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**MICHAEL P. WOLCOTT**  
Associate Vice President for Research  
Director - Office of Clean Technology  
Regents Professor and LP Distinguished Professor  
Civil and Environmental Engineering  
Washington State University  
Pullman, WA 99164

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## **EDUCATION**

<b>Ph.D. Materials Engineering Science</b> Virginia Polytechnic Institute & State University, Blacksburg, VA	August 1989
<b>M.S. Forestry</b> University of Maine at Orono, Orono, ME	August 1985
<b>B.S. Wood Science</b> University of Maine at Orono, Orono, ME	December 1982

## **PROFESSIONAL WORK EXPERIENCE**

<b>Associate Vice President for Research and Director</b> Washington State University, Office of Research	January 2017 to present
<b>Director</b> Washington State University, Composite Materials and Engineering Center	July 2016 to July 2017
<b>Regents Professor</b> Washington State University	August 2012 to present
<b>Director</b> Washington State University, Institute for Sustainable Design	August 2008 to 2016
<b>Professor of Civil and Environmental Engineering</b> Washington State University, Civil and Environmental Engineering	August 2004 to 2012
<b>Associate Professor of Civil and Environmental Engineering</b> Washington State University, Civil and Environmental Engineering	Jan. 1996 to August 2004
<b>Research Director</b> Washington State University, Composite Materials and Engineering Center	Oct. 1998 to July 2016
<b>Interdisciplinary Faculty Member</b> Washington State University, Materials Science and Engineering Program	Jan. 2001 to present
<b>Associate Professor of Wood Science</b> West Virginia University, Division of Forestry, Morgantown, WV	July 1995 to Jan. 1996
<b>Assistant Professor of Wood Science</b> West Virginia University, Division of Forestry, Morgantown, WV	July 1989 to July 1995

## HONORS & ALLIED APPOINTMENTS

**Fellow, Society of Wood Science and Technology** – 2021, Significant contributions to the wood science and technology profession and service to the Society by SWST members.

**Director**, 2016-present, ASCENT – FAA Center of Excellence for Alternative Jet Fuels and the Environment. Co-led with MIT, composed of 16 universities, and 4 international partners. The COE provides the scientific underpinning for FAA and UN regulation of the aviation industry for environmental impact.

**Federal Technical Advisory Committee Member**, 2017-2020, Biomass R&D Technical Advisory Committee. Advising both the U.S Secretary of Energy and the U.S. Secretary of Agriculture on issues related to advancing bioenergy technologies.

**President**, 2014-15, Society of Wood Science and Technology, Madison, WI. As the international professional society for wood science, SWST provides academic accreditation, international convention forums annually, and a leading journal for the profession. The position of President requires a 5-year commitment that includes two-preceding years as VP and President Elect, as well as two-years with Past-President duties.

**Adjunct Professor**, 2013-present, College of Agricultural Sciences, Department of Agricultural and Biological Engineering, The Pennsylvania State University, University Park, PA.

**Regents Professor, Washington State University**, 2012, the promotion honors the highest level of international distinction in the discipline that raises university standards through teaching, scholarship and public service. This rank is capped at 20 across the university.

**Fellow, International Academy of Wood Science**, 2012, meritorious recognition of wood scientists in evidence of high scientific standards

**Project Co-Director**, 2011-2017, NARA - Northwest Advanced Renewables Alliance, USDA NIFA research consortium included >50 Principal Investigators from 16 universities, government laboratories, corporations, and non-governmental organizations.

**Leon Luck Most Effective Professor**, 2009, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA.

**Alumnus Career Achievement Award**, 2009, 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 Award**, 2002, 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).

## **KEYNOTE, FEATURED, & INTERNATIONAL LECTURES** *(total of 24)*

**Wolcott, M.P.** and J. Holladay. 2019. Sustainable supply chains for aviation fuels. *Keynote Speaker*. 13<sup>th</sup> Annual US - China Eco-Environmental Symposium, Seattle, WA, October 27.

**Wolcott, M.P.** 2019. Building the case for sustainable aviation fuels. *Keynote Speaker*. AIChE Bioenergy Sustainability Conference, Nashville, TN, October 21.

**Wolcott, M.P.** 2018. Drivers, opportunities, and challenges for the emerging alternative jet fuel industry. *Keynote Speaker*. ACS Regional Meeting (NORM), Richland, WA, June 26.

**Wolcott, M.P.** and R. Cavalieri. 2017. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. *Invited Panelist*. United Nations International Day of Forests, New York, NY, March 21.

Cavalieri, R. and **M.P. Wolcott**. 2016. Envisioning alternative aviation fuel supply chains for the northwest. *Featured Presentation*. DOE BETO Alternative Aviation Fuel Workshop, Macon, GA, September 14.

**Wolcott, M.P.** 2016. Aviation Biofuels. *Invited Speaker*. Berkeley Bioeconomy Workshop, Rutgers University, NJ, September 30 – October 1.

**Wolcott, M.P.** and R. Cavalieri. 2013. Wood to wing: Envisioning an aviation biofuels industry from forest residuals. *Featured Lecture*. OSU Starker Lecture Series, Corvallis, OR, April 11.

**Wolcott, M.P.** 2012. The Northwest Advanced Renewables Alliance: A supply chain to aviation biofuels and environmentally preferred products. *Invited Speaker*. Pacific West Biomass Conference & Trade Show, San Francisco, CA, January 17.

**Wolcott, M.P.** and M.A. Gonin. 2010. Structural design for sustainable construction and disaster mitigation. *Invited Organizer*. United Nations Economic Commission for Europe and SWST, Palais des Nations, Geneva, Switzerland, October 11-15.

**Wolcott, M.P.** 2009. Innovative sustainable design programs for engineers. *Invited Lecturer*. Microsoft Green, Microsoft Campus, Redmond, WA, July 21.

**Wolcott, M.P.** 2009. Natural fiber composites to foster sustainable building goals. *Invited Session Keynote*. ANTEC@NPE 2009, Chicago, IL, June 23.

**Wolcott, M.P.** 2009. The future of design: Sustainability. *Keynote Speaker*. 60<sup>th</sup> Annual Road Builders' Clinic, Coeur d'Alene, ID, March 3.

**Wolcott, M.P.** 2008. Natural fiber thermoplastic composites: The state of the future. *Keynote Speaker*. 9<sup>th</sup> 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 9<sup>th</sup> 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.

## **PATENTS** *(total of 6)*

- Hurst, M.W., C. Qi, **M. Wolcott** and V. Yadama. 2013. Composite boards made with sorghum stalks and a thermoplastic binder and processes for making same. US Patent No. 20,130,089,700. Washington, DC: U.S. Patent and Trademark Office.
- 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.

Alzheimer, 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.

## REFEREED JOURNAL ARTICLES

(total of 168 with > 8500 citations – h-index 46) Google Scholar Report: <http://goo.gl/qvGi4>

\*Undergraduate Student; \*\* Graduate Student; \*\*\*Post-Doctoral Fellow; \*\*\*\*Visiting Scientist

Brandt, K., G. Latta, D. Camenzind, J. Dolan, D. Bender, A. Wilson, and **M. Wolcott**. 2021. Projected cross-laminated timber demand and lumber supply analysis. BioResources. 16(1):862-881.

Du, L. \*\*, H. Yu, B. Zhang, R. Tang, Y. Zhang, C. Qi, **M.P. Wolcott**, Z. Yu, and J. Wang. 2021. Transparent oxygen barrier nanocellulose composite films with a sandwich structure. Carbohydrate Polymers. DOI: 10.1016/j.carbpol.2021.118206.

Martinez-Valencia, L. \*\*, D. Camenzind, M. Wigmosta, M. Garcia-Perez, and **M. Wolcott**. 2021. Biomass supply chain equipment for renewable fuels production: A review. Biomass and Bioenergy. DOI: 10.1016/j.biombioe.2021.106054. 148:106054.

Tanzil, A.H., X. Zhang, **M. Wolcott**, K. Brant, C. Stockle, G. Murthy, and M. Garcia-Perez. 2021. Evaluation of dry corn ethanol bio-refinery concepts for the production of sustainable aviation fuel. Biomass and Bioenergy. DOI: 10.1016/j.biombioe.2020.105937. 146:105937.

Tanzil, A.H., K. Brandt, **M. Wolcott**, X. Zhang, and M. Garcia-Perez. 2021. Strategic assessment of sustainable aviation fuel production technologies: Yield improvement and cost reduction opportunities. Biomass and Bioenergy. DOI: 10.1016/j.biombioe.2020.105942. 145:105942.

Zhong, T. \*\*, **M.P. Wolcott**, H. Liu, and J. Wang. 2021. Acidic ethanol/water casting approach to improve chitin nanofibril dispersion and properties of propionylated chitin biocomposites. ACS Sustainable Chemistry & Engineering. DOI: 10.1021/acssuschemeng.0c08990. 9(8):3289-3299.

Azadfar, M. \*\*\* and **M.P. Wolcott**. 2020. Surface characterization of powdered cellulose activated by potassium hydroxide in dry condition through ball milling. Polysaccharides. DOI: 10.3390/polysaccharides1010006. 1(1):80-89.

Brandt, K.L., R.J. Wooley, S.C. Geleynse, J. Gao, J. Zhu, R.P. Cavalieri, and **M.P. Wolcott**. 2020. Impact of co-product selection on techno-economic analyses of alternative jet fuel produced with forest harvest residuals. Biofuels, Bioprod. Bioref. DOI: 10.1002/bbb.2111. 14(4):764-775.

Du, L. \*\*, Z. Yu, J. Wang, **M.P. Wolcott**, Y. Zhang, and C. Qi. 2020. Analyzing the film formation mechanism of cellulose nanoparticles (CNPs) based on the fast freeze-drying morphology. Cellulose. DOI: 10.1007/s10570-020-03164-z. 27:6921-6933.

Geleynse, S., Z. Jiang, K. Brandt, M. Garcia-Perez, **M. Wolcott**, and X. Zhang. 2020. Pulp mill integration with alcohol-to-jet conversion technology. Fuel Processing Technology. DOI: 10.1016/j.fuproc.2020.106338. 201:106338.

Gu, B-J. \*\*, **M.P. Wolcott**, and G.M. Ganjyal. 2020. Optimized screw profile design proved to inhibit re-agglomeration that occurs during extrusion of fine-milled forest residuals for producing fermentable sugars. Industrial Crops and Products. DOI: 10.1016/j.indcrop.2020.112730. 154:112730.

