enrollment, Evaluation): 2003(12, NA), 2002(12, NA), 2001(12, NA), 1998(14, NA).*

West Virginia University

Materials for Infrastructure Systems. 3 credits. Introduction to advanced material behavior (anisotropic elasticity, classical lamination theory, viscoelasticity, and failure criterion) and design with material systems (steel, concrete, polymers, and fiber-reinforced composites) for civil engineering graduate students. Team-taught with mechanical and civil engineering faculty for one semester. *Year(Enrollment, Evaluation):1990(14, NA).*

Advanced Mechanics of Wood-Based Materials. 3 credits. Advanced mechanics topics pertaining to the manufacture and use of wood-based materials. Topics include anisotropic elasticity, mechanics of cellular materials, linear viscoelasticity of amorphous polymers, and curing kinetics for polymers. *Year(Enrollment, Evaluation):1993(3, 4.5), 1991(5, 4.3).*

PROFESSIONAL AFFILIATIONS AND SERVICE

Society of Wood Science and Technology

- Chair of Research Initiatives Committee – 2004, 2005
- Critical Issues Committee Member – 2004, 2005
- Publications Committee – 2002
- Board of Directors – 1996, 1997
- Chair of Committee for New Accreditation Standards – 1997
- Member Visiting Scientist and Accreditation Committee – 1992, 1993, 1994
- Member

Forest Products Society

- Chair, Strategic Planning Committee, Electronic Communications – 2002
- Strategic Planning Committee, Publications Committee – 2002
- Board of Directors – 1999, 2000, 2001
- Annual Meeting Program Committee – 2000
- Regional Board of Trustee – 1993
- Regional Meeting Program Committee – 1992, 1993, 1994
- Membership Chairman Carolina-Chesapeake Section – 1990, 1991
- Technical Interest Group Chair – 1990, 1991, 1992
- Member

American Society for Testing and Materials

- Member of D7 Committee – 2003, 2004, 2005
- Member of D14 Committee – 2003, 2004, 2005
- Member of D20 Committee – 2003, 2004, 2005
- Technical Advisee to Fiber Reinforced Glulam Sub-Committee – 1994
- Technical Advisee to Duration of Load Sub-Committee – 1994
- Technical Advisee to Wood/Thermoplastic Composite Sub-Committee – 1994

American Society of Civil Engineers

- Research Priorities - Section Leader - 2008

Society of Experimental Mechanics

- Technical Subcommittee on Wood and Wood-Based Composites – 1994
- Interim Executive Board Member – 1994

American Chemical Society, Member

Society of Plastics Engineers, Member

Xi Sigma Pi, Member

Sigma Xi, Member

FEDERAL AGENCY SERVICE

Department of Energy

Forest Products Industry Agenda 2020

- Nanotechnology Roadmap Committee – 2004, 2005, 2006
- Wood and Wood Composites Research Platform Committee – 2005
- Agenda 2020 CTO Committee – 2005, 2006

PNNL-WSU Integration Team for Bioproducts and Biorefineries

- Committee Member – 2005, 2006

National Science Foundation

Research Needs for Nanobiomaterials Workshop

- Workshop Co-Chair – 2005
- Final Report Co-Author – 2006

Review Team for EPSCoR Research Center

- Member – 2006, 2007, 2008, 2009
- Administered by American Association for the Advancement of Science (AAAS)
- Investing in Maine Research Infrastructure: Sustainable Forest Bioproducts

US Department of Agriculture

National Research Initiative Grant Program

- Panel Manager – 2000
- Award Panelist – 1994, 1995, 1999

Small Business Innovative Research Grant Program

- Award Panelist – 1996

US Forest Service

National Planning Committee for Forest Products Research (Joint with NAPFSC)

- Past Chair – 1997
- Chair – 1996
- Regional Representative– 1994, 1995

National Biobased Material and Recycling Team

- Session Co-Chair for Wood-Fiber/Plastic Composites Symposium – 1997
- Compiled CRC Manual in Natural Fiber Reinforced Thermoplastic Composites – 1992, 1993
- 1st Wood-Plastic Composites Meeting (now Biannual Event) – 1991

Environmental Protection Agency

Review Panel (Projects on Renewable Building Materials)