- Huang, L.\*\* , Q. Wu, Q. Wang, and **M.P. Wolcott**. 2020. Interfacial crystals morphology modification in cellulose fiber/polypropylene composite by mechanochemical method. Composites Part A. Applied Science and Manufacturing. DOI: 10.1016/j.compositesa.2020.105765. 130:105765.
- Huang, L.\*\* , Q. Wu, Q. Wang, R. Ou, and **M.P. Wolcott**. 2020. Solvent-free pulverization and surface fatty acylation of pulp fiber for property-enhanced cellulose/polypropylene composites. Journal of Cleaner Production. DOI: 10.1016/j.jclepro.2019.118811. 244:118811.
- Liu, Y.\*\* , J. Wang, J.C. Barth, K.R. Welsch, V. McIntyre\*, and **M.P. Wolcott**. 2020. Effects of multi-stage milling method on the energy consumption of comminuting forest residuals. Industrial Crops and Products. DOI: 10.1016/j.indcrop.2019.111955. 145:111955.
- Zhong, T.\*\*\*, **M.P. Wolcott**, H. Liu, N. Glandon, and J. Wang. 2020. The influence of pre-fibrillation via planetary ball milling on the extraction and properties of chitin nanofibers. Cellulose. DOI: 10.1007/s10570-020-03186-7. 27:6205-6216.
- Zhong, T.\*\*\*, R. Dhandapani, D. Liang, J. Wang, **M. P. Wolcott**, D. Van Fossen, and H. Liu. 2020. Nanocellulose from recycled indigo-dyed denim fabric and its application in composite films. Carbohydrate Polymers. DOI: 10.1016/j.carbpol.2020.116283. 240:116283.
- Zhong, T.\*\*\*, **M.P. Wolcott**, H. Liu, and J. Wang. 2020. Propionylation-modified chitin with improved solubility in green ethanol/water binary solvents for sustainable film and coating applications. Journal of Cleaner Production. DOI: 10.1016/j.jclepro.2019.119458. 250:119458.
- Azadfar, M.\*\*\*, M.R. Graham, and **M.P. Wolcott**. 2019. Effect of cellulose reducing ends on the reinforcing capacity of powdered cellulose in polypropylene composites. Journal of Composites Science. DOI: 10.3390/jcs3040098. 3(4):98.
- Brandt, K., A. Wilson, D. Bender, J.D. Dolan, and **M.P. Wolcott**. 2019. Techno-economic analysis for manufacturing cross-laminated timber. BioResources. 14(4):7790-7804.
- Dolan, J.D., A. Wilson, K. Brandt, D.A. Bender, and **M.P. Wolcott**. 2019. Structural design process for estimating cross-laminated timber use factors for buildings. BioResources. 14(3):7247-7265.
- Gu, B.-J.\*\* , G.S. Dhumal, **M.P. Wolcott**, and G.M. Ganjyal. 2019. Disruption of lignocellulosic biomass along the length of the screws with different screw elements in a twin-screw extruder. Bioresource Technology. DOI: 10.1016/j.biortech.2018.12.033. 275:266-271.
- Guo, X., J. Xin, J. Huang, **M.P. Wolcott**, and J. Zhang. 2019. Preparation and toughening of mechanochemically modified lignin-based epoxy. Polymer. DOI: 10.1016/j.polymer.2019.121859. 183:121859.
- Howe, D.\*\* , M. Garcia-Perez, D. Taasevigen, J. Rainbolt, K. Albrecht, H. Li, L. Wei, A. McDonald, and **M. Wolcott**. 2019. Thermal pretreatment of a high lignin SSF digester residue to increase its softening point. Journal of Analytical and Applied Pyrolysis. DOI: 10.1016/j.jaap.2016.03.012. 142:103691.
- Huang, L.\*\* , Q. Wu, Q. Wang, and **M.P. Wolcott**. 2019. Mechanical activation and characterization of micronized cellulose particles from pulp fiber. Industrial Crops and Products. DOI: 10.1016/j.indcrop.2019.111750. 141:111750.
- Huang, L.\*\* , Q. Wu, Q. Wang, and **M.P. Wolcott**. 2019. One-step activation and surface fatty acylation of cellulose fiber in solvent-free condition. ACS Sustainable Chemistry & Engineering. DOI: 10.1021/acssuschemeng.9b01974. 7(19):15920-15927.
- Lewis, K.C., E.K. Newes, S.O. Peterson, M.N. Pearlson, E.A. Lawless, K. Brandt, D. Camenzind\*\*, **M.P. Wolcott**, B.C. English, G.S. Latta, A. Malwitz, J.I. Hileman, N.L. Brown, and Z. Haq. 2019. U.S.

- alternative jet fuel deployment scenario analyses identifying key drivers and geospatial patterns for the first billion gallons. Biofuels, Bioproducts & Biorefining. DOI:10.1002/bbb.1951. 13(3):471-485.
- Lin, K-T., R. Ma, P. Wang, J. Xin, J. Zhang, **M.P. Wolcott**, and X. Zhang. 2019. Deep eutectic solvent assisted facile synthesis of lignin-based cryogel. Macromolecules. DOI: 10.1021/acs.macromol.8b02279. 52(1):227-235.
- Martinkus, N.\*\* , G. Latta, S.A.M. Rijkhoff, D. Mueller, S. Hoard, D. Sasatani, F. Pierobon, and **M. Wolcott**. 2019. A multi-criteria decision support tool for biorefinery siting: Using economic, environmental, and social metrics for a refined siting analysis. Biomass and Bioenergy. DOI:10.1016/j.biombioe.2019.105330. 128:105330.
- Ravi, V.\*\* , J.K. Vaughan, **M.P. Wolcott**, and B.K. Lamb. 2019. Impacts of prescribed fires and benefits from their reduction for air quality, health, and visibility in the Pacific Northwest of the United States. Journal of the Air & Waste Management Association. DOI: 10.1080/10962247.2018.1526721. 69(3):289-304.
- Zhong, T.\*\*\*, **M.P. Wolcott**, H. Liu, and J. Wang. 2019. Developing chitin nanocrystals for flexible packaging coatings. Carbohydrate Polymers. DOI: 10.1016/j.carbpol.2019.115276. 226:115276.
- Brandt, K.L., J. Gao, J. Wang, R. Wooley, and **M. Wolcott**. 2018. Techno-economic analysis of forest residue conversion to sugar using three-stage milling as pretreatment. Frontiers in Energy Research-Bioenergy and Biofuels. DOI: 10.3389/fenrg.2018.00077. 6:77
- Du, L.\*\* , T. Zhong\*\*\*, **M.P. Wolcott**, Y. Zhang, C. Qi, B. Zhao, J. Wang, and Z. Yu. 2018. Dispersing and stabilizing cellulose nanoparticles in acrylic resin dispersions with unreduced transparency and changed rheological property. Cellulose. DOI: 10.1007/s10570-018-1739-x. 25(4):2435-2450.
- Fu, Y., B-J. Gu\*\*, J. Wang, J. Gao, G.M. Ganjyal, and **M.P. Wolcott**. 2018. Novel micronized woody biomass process for production of cost-effective clean fermentable sugars. Bioresource Technology. DOI: 10.1016/j.biortech.2018.03.096. 260:311-320.
- Geleynse, S., K. Brandt, M. Wolcott, M. Garcia-Perez, and X. Zhang. 2018. The alcohol-to-jet conversion pathway for drop-in biofuels: Techno-economic evaluation. ChemSusChem. DOI: 10.1002/cssc.201801690. 11(21):3728-3741.
- Gu, B-J.\*\* , **M.P. Wolcott**, and G.M. Ganjyal. 2018. Pretreatment with lower feed moisture and lower extrusion temperatures aids in the increase in the fermentable sugar yields from fine-milled Douglas-fir. Bioresource Technology. DOI: 10.1016/j.biortech.2018.08.109. 269:262-268.
- Gu, B-J.\*\* , J. Wang, **M.P. Wolcott**, and G.M. Ganjyal. 2018. Increased sugar yield from pre-milled Douglas-fir forest residuals with lower energy consumption by using planetary ball milling. Bioresource Technology. DOI: 10.1016/j.biortech.2017.11.103. 251:93-98.
- Martinkus, N., G. Latta, K.L. Brandt, and **M.P. Wolcott**. 2018. A multi-criteria decision analysis approach to facility siting in a wood-based depot-and-biorefinery supply chain model. Frontiers in Energy Research-Bioenergy and Biofuels. DOI: 10.3389/fenrg.2018.00124. 6:124.
- Qiang, T.\*\*\*\*, J. Wang, and **M.P. Wolcott**. 2018. Facile fabrication of 100% bio-based and degradable ternary cellulose/PHBV/PLA composites. Materials. DOI:10.3390/ma11020330. 11(2):330.
- Qiang, T.\*\*\*\*, J. Wang and **M.P. Wolcott**. 2018. Facile preparation of cellulose/polylactide composite materials with tunable mechanical properties. Polymer-Plastics Technology and Engineering. DOI: 10.1080/03602559.2017.1381243. 57(13):1288-1295.

- Ravi, V.\*\*, A.H. Gao\*\*, N.B. Martinkus\*\*, **M.P. Wolcott**, and B.K. Lamb. 2018. Air quality and health impacts of an aviation biofuel supply chain using forest residue in the northwestern United States. Environmental Science & Technology. DOI: 10.1021/acs.est.7b04860. 52(7):4154-4162.
- Wang, J., J. Gao, K.L. Brandt, and **M.P. Wolcott**. 2018. Energy consumption of two-stage fine grinding of Douglas-fir wood. Journal of Wood Science. DOI: 10.1007/s10086-018-1712-1. 64(4):338-346.
- Wang, J., J. Gao, K.L. Brandt, J. Jiang\*\*, Y. Liu\*\*, and **M.P. Wolcott**. 2018. Improvement of enzymatic digestibility of wood by a sequence of optimized milling procedures with final vibratory tube mills for the amorphization of cellulose. Holzforschung. DOI: 10.1515/hf-2017-0161. 72(6):435-441.
- Xie, S., Zhang, X., **Wolcott, M.P.** and Lin, H., 2018. Cellulose Nanocrystals (CNCs) Applications: A Review. Eng. Sci. DOI: 10.30919/es.1803302. 2:(4-16).
- Du, L.\*\*, J. Wang, Y. Zhang, C. Qi, **M.P. Wolcott**, and Z. Yu. 2017. A co-production of sugars, lignosulfonates, cellulose, and cellulose nanocrystals from ball-milled woods. Bioresource Technology. DOI: 10.1016/j.biortech.2017.03.097. 238:254-262.
- Du, L.\*\*, J. Wang, Y. Zhang, C. Qi, **M.P. Wolcott**, and Z. Yu. 2017. Preparation and characterization of cellulose nanocrystals from the bio-ethanol residuals. Nanomaterials. DOI: 10.3390/nano7030051. 7(3):51.
- Howe, D.\*\*, D. Taasevigen, M. Garcia-Perez, A. McDonald, G. Li, and **M. Wolcott**. 2017. Steam gasification of a thermally pretreated high lignin corn stover simultaneous saccharification and fermentation digester residue energy. Energy. DOI: 10.1016/j.energy.2016.12.094. 119:400-407.
- Jiang, J.\*\*, J. Wang, X. Zhang, and **M.P. Wolcott**. 2017. Assessing multi-scale deconstruction of wood cell wall subjected to mechanical milling for enhancing enzymatic hydrolysis. Industrial Crops and Products. DOI: 10.1016/j.indcrop.2017.09.009. 109:498-508.
- Jiang, J.\*\*, J. Wang, X. Zhang, and **M.P. Wolcott**. 2017. Characterization of micronized wood and energy-size relationship in wood comminution. Fuel Processing Technology. DOI: 10.1016/j.fuproc.2017.03.015. 161:76-84.
- Jiang, J.\*\*, J. Wang, X. Zhang, and **M.P. Wolcott**. 2017. Microstructure change in wood cell wall fracture from mechanical pretreatment and its influence on enzymatic hydrolysis. Industrial Crops and Products. DOI: 10.1016/j.indcrop.2017.01.001. 97:498-508.
- Liu, Y.\*\*, J. Wang, and **M.P. Wolcott**. 2017. Size effects on acid bisulfite pretreatment efficiency: multiple product yields in spent liquor and enzymatic digestibility of pretreated solids. ACS Sustainable Chemistry & Engineering. DOI: 10.1021/acssuschemeng.7b00728. 5(6):5418-5423.
- Liu, Y.\*\*, J. Wang, and **M.P. Wolcott**. 2017. Evaluating the effect of wood ultrastructural changes from mechanical treatment on kinetics of monomeric sugars and chemicals production in acid bisulfite treatment. Bioresource Technology. DOI: 10.1016/j.biortech.2016.12.009. 226:24-30.
- Liu, Y.\*\*, J. Wang, and **M.P. Wolcott**. 2017. Modeling the production of sugar and byproducts from acid bisulfite pretreatment and enzymatic hydrolysis of Douglas-fir. Bioresource Technology. DOI: 10.1016/j.biortech.2016.10.071. 224:389-396.
- Martinkus, N.\*\*, G. Latta, T. Morgan, and **M. Wolcott**. 2017. A comparison of methodologies for estimating delivered forest residue volume and cost to a wood-based biorefinery. Biomass and Bioenergy. DOI: 10.1016/j.biombioe.2017.08.023. 106:83-94.
- Martinkus, N.\*\*, and **M. Wolcott**. 2017. A framework for quantitatively assessing the repurpose potential of existing industrial facilities as a biorefinery. Biofuels, Bioproducts and Biorefining. DOI: 10.1002/bbb.1742. 11(2):295-306.



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- Xin, J., P. Zhang, **M.P. Wolcott**, J. Zhang, W.C. Hiscox and X. Zhang. 2017. A novel and formaldehyde-free preparation method for lignin amine and its enhancement for soy protein adhesive. Journal of Polymers and the Environment. DOI: 10.1007/s10924-016-0844-x. 25(3):599-605.
- Alvarez-Vasco, C., R. Ma, M. Quintero, M. Guo, S. Geleynse, K.K. Ramasamy, **M. Wolcott**, and X. Zhang. 2016. Unique low-molecular-weight lignin with high purity extracted from wood by deep eutectic solvents (DES): A source of lignin for valorization. Green Chemistry. DOI: 10.1039/C6GC01007E. 18(19):5133-5141.
- Chen, M., P.M. Smith, and **M.P. Wolcott**. 2016. U.S. biofuels industry: A critical review of opportunities and challenges. BioProducts Business. 1(4):42-59. DOI: 10.22382/bpb-2016-004.
- Guo, X., J. Xin, **M.P. Wolcott** and J. Zhang. 2016. Mechanochemical oleation of lignin through ball milling and properties of its blends with PLA. ChemistrySelect. DOI: 10.1002/slct.201600633. 1(13):3449-3454.
- Jiang, J.\*\* , J. Wang, X. Zhang, and **M.P. Wolcott**. 2016. Evaluation of physical structural features on influencing enzymatic hydrolysis efficiency of micronized wood. RSC Advances. DOI: 10.1039/C6RA22371K. 6(105):103026-103034.
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## **BOOKS, CHAPTERS, PROCEEDINGS, & REVIEWS** *(total of 22)*

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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. In: Proceedings of 1990 Conference on Experimental Mechanics, Society of Experimental Mechanics, Albuquerque, NM. pp 84-88.

**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. In: Proceedings of 3<sup>rd</sup> Joint ASCE/ASME Mechanics Conference. University of California at San Diego, LaJolla, CA. pp 53-60.

## **PRESENTATIONS & LECTURES** *(total of 204)*

**Wolcott, M.** and J. Holladay. 2019. Supply chains for sustainable aviation fuels: Why, What, Who? CleanTech Alliance Breakfast, Seattle, WA, December 11.

**Wolcott, M.P.**, K. Brandt, N. Martinkus and D. Camenzind. 2018. Regional Supply Chain Approaches: Supply chain for sustainable aviation fuel from oilseeds in the Inland Northwest. CAAFI Annual Meeting, Washington, D.C., December 5.

**Wolcott, M.P.**, M. Garcia-Perez, X. Zhang, A. Tanzil and K. Brandt. 2018. Alternative Jet Fuel Supply Chain Analysis - Conversion pathways to alternative fuels. CAAFI Annual Meeting, Washington, D.C., December 5.

**Wolcott, M.P.** and R.J. Hansman. 2018. ASCENT - FAA Center of Excellence for Alternative Jet Fuels and Environment. CAAFI Annual Meeting, Washington, D.C., December 5.

Cavalieri, R. and **M.P. Wolcott**. 2018. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products – Dynamics of multi-disciplinary collaborations and public-private partnerships. SPARC Annual Meeting, Quincy, FL June 25-27.

**Wolcott, M.P.** 2018. Regional Approaches to Alternative Jet Fuel Development. 32<sup>nd</sup> Annual Aviation Noise & Emissions Symposium, Long, Beach, CA February 25-27.

**Wolcott, M.P.**, M. Azadfar, and L. Huang. 2017. Mechano-Chemo Modification of Cellulose Powders. EU COST FP1407 Conference, Kuchl, Austria. September 14.

**Wolcott, M.P.** 2017. Alternative Jet Fuels Development. 1st Ibero-American Symposium on Environment, Civil Aviation and Climate Change, Guatemala City, Guatemala. July 19.

**Wolcott, M.P.** 2017. ASCENT – FAA Center of Excellence for Alternative Jet Fuels and the Environment. 1st Ibero-American Symposium on Environment, Civil Aviation and Climate Change, Guatemala City, Guatemala. July 20.

**Wolcott, M.P.** and R. Cavalieri. 2017. Wood to Wake – A regional vision for sustainable biojet in the Pacific Northwestern US. UBC Biofuels Workshop, Vancouver, BC, Canada, February 21.

Geleynse, S., X. Zhang, M. Garcia-Perez and **M. Wolcott**. 2016. Evaluation of alcohol-to-jet (ATJ) conversion technology for renewable jet fuel. 2016 AiChE Annual Meeting, International Congress on Energy, San Francisco, CA, November 16.

Cavalieri, R. and **M.P. Wolcott**. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products – Lessons learned. USDA NIFA Sustainable Bioenergy Meeting, New Orleans, LA, October 18-20.

- Wolcott, M.P.** and R. Cavalieri. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. USDA NIFA Sustainable Bioenergy Meeting, New Orleans, LA, October 18-20.
- Cavalieri, R. and **M.P. Wolcott**. 2016. Envisioning alternative aviation fuel supply chains for the northwest. DOE BETO Alternative Aviation Fuel Workshop, Macon, GA, September 14.
- Cavalieri, R. and **M.P. Wolcott**. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Port of Seattle Commission Meeting, Seattle, WA, June 28.
- Wolcott, M.P.** and R. Cavalieri. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Northwest Wood-Based Biofuels + Co-Products Conference, Seattle, WA, May 3.
- Wooley, R.J., **M.P. Wolcott**, R. Cavalieri, J.Y. Zhu, R. Gleisner, A.C. Hawkins, J. Ley, K. Evans, G. Johnston, J. Gao, T. Spink, G. Marrs and J. Sessions. 2016. Challenges of producing fuel enabling the first commercial airline flight from cellulosic-based alcohol to biojet. 38<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals, Baltimore, MD, April 25-28.
- Wolcott, M.P.** and R. Cavalieri. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Oregon Stakeholder Meeting, Portland, OR, April 11.
- Wolcott, M.P.** and R. Cavalieri. 2016. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Montana Forest Products Roundtable Meeting, Missoula, MT, April 8.
- Wolcott, M.P.** and R. Cavalieri. 2016. Wood to Wings - Envisioning alternative aviation fuel supply chains for the northwest. Lecture: College of Natural Resources, University of Idaho, Moscow, ID, February 24.
- Geleynse, S., X. Zhang, **M. Wolcott** and M. Garcia-Perez. 2015. Technical feasibility evaluation of alcohol-to-jet (ATJ) conversion technology for renewable jet fuel. 2015 AiChE Annual Meeting, International Congress on Energy, Salt Lake City, UT, November 10.
- Guo, M., J. Wang, **M. Wolcott** and X. Zhang. 2015. Process modeling of a distributed sugar depot approach to biomass conversion. 2015 AiChE Annual Meeting, International Congress on Energy, Salt Lake City, UT, November 10.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance progress toward sustainable biorefineries. 2015 AiChE Annual Meeting, Sustainable Engineering Forum, Salt Lake City, UT, November 10.
- Zhu, J.Y., J. Zhang, C. Clemons, **M. Wolcott**, R. Gleisner and X. Zhang. 2015. Effect of hot-pressing temperature on the subsequent enzymatic saccharification and fermentation performance of SPORL pretreated forest biomass. 2015 AiChE Annual Meeting, Sustainable Engineering Forum, Salt Lake City, UT, November 10.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. USDA NIFA Sustainable Bioenergy Meeting, Denver, CO, November 3-5.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Washington's Energy Future Conference, Seattle, WA, November 2.

- Wolcott, M.P.** and R. Cavalieri. 2015. Envisioning alternative aviation fuel supply chains for the northwest. Western State Energy Team Conference, The Dalles, OR, October 29.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. WA Forest Biomass Team, Olympia, WA, August 18.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. NewBio Annual Meeting, Morgantown, WV, August 3-5.
- Wolcott, M.P.** 2015. Micronized wood milling for biofuels and biochemical production. Lecture: Division of Forestry and Natural Resources, West Virginia University, Morgantown, WV, August 3.
- Olsen, K., T. Beyreuther, **M. Wolcott** and T. Laninga. 2015. Interdisciplinary design course structure: Lessons for engineering instructors from a capstone design course. 122<sup>nd</sup> American Society for Engineering Education Annual Conference & Exposition, Seattle, WA, June 14-17.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. Asia-Montana Energy Summit, Missoula, MT, April 29-30.
- Wolcott, M.P.** and R. Cavalieri. 2015. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. 2015 Small Log Conference, Coeur d'Alene, ID, March 24-26.
- Zhang, J., A. Laguna, C. Clemons, **M.P. Wolcott**, R. Gleisner, and J.Y. Zhu. 2014. Effect of temperature on pelletizing SPORL pretreated forest biomass and subsequent enzymatic saccharification and fermentation. 2014 AiChE Annual Meeting, International Congress on Energy (ICE), Atlanta, GA, November 16-21.
- Wolcott, M.P.** and R. Cavalieri. 2014. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, & environmentally preferred products. USDA NIFA AFRI Sustainable Bioenergy PD Meeting, Arlington, VA, October 29-30.
- Wolcott, M.P.** and R. Cavalieri. 2014. Challenges and opportunities for biofuels in Washington and beyond. WCTA Breakfast, Seattle, WA, May 14.
- Wolcott, M.P.** and R. Cavalieri. 2014. Wood to wing: Envisioning an aviation biofuels industry from forest residuals. Northwest Wood-Based Biofuels + Co-Products Conference, Seattle, WA, April 28.
- Cavalieri, R. and **M.P. Wolcott**. 2014. Energy independence for a sustainable future: Envisioning an aviation biofuels Industry from forest residuals. Great Decisions Lecture Series, Whitworth University, Spokane, WA, April 24.
- Wolcott, M.P.** and R. Cavalieri. 2014. Wood to wing: Envisioning an aviation biofuels industry from forest residuals. 2014 Oregon Logging Conference, Eugene, OR, February 20-22.
- Wolcott, M.P.** and R. Cavalieri. 2014. Northwest Advanced Renewables Alliance: A new vista for green fuels, chemicals, and environmentally preferred products (EPPs). 2014 Harvesting Clean Energy Conference, Helena, MT, Feb. 4-6.
- Alam, A., L. Haselbach, C. Poor, and **M. Wolcott**. 2013. Green rating integration platform – A decision making tool for multi-modal or faceted facilities: sustainable water & material practice. ASCE Green Highway Conference, Austin, TX, Nov. 3-6.