- Member – 2006

UNIVERSITY SERVICE

Washington State University

Department, College, University Committees

- Virtual College of Sustainability and the Environment Committee - 2008
- Intellectual Property Committee – 2007, 2008
- CEA Tenure and Promotion Advisory Committee – 2005, 2006
- CEA Research Advisory Committee – 2004, 2005, 2006, 2007, 2008
- Reviewer for Regents Scholars Program - 2003
- Assoc. Provost for Research Intellectual Property Policy Advisory Committee – 2002, 2003
- Civil and Environmental Engineering Research Committee – 2002
- Graduate Coordinator for Structures Group – 2001, 2002, 2003
- Graduate Studies Committee for CEE – 2001, 2002, 2003
- University Marketing Effort – 2001
- Advanced Technology Initiative, Washington State Legislature – 2000, 2001
- Chair of Louisiana-Pacific Research Endowment – 1999-present
- CEE Space Committee – 1999, 2000
- Interim Director of Wood Materials and Engineering Laboratory – 1997
- Co-Chair of WSU International Particleboard/Composite Materials Symposium – 1996, 1997, 1998, 1999, 2000, 2001, 2002
- Co-Editor of Proceedings for WSU International Particleboard/ Composite Materials Symposium – 1998, 1999, 2000, 2001
- Editor of Proceedings for WSU International Particleboard/Composite Materials Symposium – 1996, 1997
- Academic Steering Committee for Computing and Telecommunications – 1996, 1997

Faculty Mentorship and Evaluation

- Chair of Faculty Mentoring Committee (Dr. Marie Laborie) – 2003
- Faculty Mentoring Committee (Dr. Frank Loge) – 2003
- Promotion and Tenure Teaching Review Committee (Dr. David Bahr, MME) – 2006
- Promotion and Tenure Teaching Review Committee (Dr. Frank Loge) – 2003
- Promotion and Tenure Teaching Review Committee (Robert Barnstone, School of Architecture) – 2002
- Faculty Third Year Teaching Review Committee (Dr. Frank Loge) – 2001

Search Committees

- Chair of Search Committee for WMEL-CEE Bio-Polymers Faculty Position – 2002, 2003
- Chair of Search Committee for WMEL-CEE Research & Extension Specialist Wood Composite Materials Faculty Position – 2002
- Search Committee for WSU Research Foundation Licensing Officer – 2002
- Chair of Search Committee for two WMEL-CEE Composite Materials Faculty Positions – 2001, 2002
- Search Committee for Univ. of Idaho Wood Science Department, Wood Composites Faculty – 2000
- Search Committee for Univ. of Idaho Wood Science Department, Products Marketing Faculty – 1998
- Chair of Search Committee for Director of Wood Materials and Engineering Laboratory – 1996, 1997

West Virginia University

Department, College, University Committees

- Chair of Division of Forestry Computer Committee – 1994, 1995
- Division of Forestry Natural Resource Center Committee – 1991, 1992, 1993, 1994, 1995
- College of Agriculture and Forestry Computer Committee – 1991, 1992, 1993
- Division of Forestry Computer Committee – 1990, 1991, 1992, 1993

Search Committees

- Chair of search committee for Wood Chemistry position – 1994, 1995
- Search committee for Forest Harvesting position – 1993, 1994
- APEX search committee for International Trade Specialist position – 1991

INDUSTRIAL RESEARCH AND PRODUCT DEVELOPMENT

The Wood Materials and Engineering Laboratory (WMEL) conducts outreach to assist companies in developing and evaluating various industrial products and processes. In my capacity as a lead composite researcher with the WMEL, I have supervised projects for the following companies:

Alberta Research Council	Georgia-Pacific Corp	Pacific Northwest Fiber
Applied Comp. Technologies	Gunns Ltd	Primedoor Inc.
ARCO Chemicals	Halophyte Enterprises, Inc.	Raute Wood
Bayer Corp.	Helmitin Adhesive	Rycair Corp.
BioFrontiers Inc.	Honeywell Speciality Chemicals	Shoreline Industries
Boise Cascade Inc.	Indus. Maerera del Oriente	Siemplekamp Inc.
Borden Resin Corp.	Jeld Wen Corp.	TeelGRT
California Cedar Corp.	Killian Electric Corp.	Teton West
Dakota West	Kustom Material Laminators	Timber Products Inc.
Dow Chemical	Lake Agassiz Dev. Corp.	US Borax
EL Thompson Co	Lignotech	US Forest Service
Equistar Chemicals	Louisiana-Pacific Corp.	WA and ID Wheat Growers
Evergreen Engineering	Luzenac America Inc.	WA Grass Seed Growers
Fiber Alternatives	Masonite Corp.	WA Wheat Growers
Fiber Composites	McFarland Cascade	Weyerhaeuser Corp.
Georgia Pacific Resin Corp.	Neste Resin Corp.	