- Wolcott, M.P.** and R. Cavalieri. 2013. Wood to wing: Envisioning an aviation biofuels industry from forest residuals. AAIC 25<sup>th</sup> Anniversary Meeting, Washington, DC, October 13-16.
- Cavalieri, R. and **M.P. Wolcott**. 2013. Feasibility of forest industry depots for collection and distribution of biomass. American Society of Agricultural and Biological Engineers 2013 International Meeting, Kansas City, MO, July 21-24.
- Wolcott, M.P.** and R. Cavalieri. 2013. Wood to wing: Envisioning an aviation biofuels industry from forest residuals. Western Forest Economists Meeting, Leavenworth, WA, June 24-25.
- Cavalieri, R. and **M.P. Wolcott**. 2013. Toward a sustainable aviation biofuel future. 2013 Paris Airshow, Paris, France, June 17-21.
- Chen, F. and **M. Wolcott**. 2013. Leakage of phase change material paraffin in polyethylene/paraffin binary composites for buildings energy storage. 245<sup>th</sup> ACS National Meeting & Exposition, New Orleans, LA, April 7-11.
- Martinkus, N. and **M.P. Wolcott**. 2013. GIS as a decision support tool for supply chain analysis in the Western Montana corridor. 2013 Small Log Conference, Coeur d'Alene, ID, March 14.
- Qi, C., V. Yadama, K. Guo, and **M.P. Wolcott**. 2012. Thermal degradation and its simulation of sweet sorghum during hot press processing. 2012 International Conference on Biobase Material Science and Engineering, Changsha, China, October 21-23.
- Martinkus, N. A. Kulkarni, N. Lovrich, P. Smith, W. Shi, J. Pierce, **M. Wolcott**, and S. Brown. 2012. Northwest (US) Advanced Renewables Alliance (NARA): An innovative approach to identify regional bioenergy infrastructure sites. SWST/ICBR International Convention, Beijing, China, Aug 27-31.
- Ten, E., J. Turtle, L. Jiang, and **M.P. Wolcott**. 2012. Fabrication of cellulose nanowhiskers (CNW) reinforced poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV) fibers by wet spinning. 244<sup>th</sup> ACS National Meeting & Exposition, Philadelphia, PA, August 19-23.
- Ten, E., L. Jiang, and **M.P. Wolcott**. 2012. Characterization and modeling of mechanical properties of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV)/cellulose nanowhiskers (CNW) composites. 244<sup>th</sup> ACS National Meeting & Exposition, Philadelphia, PA, August 19-23.
- Jiang, L., **M.P. Wolcott**, E. Ten, and X. Xu. 2012. Use of cellulose nanowhiskers as an effective reinforcement in composites. 244<sup>th</sup> ACS National Meeting & Exposition, Philadelphia, PA, August 19-23.
- Qi, C., **M.P. Wolcott**, and V. Yadama. 2012. Thermal behaviors of natural fiberthermoplastic composites. 66<sup>th</sup> International Convention, Forest Products Society, Washington DC, June 3-5.
- Wolcott, M.P.** 2012. The Northwest Advanced Renewables Alliance: A supply chain to aviation biofuels and environmentally preferred products. SmallWood 2012: Forest Restoration for a New Economy, Flagstaff, AZ, May 1-3.
- Wolcott, M.P.** 2012. The Northwest Advanced Renewables Alliance: A supply chain to aviation biofuels and environmentally preferred products. 46<sup>th</sup> International Wood Composites Symposium, Seattle, WA, April 11-12.
- Chen, F. and **M.P. Wolcott**. 2011. Comparing the miscibility of paraffin in different polyethylenes for form-stable phase change materials. AIChE Annual Meeting, Minneapolis, MN, Oct. 16-18.
- Haselbach, L., D. Ascher-Barnstone, S. Brown, and **M.P. Wolcott**. 2011. Sustainability engineering education: A bridge to integration into practice. Association of Environmental Engineering and

- Ten, E., L. Jiang, and **M.P. Wolcott**. 2011. Prediction of storage moduli of poly(3-hydroxybutyrate-co-3-hydroxyvalerate)/cellulose nanowhiskers composites based on nanowhisker orientation angle. 11th International Conference on Wood & Biofiber Plastic Composites and Nanotechnology in Wood Composites Symposium, Madison, WI, May 16-18.
- Tsai, M.H. and **M.P. Wolcott**. 2011. Processing effects on mechanical properties and creep behaviors of wood-microbial polyester composites. 11th International Conference on Wood & Biofiber Plastic Composites and Nanotechnology in Wood Composites Symposium, Madison, WI, May 16-18.
- Jiang, L., M.H. Tsai, and **M.P. Wolcott**. 2011. Developing PHB/wood flour/cell debris composites through extrusion. 69<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers 2011 (ANTEC 2011), Boston, MA, May 1-5.
- Ten, E., L. Jiang, and **M.P. Wolcott**. 2011. Poly(3-hydroxybutyrate-co-3-hydroxyvalerate)/cellulose nanowhiskers composites: The development and effects of nanowhisker orientation. 241st ACS National Meeting & Exposition, Anaheim, CA, March 27-31.
- Ten, E., L. Jiang, and **M.P. Wolcott**. 2010. Crystallization kinetics of poly(3-hydroxybutyrate-co-3-hydroxyvalerate)/cellulose nanowhiskers composites. Pacifichem 2010, Honolulu, HI, Dec. 15-20.
- Jiang, L., E. Ten, and **M.P. Wolcott**. 2010. Preparation and properties of poly(3-hydroxybutyrate-co-3-hydroxyvalerate)/cellulose nanowhiskers composites. The 18th Annual BEPS Meeting Polymers & the Environment: Emerging Green Technologies & Science, Toronto, Ontario, Canada, Oct. 13-15.
- Dolan, J.D., K.A. DuChateau, J. O'Dell, **M.P. Wolcott**, and S. Johnson. 2010. Effect of form change in sill plates on shear wall performance. 11<sup>th</sup> World Conference on Timber Engineering 2010, WCTE 2010, Trentino, Italy, June 20-24.
- Ten, E., L. Jiang, D.F. Bahr, W. Zhong, and **M.P. Wolcott**. 2010. Properties of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV)/cellulose nanowhiskers (CNW) composites near mechanical percolation threshold. MRS 2010 Spring Meeting, San Francisco, CA, April 5-9.
- Wolcott, M.P.**, B. Olson, and P.M. Smith. 2010. Building products in the new sustainable economy. 44<sup>th</sup> International Wood Composites Symposium, Seattle, WA, March 29-31.
- Smith, P.M., W. Shi, and **M.P. Wolcott**. 2010. "Green" policies and the US interior wood composite panel supply chain. 44<sup>th</sup> International Wood Composites Symposium, Seattle, WA, March 29-31.
- Wolcott, M.P.**, I. de Sainte Marie, L. Haselbach, and D. McLean. 2010. A sustainable design approach to integrated transportation facilities. 61<sup>st</sup> Annual Road Builders' Clinic, Coeur d'Alene, ID, March 4.
- Wolcott, M.P.**, P.M. Smith, and D.A. Bender. 2009. Natural fiber thermoplastic composites for naval facilities. SAMPE '09 Conference, Baltimore, MD, May 18-21.
- Wolcott, M.P.** 2009. Trends influencing sustainable building standards. Society of American Military Engineers Joint Engineer Training Conference & Expo, Salt Lake City, UT, May 12-15.
- Gacitua, W., D. Bahr, and **M. Wolcott**. 2008. Damage of the cell wall during extrusion and injection molding of wood plastic composites. 51st International Convention of Society of Wood Science and Technology, Concepción, CHILE, Nov. 10-12.
- Zhang J., S. Chen, and **M. Wolcott**. 2007. Biobased polymeric material research at Washington State University. International Symposium on Polymer and the Environment: Emerging Technology and Science, BioEnvironmental Polymer Society and the Biodegradable Products Institute; Vancouver, WA, Oct. 17-20.

- Wolcott, M.**, L. Jiang, J. Zhang, and J. Holbery. 2007. Study of the PHBV/cellulose whisker nanocomposites. 22nd Annual American Society for Composites Technical Conference, Seattle, WA, Sept. 17-19.
- Yadama, V. and **M.P. Wolcott**. 2007. Influence of structure on the elastic behavior of engineered strand composites. 22nd Annual American Society for Composites Technical Conference, Seattle, WA, Sept. 17-19.
- Jiang, L., E. Morelius, J. Zhang, **M. Wolcott**, and J. Holbery. 2007. Effect of microcrystalline cellulose (MCC) treatment on the properties of its polymer composites. Fourth Annual Micro/Nano Conference: Science to Commercialization for the Micro/Nanotechnology Economy, Portland, OR, Sept. 10-12.
- Zhang J., L. Jiang and **M. Wolcott**. 2007. Comparison of nano-sized calcium carbonate and organoclay polylactide (pla) nanocomposites: toughening and reinforcing effects. 234th ACS National Meeting, Boston, MA, August 19-23.
- Wang, J.W., **M.P. Wolcott**, and M.P.G. Laborie. 2007. Kinetic analysis and modeling of mechanical and chemical cure development for wood-PF bonds. Forest Products Society 61st International Convention, Knoxville, TN, June 10-13.
- Yang, H.S. and **M.P. Wolcott**. 2007. Fatigue properties of wood flour high-density polyethylene composites with accelerated weathering exposure. Forest Products Society 61st International Convention, Knoxville, TN, June 10-13.
- Anderson, S., J. Qian, J. Zhang, and **M.P. Wolcott**. 2007. Natural fiber and polyhydroxyalkanoate composites: performance enhancement. 9th International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23.
- Gacitua E., W. and **M.P. Wolcott**. 2007. Morphology of wood species affecting wood-plastic interaction: mechanical interlocking and mechanical properties. 9th International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23.
- Harper, D.P., T.G. Rials, W.L. Griffith, K. Englund, and **M.P. Wolcott**. 2007. Electron-beam curable additives for WPCs. 9th International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23.
- Kaboorani, A., A. Cloutier, and **M.P. Wolcott**. 2007. Effects of water absorption on the mechanical properties of HDPE/wood composites. 9th International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23.
- Yang, H.S. and **M.P. Wolcott**. 2007. Flexural fatigue properties and cumulative damage model verification of wood flour-polypropylene composites. 9th International Conference on Wood & Biofiber Plastic Composites, Madison, WI, May 21-23.
- Wolcott, M.P.** and P.M. Smith. 2007. The future of plastic composites in residential home building. International Builders Show. Orlando, FL. February 10.
- Anderson, S., J. Zhang, and **M.P. Wolcott**. 2006. Study of biocomposites of wood flour and poly(hydroxyalkanoates): performance enhancement. 2006 AiChE Annual Meeting, San Francisco, CA, November 12-17.
- Long, J., J. Zhang, and **M.P. Wolcott**. 2006. Toughening poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV) with poly(butylene adipate-co-terephthalate) (PBAT). 232nd ACS National Meeting, San Francisco, CA, September 10-14.

- DuChateau, K., J.D. Dolan, and **M. Wolcott**. 2006. Performance of bracing panel wall segments utilizing wood plastic composite sill plates. 9<sup>th</sup> World Conference on Timber Engineering 2006, WCTE 2006, Portland, OR, August 6-10.
- Hummer, T., J.D. Dolan, and **M. Wolcott**. 2006. Tension perpendicular to grain strength of wood, laminated veneer lumber, and a wood plastic composite. 9<sup>th</sup> World Conference on Timber Engineering 2006, WCTE 2006, Portland, OR, August 6-10.
- Gacitua E., W. and **M.P. Wolcott**. 2006. Morphology of wood species affecting wood-plastic interaction. Part 1: Mechanical interlocking. Forest Products Society 60th International Convention, Newport Beach, CA, June 25–28.
- Gacitua E., W. and **M.P. Wolcott**. 2006. Morphology of wood species affecting wood-thermoplastic interaction. Part 2: Enhancing toughness and mechanical properties. Forest Products Society 60th International Convention, Newport Beach, CA, June 25–28.
- Harper, D.P., T. Rials, G. Dorsey, W.L. Griffith, K. Englund, and **M.P. Wolcott**. 2006. Electron-beam curable additives for wood-plastic composites. Forest Products Society 60th International Convention, Newport Beach, CA, June 25–28.
- Wang, J.W., M.P.G. Laborie, and **M.P. Wolcott**. 2006. Combinatorial methodologies to characterize cure kinetics of phenol-formaldehyde resins. Forest Products Society 60th International Convention, Newport Beach, CA, June 25–28.
- Wolcott, M.P.** and A. Schirp. 2006. Design of wood thermoplastic composites for resistance to decay and moisture. Forest Products Society 60th International Convention, Newport Beach, CA, June 25–28.
- Coats, E.R., W.A. Smith, D.N. Thompson, F.J. Loge, and **M.P. Wolcott**. 2006. Microbial community changes in a mixed microbial consortia producing PHA from waste carbon sources. 28th Symposium on Biotechnology for Fuels and Chemicals, Nashville, TN, April 30-May 3.
- Wolcott, M.P.** 2006. The evolution and future of renewable composite materials. Anjan Bose Outstanding Researcher Award Lecture. Pullman, WA, April 27.
- Wolcott, M.P.** 2006. Opportunities for nanotechnology in advancing the wood products revolution. International Conference on Nanotechnology in the Forest Products Industry. TAPPI, Atlanta, GA, April 26-28.
- Laborie, M.P.G., J.W. Wang, and **M.P. Wolcott**. 2005. Comparison of cure kinetics models for cure prediction of phenol-formaldehyde resins. Wood Adhesives 2005, San Diego, CA, November 2-4.
- Yang, H.S., **M.P. Wolcott**, H.S. Kim, and H.J. Kim. 2005. Effect of different compatibilizing agents on lignocellulosic material filled-polyethylene bio-composites. Wood Adhesives 2005, San Diego, CA, November 2-4.
- Loge, F.J., E.R. Coats, **M.P. Wolcott**, and A. McDonald. 2005. Poop to plastic: Commercial production of polyhydroxyalkanoates in municipal and industrial wastewater treatment. 2005 AiChE Annual Meeting, Cincinnati, OH, October 30 - November 4.
- Buehlmann, U., O. Ndiapi, D. Saloni, R.L. Lemaster, and **M.P. Wolcott**. 2005. Influence of woodfiber-plastic material composition on machining and abrasion performance. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Fabiyyi, J.S., A.G. McDonald, **M.P. Wolcott**, and K. Englund. 2005. Chemical changes that occur during the weathering of wood-plastic composites. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.

- Gacitua, W. and **M.P. Wolcott**. 2005. A method for studying the wood-plastic interaction. Part 1: Mechanical interlocking. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Gallagher, L.W., S.T. Sundar, A.G. McDonald, and **M.P. Wolcott**. 2005. The effect of woodfiber modification and particle size on wood-plastic composite performance. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Harper, D.P. and **M.P. Wolcott**. 2005. Chemical imaging of wood-polypropylene composites. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Wolcott, M.P.**, P.M. Smith, and J.C. Hermanson. 2005. Opportunities and challenges for wood-plastic composites in emerging product areas. 8th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 23-25.
- Smith, P.M. and **M.P. Wolcott**. 2005. Woodfiber-plastic composite markets and applications. 39th International Wood Composites Symposium. Washington State University, Pullman, WA, April 4-7.
- Englund, K. and **M.P. Wolcott**. 2004. Wheat straw residues as a fiber source for thermoplastic composites. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 10-11.
- Li, T.Q. and **M.P. Wolcott**. 2004. Melt rheology of HDPE-woodfiber composites with matrix of different molecular weight. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 10-11.
- Schirp, A., F. Loge, and **M.P. Wolcott**. 2004. Comparison of three laboratory methods for evaluating fungal decay of WPC's. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 10-11.
- Wolcott, M.P.** and P.M. Smith. 2004. Opportunities and challenges for wood-plastic composites in structural applications. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 10-11.
- Wolcott, M.P.** 2003. Factors influencing the commercialization of navy wood-plastic composites. The Global Outlook for Natural Fiber & Wood Composites Conference, New Orleans, LA, December 3-5.
- Wolcott, M.P.**, K. Englund, D.P. Harper, and T.Q. Li. 2003. Influence of additives on the viscoelastic and rheological behavior of wood-polypropylene composites. AIChE Annual Meeting, San Francisco, CA, November 16-21.
- Coats, E.R., K. Englund, F. Loge, and **M.P. Wolcott**. 2003. Wood fiber-PHB composites. AIChE Annual Meeting, San Francisco, CA, November 16-21.
- Wolcott, M.P.** 2003. Engineered wood-plastic composites. Innovation for Survival PNW Forest Sector, Puyallup, WA, November 18.
- Wolcott, M.P.** 2003. Recent progress in wood-polymer composite materials. Forest Products Priorities for the Future (NPC-NAPFSC Meeting). USDA Forest Products Laboratory, Madison, WI, October 28.
- Wolcott, M.P.** 2003. Production methods and platforms for wood plastics. Non-Wood Substitutes for Solid Wood Products Conference, Melbourne, Australia, October 20-22.
- Yadama, V. and **M.P. Wolcott**. 2003. Characterization of out-of-plane strand orientation and its influence on mechanical properties. 57<sup>th</sup> Annual Meeting of the Forest Products Society, Bellevue, WA, June 23-25.
- Wolcott, M.P.** 2003. Organizing for bioproducts research: The northwest bioproducts research institute. 46th Annual Meeting Society of Wood Science and Technology, Bellevue, WA, June 22.



- Wolcott, M.P.** and T.Q. Li. 2003. A rheology study of HDPE-Maple composites. 7th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 19-20.
- Bender, D.A. and **M.P. Wolcott**. 2003. Experiences with development and commercialization of engineered wood-plastic composites. 7th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 19-20.
- Harper, D.P., **M.P. Wolcott**, and K. Englund. 2003. Molecular relaxations contributing to phase transition creep in thermoplastic wood composites. 7th International Conference on Woodfiber-Plastic Composites. Madison, WI, May 19-20.
- Wolcott, M.P.** 2002. The latest developments on wood-plastic technology. 2002 International Inorganic-Bonded Wood and Fiber Composites Conference, Sun Valley, ID, September 23-25.
- Harper, D.P. and **M.P. Wolcott**. 2002. Interactions between coupling agents and lubricants in wood-polypropylene composites. AIChE, Indianapolis, IN.
- Wolcott, M.P.** and T.G. Rials. 2002. Thermal analysis of wood-polymer systems. 56th Annual Meeting of the Forest Products Society, Madison, WI, June 23-26.
- Harper, D.P., **M.P. Wolcott**, and T.G. Rials. 2002. Cure kinetics of pMDI. 56th Annual Meeting of the Forest Products Society, Madison, WI, June 23-26.
- Wolcott, M.P.** 2002. Rheology of wood-plastic melts with applications to formulation and die design. Progress in Woodfibre-Plastic Composites Conference, Toronto, Canada, May 23-24.
- Wolcott, M.P.** and D.G. Pollock. 2002. Engineered lumber products and requirements from Inland Empire Species. Small Diameter Timber Symposium, Spokane, WA, February 25-27.
- Wolcott, M.P.**, D.I. McLean, D.E. Pendleton, and P.M. Smith. 2001. Use of wood plastic composites in naval waterfront structures. The Global Outlook for Natural Fiber & Advanced Wood Composites Conference, Orlando, FL, December 3-5.
- Wolcott, M.P.** 2001. Invited lectures on status of wood-plastic composites. Dept of Wood Science and Forest Products. Virginia Polytechnic Institute and State University. Blacksburg, VA. November 28-29.
- Wolcott, M.P.** 2001. Issues and opportunities facing wood-based materials in marine applications. 55th Annual Meeting of the Forest Products Society, Baltimore, MD. June 24-27.
- Wolcott, M.P.**, T. Adcock, and S.M. Peyer. 2001. Development of extruded wood-plastic composite materials. 55th Annual Meeting of the Forest Products Society, Baltimore, MD. June 24-27.
- Wolcott, M.P.**, P.M. Smith, and G.M. Carter. 2001. Recycled plastic and composite lumber. 2001. Forest Industries Engineering Association (FIEA) Conference, Nelson, New Zealand. May 31.
- Wolcott, M.P.**, P.M. Smith, and G.M. Carter. 2001. Recycled plastic and composite lumber. 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. May 27-29.
- Bender, D.A. and **M.P. Wolcott**. 2001. Wood plastic composites from small diameter wood. ASCE/SEI Structures Congress & Exposition, Washington, D.C. May 21-23.

- Wolcott, M.P.,** M.J.A Chowdhury, R.B. Heath, and T.G. Rials. 2001. Coupling agent/lubricant interactions in commercial woodfiber-plastic composite formulations. 6th International Conference on Woodfiber-Plastic Composites, Madison, WI. May 15-16.
- Lee, S.Y., T.M. Gorman, and **M.P. Wolcott**. 2001. Crystallization morphology of the semicrystalline polymer. 6th International Conference on Woodfiber-Plastic Composites, Madison, WI. May 15-16.
- Harper, D.P. and **M.P. Wolcott**. 2001. Crystallization behavior of maleic anhydride-isotactic polypropylene blends in woodfiber-plastic composites. 6th International Conference on Woodfiber-Plastic Composites, Madison, WI. May 15-16.
- Peyer, S.M. and **M.P. Wolcott**. 2001. Damage in woodfiber-plastic composites: A look up close. 6th International Conference on Woodfiber-Plastic Composites, Madison, WI. May 15-16.
- Chowdhury, M.J.A, **M.P. Wolcott**, and T.G. Rials. 2001. Behavior and mechanical properties of woodfiber-polypropylene composites. 6th International Conference on Woodfiber-Plastic Composites, Madison, WI. May 15-16.
- Wolcott, M.P.** 2001. Manufactured wood products: Future for OSB and MDF. Interior Alaska Forest Products Conference, Fairbanks, AK. May 7-9.
- Cofer, W.F., D.I. McLean, and **M.P. Wolcott**. 2001. Structural evaluation of engineered wood composites for naval waterfront facilities. ASCE/PIANC PORTS 01 Conference, Norfolk, VA. April 29 - May 2.
- Wolcott, M.P.** 2001. Wood-plastic composite extrusion. Plastics Encounters, Los Angeles, CA. April 9-10.
- Linville, J.D. and **M.P. Wolcott**. 2001. Controlling Thickness Swell in Oriented Strand Composites. 35<sup>th</sup> International Particleboard/Composite Materials Symposium, Pullman, WA. April 3-5.
- 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.** and T. Adcock. 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, and 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 International Conference on Wood-Fiber/Plastic Composites. Madison, WI. May 11-14.
- 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. 3<sup>rd</sup> Joint ASCE/ASME Mechanics Conference. University of California at San Diego, LaJolla, CA.

## RESEARCH LEADERSHIP

### National Laboratory Alliances

WSU Lead for the WSU-PNNL Strategic Research Alliance. Responsible for Joint Faculty Appointments and Distinguished Research Graduate Program. In April 2018, The WSU-PNNL Institutes in Advanced Grid, Bioproducts, and Nuclear Science and Technology were launched.

### Bioproducts, Biofuels, and Bioenergy

The projects and service activities listed below represent leadership efforts to the development and deployment of biobased fuels, chemical, and materials. These efforts include major research consortiums; regional, national, and international committees, most of which have the goal of developing either new educational or research programs.

**Wolcott, M.P.,** R.P. Cavalieri, and J. Gardner. 2016-2021. ASCENT - Center of excellence for alternative jet fuels and environment. FAA/ASCENT. \$1,199,714.

#### Description of Project and Role

Focus: Research to provide the aviation industry, governmental agencies, communities, and policy-makers with science-based solutions for the environmental challenges facing aviation.

Output: Scientific research underpinning the FAA regulations for aviation environment and energy; support for the US delegation to the UN ICAO CAEP committees including those regulating greenhouse gas emissions and noise.

Team: Co-led by WSU and MIT, ASCENT 16 Partner Universities <<http://ascent.aero>>

Role: Director, Responsible for fiscal and organizational management. Technical lead for alternative jet fuels.

Cavalieri, R.P., **M.P. Wolcott**, et al. 2011-2019. Northwest advanced renewables alliance (NARA): A new vista for green fuels, chemicals, and environmentally preferred products (EPPs). NIFA-USDA. \$39,600,000. (*Personally Expended: \$5,039,041, Administered: \$34,560,959*).

#### Description of Project and Role

Focus: Overcoming key supply-chain obstacles that prevent wood-based jet fuel and petrochemical substitutes from being economically viable in the Northwest US.

Output: Sustainable Biojet Production, Valuable Lignin Co-Products, Rural Economic Development, Supply Chain Coalitions, and Energy Literacy

Team: >50 Principal Investigators from 16 University, Industrial, NGO, and Gov't Organizations

Role: Project Co-Director, Team Leader for Conversion Team; Responsible for coordination of Sustainability Assessment, Education, and Outreach Teams; Research Member of Co-Products and Education Teams.

**Wolcott, M.P.,** M. Gaffney, M. Garcia-Perez and X. Zhang. 2014-2021. Alternative jet fuel supply chain analysis. FAA/ASCENT. \$2,476,955.

#### Description of Project and Role

Focus: Analyzing potential alternative jet fuel supply chains to support the FAA role in the UN ICAO CAEP efforts to assess potentials for reducing greenhouse gas productions from the aviation industry. Developing regional approaches for US production of alternative jet fuel to meet national targets.

Output: Sustainable Biojet Production, Valuable Lignin Co-Products, Rural Economic Development, Supply Chain Coalitions, and Energy Literacy

Team: 19 Co-Principal Investigators from WSU, Penn State, Purdue, MIT, UTK, UIllinois, UHawaii

Role: Project Lead. Responsible for coordinating research among university teams and coordinate with FAA Leadership; Lead supply chain research for the NW region

<b><u>Committee</u></b>	<b><u>Position</u></b>	<b><u>Outputs and Contributions</u></b>
<b>Biomass R&amp;D TAC</b>	Board	- Advises US Secretaries of Energy and Agriculture on bioenergy technologies
<b>CAAFI Steering Committee</b>	Member	- Advises Civil Alternative Aviation Fuels Initiative
<b>USDA</b>	Panel	- Evaluation and ranking of regional AFRI CAP proposals for biofuels and feedstocks
<b>Sustainable Bioenergy</b>	Manager	
<b>Agenda 2020</b>	Member	- Forest Industry Technology Roadmap
Department of Energy		- Nanotechnology Research Roadmap
American Forest and Paper Assoc (AFPA)		- International Conference on Nanotechnology in Forest Products
		- Review Panels for Agenda 2020 funded research
<b>PNNL-WSU Integration Team</b>	Member	- Integrated Bioproducts Graduate Program
Department of Energy		- Chair of 1 <sup>st</sup> Student from this program
Washington State University		- New bioproducts facility funded and built
<b>Review Team</b>	Member	- NSF EPSCoR Center on Biorefineries
NSF/AAAS		- EPA Projects on Renewable Materials
Environmental Protection Agency		

### **Sustainable Design**

In conjunction with Professors Greg Kessler (Director, School of Architecture and Construction Management), Donald Bender (Director, Composite Materials and Engineering Center), and David McLean (Chair, Department of Civil and Environmental Engineering), we founded the virtual Institute of Sustainable Design in the Fall of 2008. Institute combined the efforts of these academic and research units towards sustainable infrastructure. Specific topics of scholarly activity included Low-Impact Development (LID), Sustainable Transportation, Green Building Materials, Sustainable Agricultural Systems, and Sustainable Supply Chains. The Institute founded several courses in sustainable engineering including an NSF-funded Integrated Design Experience (IDX). Completing its goals in 2016, the Institute has been allowed to sunset.

A compilation of philanthropic support raised to found and operate the Institute included:

**Wolcott, M.P.** 2009. College of Engineering and Architecture Berry Family Gift - ISD Directorship. \$250,000.

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

**Wolcott, M.P.** 2008-2009. College of Engineering and Architecture Berry Family Gift Towards Faculty Development. \$50,000.

A sample of competitive grant funds with which I was personally involved for this effort included:

Beyreuther, T., **M.P. Wolcott** and D. Bender. 2015-2018. A pilot supply chain for advanced manufacture of CLT in the Pacific Northwest. USDA Forest Service. \$249,993.

**Wolcott, M.P.,** L. Haselbach and C. Poor. 2011-2016. Sustainable design guidelines to support the Washington state ferries terminal design manual. FHWA/WA State DOT. \$748,624.

**Wolcott, M.P.,** K. Olsen, C. Poor, T. Beyreuther and D. Ascher. 2010-2011. Integrated design experience (IDeX) project - Auburn environmental park district. City of Auburn. \$95,000.

**Wolcott, M.P.,** L. Haselbach, S. Brown, and D. Ascher. 2009-2011. A model for faculty, student, and practitioner development in sustainable engineering through an integrated design experience. National Science Foundation. \$149,742.



Brown, S., S. Shen, and **M.P. Wolcott**. 2008-2009. Sustainable roadway design and construction: An online course. DOT/TransNow. \$22,888.

### **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; Administered: \$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; Administered: \$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; Administered: \$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; Administered: \$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; Administered: \$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)

## **GRANTS & CONTRACTS\*** *(total of \$68,509,780: personally expended \$19,694,762)*

### **Washington State University** *(WSU total of \$67,294,123: personally expended \$18,755,688)*

Liu, H., **M.P. Wolcott** and T. Zhong. 2020. Producing nanocellulose reinforced lightweight composites using an integrated one-step process from cotton waste fabrics. Cotton Inc. \$69,956.

Nassiri, S. and **M.P. Wolcott**. 2019-2021. PMU: Bipolymer modified cementitious systems with radical strength and durability. DOE/ARPA-E. \$335,116.

Zhang, J., T. Liu and **M.P. Wolcott**. 2019-2022. Upcycling of CFRP waste: Viable eco-friendly chemical recycling and manufacturing of novel repairable and recyclable composites. DOE/EERE. \$1,249,804.

**Wolcott, M.P.** 2019. Feedstock and conversion assessment for sustainable aviation fuel in the northwest. Port of Seattle. \$49,999.

Liu, H., **M.P. Wolcott** and T. Zhong. 2019. Processing and property evaluation of nanocellulose extracted from cotton waste. Cotton Inc. \$69,761.

Garcia-Perez, M., **M.P. Wolcott** and X. Zhang. 2018-2022. Hybrid HEFA-HDCJ process for the production of jet fuel blendstocks. DOE/EERE. \$1,453,637.

Wang, J., **M.P. Wolcott** and X. Zhang. 2016-2018. Softwood sugar depot: a novel decentralized biomass conversion system to produce low cost intermediates for transportation fuel & value-added chemicals. USDA/Sun Grant. \$149,864.

Wang, J., H. Liu, **M.P. Wolcott** and T. Zhong. 2017. Center for Bioplastics and Biocomposites: Develop chitin nanofibers for high-performance solvent-based coatings and films. NSF/CB2. \$59,961.

Beyreuther, T., J.D. Dolan and **M.P. Wolcott**. 2016. Cross laminated timber pilot project. State of WA/ Office Financial Management. \$75,000.

**Wolcott, M.P.**, R.P. Cavalieri, and J. Gardner. 2016-2021. Center of excellence for alternative jet fuels and environment. FAA/ASCENT. \$1,199,714.

**Wolcott, M.P.** and J. Wang. 2016-2017. Center for Bioplastics and Biocomposites: Mechanochemically activated and/or functionalized cellulose powders and their reinforced plastic composites for more demanding applications. NSF/CB2. \$59,676.

Wang, J. and **M.P. Wolcott**. 2016. Center for Bioplastics and Biocomposites: Chitin nanofibers: preparations, characterization, and their transparent nanocomposite films/coatings for packaging. NSF/CB2. \$59,854.

Wang, J., **M.P. Wolcott** and X. Zhang. 2015-2016. Mechanical pretreatment of wood for cellulosic sugar production on a demonstration scale. State of WA/JCATI. \$60,324.

Beyreuther, T., **M.P. Wolcott** and D. Bender. 2015-2018. A pilot supply chain for advanced manufacture of CLT in the Pacific Northwest. USDA Forest Service. \$249,993.

**Wolcott, M.P.**, M. Gaffney, M. Garcia-Perez and X. Zhang. 2014-2021. Alternative jet fuel supply chain analysis. FAA/ASCENT. \$2,476,955

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

Wang, J., **M.P. Wolcott** and X. Zhang. 2014-2015. Mechanical pretreatment to produce cellulosic sugars at a pilot scale. State of WA/JCATI. \$98,929.

Muhunthan, B., **M.P. Wolcott**, J. Xing, J.W. Zhang, and K. Zhang. 2014-2018. Novel development of bio-based binder for sustainable construction. DOT/FHWA. \$999,939.

Cavalieri, R.P., **M.P. Wolcott**, et al. 2011-2019. Northwest Advanced Renewables Alliance (NARA): A new vista for green fuels, chemicals, and environmentally preferred products (EPPs). USDA NIFA. \$39,600,000. (Personally expended: \$5,039,041, Administered: \$34,560,959).

**Wolcott, M.P.**, L. Haselbach and C. Poor. 2011-2016. Sustainable design guidelines to support the Washington state ferries terminal design manual. FHWA/WA State DOT. \$748,624.

**Wolcott, M.P.**, K. Olsen, C. Poor, T. Beyreuther and D. Ascher. 2010-2011. Integrated design experience (IDeX) project - Auburn environmental park district. City of Auburn. \$95,000.

**Wolcott, M.P.**, L. Haselbach, S. Brown, and D. Ascher. 2009-2011. A model for faculty, student, and practitioner development in sustainable engineering through an integrated design experience. National Science Foundation. \$149,742.

Zhang, J.W., L. Jiang, and **M.P. Wolcott**. 2009-2010. Developing effective compatibilization of mirl PHA/starch blends. Metabolix. \$39,300.

Brown, S., S. Shen, and **M.P. Wolcott**. 2008-2009. Sustainable roadway design and construction: An online course. DOT/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. (Personally expended: \$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. DOE/INL. \$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.

**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. \$102,719.

**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. WA Technology 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. (Personally expended: \$922,953, Administered: \$954,289).

- Wolcott, M.P.** 2002-2004. Extruded wood-plastic composite decking & retaining wall for Coast Guard shore facilities. US DOT/University of Maine. \$128,676.
- Wolcott, M.P.** 2002-2004. Micro woodfiber composites. USDA – 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. (Personally expended: \$1,278,147, Administered: \$408,193).
- 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. (Personally expended: \$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. DOE/ INRA. \$319,000.
- Wolcott, M.P.** 2001-2003. Developing advanced polystyrene blends for wood-plastic composites. WA Technology 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. DOE/INEEL. \$437,586.
- Wolcott, M.P.** et. al. 1997-2001. Engineered wood composites for naval waterfront facilities. Office of Naval Research. \$6,073,000. (Personally expended: \$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. USDA 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. USDA 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. USDA Forest Service. \$55,185.

**Wolcott, M.P.** and C.C. Hassler. 1994-1995. Structural uses of Appalachian hardwood timbers. USDA Forest Service. \$29,300.

Halebe, U.B., H. Gangarao, and **M.P. Wolcott**. 1993-1994. Nondestructive evaluation of green wood using stress wave timing. USDA 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. USDA 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. USDA National Research Initiative. \$98,000.

**Wolcott, M.P.** and D.J. Gardner. 1992. Dynamic mechanical analysis instrumentation. USDA 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. USDA National Research Initiative. \$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 44; 18 PhD, 26 MS)

Lina Pilar Martinez Valencia\*\*, PhD. (*In Progress*). Biological Systems Engineering, Washington State University, Pullman, WA.

- Fulbright Scholar
- National Renewable Energy Laboratory Intern

Dane Camenzind, MS. 2018. Supply chain analysis for alternative jet fuel production from lipid feedstocks in the U.S. Pacific Northwest. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: 1 (*PRPub:1*)

Lang Huang, PhD. 2018. Mechanochemical activated and functionalized cellulose powders and their reinforced plastic composites. Civil Engineering, Washington State University, Pullman, WA.

Jinxue Jiang, PhD. 2016. Assessing mechanical deconstruction of softwood cell wall for cellulosic biofuels production. Materials Science and Engineering, Washington State University, Pullman, WA.

- International Academy of Wood Science (IAWS), 2<sup>nd</sup> Place, 2017 PhD Thesis Award
- Publication output: 7 (*Pres: 2, PRPub:5*)
- Director of Chemistry and Technology, Eco Building Products, Inc.

Yalan Liu, PhD. 2016. Size reduction and sulfite pretreatment of softwood for efficient hydrolysis and high-value products yield. Materials Science and Engineering, Washington State University, Pullman, WA.

- Wood Award, 2<sup>nd</sup> Place, Forest Products Society, 2016
- Publication output: 6 (*PRPub:6*)
- Materials Engineer, Amazon

Natalie Martinkus, PhD. 2016. A multi-criteria decision support tool for biorefinery siting. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: 7 (*Pres:2, Proc:2, PRPub:4*)
- Assistant Professor, Heritage University

Daniel T. Howe\*\*, PhD. 2015. Thermal pretreatment of a high lignin and high ash fermentation residue for gasification. Chemical Engineering, Washington State University, Pullman, WA.

- Publication output: 3 (*PRPub:3*)
- Development Engineer, PNNL, Richland, WA

Fang Chen, PhD. 2013. Leakage control and characterization of form stable phase change materials: polymer(matrix)/polymer(PCM) binary blends and natural fiber/polymer(matrix)/polymer(PCM) ternary composites. Materials Science and Engineering, Washington State University, Pullman, WA.

- Publication output: 6 (*Pres:2, Proc:1, PRPub:3*)
- Data Science and Analytics, Amazon

Brent Olson, PhD. 2011. Residential building material reuse in sustainable construction. Civil Engineering, Washington State University, Pullman, WA.

- Publication output: 2 (*Pres:1, Proc:1*)
- Director of Materials Engineering, KATERRA

Christophe Parroco, MS. 2011. Influence of design and climate change on the annual energy consumption of a passive solar house. Civil Engineering, Washington State University, Pullman, WA.

- Mechanical Engineer, Beijaflore, Vancouver, CA

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\*\* Indicates students co-chaired.



- Camille Pirou, MS. 2011. Influence of different building practices on the performance of a passive solar design greenhouse. Environmental Engineering, Washington State University, Pullman, WA.  
·Renewable Energy Engineer, Immobilière, Paris, France
- Elena Ten, PhD. 2011. Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) – cellulose nanowhiskers composites by solution casting. Materials Science and Engineering, Washington State University, Pullman, WA.  
·Publication output: 13 (*Pres:7, BC:2, PRPub:4*)  
·Polymer Scientist, W.L. Gore and Associates, Flagstaff, AZ
- Meng-Hsin Tsai, PhD. 2011. Investigation of a sustainable alternative wood bio-plastic composite. Materials Science and Engineering, Washington State University, Pullman, WA.  
·Publication output: 5 (*Pres:3, Proc:1, BC:1*)  
·William Wiley Graduate Student Exposition Award, 1<sup>st</sup> Place, 2010  
·Director of Product Development, DS Smith, Plastics Division.
- Kyle Holman, MS. 2010. Adaptable shear wall layout in low-rise and light framed structures. Civil Engineering, Washington State University, Pullman, WA.  
·Senior Project Manager, DCI Engineers, San Francisco, CA
- Andrew Kracht, MS. 2010. Implementation of moment frame connections scaled to residential construction: Rivet connected I-joist moment frames. Civil Engineering, Washington State University, Pullman, WA.  
·Structural Design Engineer, DCI Engineers
- Alicia J. Miller\*\*, MS. 2010. A comparison of residential green building programs. Environmental Science, Washington State University, Pullman, WA.
- Timothy P. Olson, MS. 2010. Design for deconstruction and modularity in a sustainable built environment. Civil Engineering, Washington State University, Pullman, WA.  
·Structural Engineer, Coffman Engineers, Spokane, WA
- Lee-Wen Chen\*\*, MS. 2009. Extrudable melamine resin for wood plastic composites. Civil Engineering, Washington State University, Pullman, WA.
- Inès de Sainte Marie d'Agneaux, MS. 2009. Development of sustainability guidelines for infrastructure and their application to passenger ferry terminals. Civil Engineering, Washington State University, Pullman, WA.  
·Publication output: 1 (*Pres:1*)  
·Environmental Engineer, ARCADIS, Walnut Creek, CA
- William Gacitua Escobar, PhD. 2008. Influence of wood species on properties of wood/HDPE composites. Civil Engineering, Washington State University, Pullman, WA.  
·Publication output: 10 (*Pres:5, Proc:3, PRPub:2*)  
·Associate 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.  
·Bridge Engineer, HDR, Missoula, MT
- Zachary Rininger\*\*, MS. 2008. Utilization of small diameter timbers in pultuded long strand composites. Civil Engineering, Washington State University, Pullman, WA.  
·Publication output: 1 (*Pres:1*)  
·2nd Place tie: Graduate Student Presentation, 2008 Northwest Forest Products Academic Forum

- 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: 6 (*Pres:2, Proc:2, BC:1, PRPub:1*)  
 ·Technical Manager, Jeld-Wen
- Jinwu Wang\*\*, PhD. 2007. Cure kinetics of wood phenol-formaldehyde system. Civil Engineering, Washington State University, Pullman, WA.  
 ·Publication output: 8 (*Pres: 3, PRPub:5*)  
 ·Wood Award, 2<sup>nd</sup> Place, Forest Products Society, 2007  
 ·Research Engineer, US Forest Products Laboratory
- Andrew Schildmeyer, MS. 2006. Temperature and time dependent behaviors of a wood polypropylene composite. Civil Engineering, Washington State University, Pullman, WA.  
 ·Publication output: 1 (*PRPub: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.  
 ·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: 7 (*Pres:3, Proc:1, PRPub:3*)  
 ·Director and Associate 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.  
 ·Publication output: 4 (*Pres:2, Proc:2*)  
 ·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.  
 ·Associate Professional Lecturer, College of Engineering, University of Wyoming
- Andrew Slaughter, MS. 2004. Design and fatigue of a structural wood-plastic composite. Civil Engineering, Washington State University, Pullman, WA.  
 ·Computational Research Scientist, Idaho National Laboratory
- 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; Wiley Graduate Student Expo, 2<sup>nd</sup> Place, 2002  
 ·Associate 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*)  
 ·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*)  
 ·William Wiley Graduate Student Exposition Award, 1<sup>st</sup> Place, 2002  
 ·Associate 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*)  
 ·Associate 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.  
 ·Research Engineer, Weyerhaeuser 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 Univ., Pullman, WA.  
 ·Publication output: 4 (*Pres:2, Proc:2*)  
 ·Senior Engineer, Industry and Code Activities, Weyerhaeuser
- Scott Lockyear, MS. 1999. Mechanical analysis of transversely loaded wood/plastic sections. Civil Engineering, Washington State University, Pullman, WA.  
 ·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*)  
 ·Engineering Manager, LP Building Products.
- 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*)  
 ·Structural Engineer, US Army Corp of Engineers

## POST-DOCTORAL FELLOWS SUPERVISED\*\*\* *(total of 19)*

<u>Name</u>	<u>Dates</u>	<u>Research Topic</u>
Tuhua Zhong	2016-2020	Nano-Chitin Development for Food Packaging
Mohammadali Azadfar	2016-2019	Modified Cellulose Powders for Automotive Applications
Yalan Liu	2016-2017	Mechanical Pretreatment for Cellulosic Sugar Production
Jinxue Jiang	2016	Ultrastructural Changes from Mechanical Pretreatment
Liping Li	2015-2016	Wood Polymer Composite Performance
Yu Fu	2014-2015	Milling and Extrusion Methods for Sugar Production using Micronized Wood Powders
Fang Chen	2013-2014	Torrefied Wood Particles for Stormwater Treatment Media
Xiaping Zhou	2013-2014	Natural Fiber Thermoplastic Composites Produced with Micronized Wood Particles
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

## INTERNATIONAL GRADUATE COMMITTEES & REVIEWER *(total of 17)*

<u>Name</u>	<u>Degree</u>	<u>Year</u>	<u>Research Topic</u>
Numaira Obaid	PhD	2018	Understanding and Predicting the Stress Relaxation Behavior of Short-Fiber Composites (U Toronto, Canada)
Lanxing Du	PhD	2017	Nano-Cellulose Production from Saccharification Residuals (Beijing Forest University, Beijing, China)
Rongxian Ou	PhD	2016	Modified Wood Powders for Natural Fiber Composites (Northeast Forest University, Harbine, China)
Costel Barbuta	PhD	2011	Engineered Flooring: Development of OSB Substrates and Characterization of Stresses (Laval University, Canada)
Feng-Cheng Chang	PhD	2011	Micromechanical Modeling of Natural Fiber Reinforced Thermoplastics (U British Columbia, Canada)
Soumendra Nath Patra	PhD	2010	Manufacturing and Characterization of Electrospun Nano-structured Mats from Poly(lactic acid) (U Auckland, NZ)
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)

\*\*\* Indicates Post-Docs co-supervised

Marcia Vidal Bastias	PhD	2006	University, Australia) 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 & REVIEWER** *(total of 45)*

<b><u>Name</u></b>	<b><u>Degree</u></b>	<b><u>Year</u></b>	<b><u>Research Topic</u></b>
Sohrab Haghighi Mood	PhD	current	Slit Die Rheology
Thomas Tarlton	PhD	current	
Jie Zhao	PhD	current	
Abid Tanzil	PhD	2020	Generation and Evaluation of Bio-refinery Concepts for the Production of Alternative Jet Fuel in Existing Industrial Infrastructure
Wenjia Song	PhD	2019	Developing Soy Flour-based Superabsorbent Polymer Through Reactive Extrusion
Bon-Jae Gu	PhD	2018	Extrusion Technologies for Cellulosic Biorefineries
Vikram Ravi	PhD	2016	Air Quality Modeling to Assess Impacts of Prescribed Fires and a Biofuel Supply Chain in the Pacific Northwest
Vincent McIntyre	MS	2015	Assessment of Copper and Zinc Adsorption to Lignocellulosic Filtration Media Using Laboratory and Field Scale Column Tests for the Purpose of Urban Stormwater Remediation
Joseph P. Smith	MS	2015	Assessing Copper and Zinc Adsorption to Thermally Treated Lignocellulosic Biomass
Sushanta Bhusal	PhD	2013	Utilizing Bioasphalt as Sustainable Technology in the Field of Hot Mix Asphalt Industry
Gerald Schneider	MS	2013	Construction and Demolition Recycled Wood Waste Assessment within the Northwest United States
Xiaojie Guo	MS	2012	Investigation of polylactide acids/-polyoxymethylene blends: crystallization behavior and heat resistance
Yi Wang	PhD	2012	Profile Forming of Wood-Strand Composites: Processes, Forming Characteristics and Product Properties
Weston Wood	PhD	2012	Processing, wear, and mechanical properties of polyethylene composites prepared with pristine and organosilane-treated carbon nanofibers
Peng Zhan	MS	2012	Investigation of poly(lactic acid) (PLA)/sugar beet pulp bioplastics: processing, morphology, properties and foaming application
Bo Liu	PhD	2011	Investigation of In-situ Poly(lactic acid)/Soy Protein Concentrate Composites: Composite Preparation, Properties and Foam Application Development
Devlin Montfort	PhD	2011	Conceptual and Epistemological Undercurrents of Learning as a Process of Change
Michael Thompson	MS	2011	Integrating Green Rating Systems: A Case Study for Ferry Terminal Stormwater Projects

Feng Chen	PhD	2010	Investigation of Soy Protein (SP) Blends Prepared by Simultaneous SP Plasticization and Mixing
Daniel Tappel	MS	2010	Diamond Pier Foundation Analysis
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
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

### Professional MS Students Advised

<u>Name</u>	<u>Degree</u>	<u>Year</u>	<u>Emphasis Area</u>
Bernt Johnson	MS	2011	Timber Structures
Jennifer Johnston	MS	2011	Water Resources
Tyler Pierce	MS	2011	Low-Impact Foundations
Kevin Ryan	MS	2011	Green Wall Design
Cassandra Tyler	MS	2011	Low-Impact Stormwater Methods

### UNDERGRADUATE & INTERNATIONAL STUDENTS SUPERVISED

(total of 28)

<u>Name</u>	<u>Year</u>	<u>Program</u>
Cecile Cardinelli	2018-19	USDA NARA
Samuel Bigbee-Hansen	2018	NSF CB2 - REU
Andrew Frieburg	2018	NSF CB2 - REU
Maira Duya	2018	USDA NARA-SURE
Nathan Glandon	2017	NSF CB2 – REU
Galen Herz	2017	USDA Sun Grant
Meghan Varnum	2017	USDA Sun Grant
John Barth	2016	USDA NARA-SURE

John Barth	2015	USDA NARA-SURE
Rodney Seals	2014	USDA NARA-SURE
Eileen Wu	2014	USDA NARA-SURE
Kane Norton	2013	USDA NARA-SURE
Madeline Fuchs	2012	USDA NARA-SURE
Rongxian Ou	2011-13	China Scholarship Council, Northeast Forest University
Amanda Kessel	2011	NSF-REU, Montana State University
Joseph Smith	2011	Undergraduate Industrial Research, Penn State University
Chusheng Qi	2010-12	China Scholarship Council, Northwest A&F University
Krista Stancombe	2010	NSF-REU, WSU
John Bergeleen	2009	NSF CUREE, WSU
Sarah Loftus	2009	NSF CUREE, WSU
Joel Turtle	2009	NSF-REU, Texas A&M
Christophe Parroco	2008	EPF, France
Joel Turtle	2008	NSF-REU, Texas A&M
Ines de Sainte Marie	2007	EPF, France
Goran Grubbstrom	2007	Lulea University of Technology, Sweden
Kristen Howard	2007	NSF-REU, WSU
Erving Morelius	2007	NSF-REU, U Texas El Paso
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 10)*

### Washington State University

**Multidisciplinary Engineering Design I.** 3 credits. Needs analysis and conceptualization of technological products and business plan for target market; multidisciplinary team development. *Year: 2009, 2010, 2011, 2012.*

**Multidisciplinary Engineering Design II.** 3 credits. Prototype solution developed and evaluated and business plan completed; presentation to stake holders; team development and assessment. *Year: 2010, 2011, 2012, 2013.*

**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 9)*

### Washington State University

**Advanced Topics in Structural Engineering.** 3 credits. Elastic stability, plates and shells, other relevant topics. *Year: 2010, 2009*

**Advanced Topics in Environmental Engineering Practice.** V 1-4 credits. Analysis and evaluation of air/water/soil pollution problems, new measurement methods, hazardous waste treatment, global climate change, and water/wastewater treatments. *Year: 2010, 2009*

**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, 4.58/5).*

**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, 4.75/5).*

**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): 2000(7, 4.5/50), 1998(11, NA).*

**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, 4.32/5), 1998(14,4.21/5), 1997(10, 4.44/5), 1996(10, 3.50/5).*

**Graduate Seminar.** 1 credit. Lectures and reports on current developments in research and practice. *Year: 2013, 2012, 2011, 2003, 2002, 2001, 1998.*

### **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 & SERVICE**

### **USDA-DOE Federal Biomass R&D Technical Advisory Committee**

- Board Member – 2017-2020

### **Commercial Aviation Alternative Fuels Initiative**

- Steering Committee Member – 2017-present

### **Clean Tech Alliance**

- Board of Directors – 2017-present

### **Element 8 (Clean Tech Investors)**

- Board of Directors – 2017-present

### **Penn State Agricultural and Biological Engineering Department**

- Bio-Renewable Systems (BRS) Advisory Board Member – 2017-present

### **Society of Wood Science and Technology**

- Co-Session Chair, Biorefinery & Bioeconomy, 61<sup>st</sup> SWST Int'l Convention - 2018
- Past President – 2015-2017
- President – 2014
- President elect – 2013
- Vice-President – 2012
- 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**

- IT/Web Committee – 2011
- 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, 2009

### **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

**Forest Business Network**

- Steering Committee – 2016 Mass Timber Conference

**Starbucks Recyclable Cup Advisory Team**

- Member – 2009

**Washington State Departments of Natural Resources and Commerce**

- Washington State Forest Biomass Coordination Group, Member – 2013-2016
- Washington State Cross-Laminated Timber Steering Committee – 2015, 2016

**Washington State Governors Office**

- Low Carbon Fuel Standard Task Force, Member – 2014-2016

**Washington State Legislature**

- Washington State Biofuels Working Group – 2016-present

## **FEDERAL AGENCY SERVICE**

**Department of Energy**

**NREL – DOE Bioenergy Technologies Office**

- Biomass Scenario Model External Review Committee - 2016

**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**

**Proposal Panel Member**

- P111742 Sustainable Composite Structures – 2011
- P110803 Research in Engineering Education – 2011

**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, 2010, 2011, 2012
- Administered by American Association for the Advancement of Science (AAAS)
- Investing in Maine Research Infrastructure: Sustainable Forest Bioproducts

**US Department of Agriculture**

**National Institute of Food and Agriculture (NIFA)**

- Co-Chaired PNW Region Bioeconomy Listening Forum for input into future research directions - 2016
- Panel Manager – AFRI A6101, Development and Production of Regionally Appropriate Biomass Feedstocks CAP - 2013

**Advisory Committee**

- Member – USDA-NIFA-AFRI #2012-00942, Regional Bioenergy Policy Effectiveness: Compatibility, Innovation, and Coordination across the Supply Chain - 2013

**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**

- Grand Challenge Review Team - 2016
- Distinguished Service Address Selection Committee - 2016
- Faculty Senate, Distinguished Faculty Address Committee – 2013, 2014
- Regent's Professor Selection Committee – 2012-16
- Anjan Bose Award Committee – 2012
- Civil and Environmental Engineering Group Leader - Structures/Materials/Sustainability – 2009-11
- Civil and Environmental Engineering Leadership Team – 2009-16
- Virtual College of Sustainability and the Environment Committee – 2008
- Intellectual Property Committee – 2007, 2008
- CEA Tenure and Promotion Advisory Committee – 2005, 2006, 2012, 2013
- CEA Research Advisory Committee – 2004-12
- 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 – 2001-03
- Graduate Studies Committee for CEE – 2001-03
- 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 Composite Materials and Engineering Center – 2016-2017
- Interim Director of Wood Materials and Engineering Laboratory – 1997
- Co-Chair of WSU International Particleboard/Composite Materials Symposium – 1996-2002
- 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**

- Faculty Mentoring Committee (Dr. Ali Hajbabaie) – 2015
- Chair of Faculty Mentoring Committee (Dr. Karl Olsen) – 2013-14
- Chair of Faculty Mentoring Committee (Dr. Liv Haselbach) – 2009
- Chair of Faculty Mentoring Committee (Dr. Jinwen Zhang) – 2009
- Faculty Mentoring Committee (Dr. Timothy VanReken) – 2009
- 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**

- Search Committee for Structural Engineering Faculty Positions (2) – 2016-2017
- Chair of Search Committee for CMEC-ISD Faculty Position – 2012-13
- Search Committee for Materials Science Faculty Position – 2012
- Search Committee for OGRD Proposal Writer – 2009
- 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 & PRODUCT DEVELOPMENT**

The Composite Materials and Engineering Center (CMEC) conducts outreach to assist companies in developing and evaluating various industrial products and processes. In my capacity as a lead composite researcher with CMEC, 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.	IntIndus. 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.	