

**DAVID B. DeVALLANCE**  
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Wood Science and Technology Program  
School of Natural Resources  
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## **PROFESSIONAL EXPERIENCE**

**Associate Professor**, Wood Science and Technology, School of Natural Resources, Davis College of Agriculture, Natural Resources and Design, West Virginia University, August 16, 2015 to present

- Areas of research include; green building construction, development of innovative wood-based composite materials and sustainable building products, biomass densification for bioenergy, process improvement, non-destructive evaluation of wood materials, process control, wood products marketing/management, decision making techniques, engineered wood material evaluation and testing, data acquisition and electronic system development

**Program Coordinator**, Wood Science and Technology Program, School of Natural Resources, Davis College of Agriculture, Natural Resources and Design, West Virginia University, April, 2013 to present

- Responsible for coordination of the Wood Science and Technology program related coursework, student recruitment, curriculum revision, and general program specific activities

**Assistant Professor**, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources and Design, West Virginia University, July 1, 2009 to August 15, 2015

**Staff Scientist**, TECO, Madison, WI and Eugene, OR, 1998-2009

- Assigned and responsible for specialty research and testing projects
- Prepared written test reports and technical documents relating to engineered wood products
- Developed data acquisition systems and programs for research and testing projects
- Assessed published design values for Oriented Strandboard
- Investigated consumer complaints on in-service, wood-based structural panels

**Staff Engineer**, PFS Corporation, Quality Control Department, Madison, WI, 1997-1998

- Developed design values, prepared reports, and assisted in gaining market acceptance for various engineered wood studs and joists products
- Evaluated engineered wood products for use in Manufactured Housing (HUD)

- Established manufacturing tolerances on fastening and fire stopping for Manufactured Housing
- Performed field inspections at facilities producing manufactured houses, treated lumber, and engineered wood-based materials

## **EDUCATION**

**Oregon State University**, Corvallis, OR, 2003-2009

*Ph.D. in Wood Science, June, 2009*

*Minor in Industrial and Manufacturing Engineering*

Dissertation Title: “Non-Destructive Evaluation of Veneer Using Optical Scanning and Ultrasonic Stress Wave Analysis Systems”

Dissertation Advisor: Dr. James Funck

**Oregon State University**, Corvallis, OR, 2000-2003

*M.S. in Wood Science: September, 2003*

*Minor in Industrial and Manufacturing Engineering*

Thesis Title: “Influence of Veneer Roughness, Lathe Check, and Annual Ring Characteristics on Glue-bond Performance of Douglas-fir Plywood”

Thesis Advisors: Dr. James Funck and Dr. James Reeb

**The Pennsylvania State University**, University Park, PA, 1993-1997

*B.S. in Wood Products Processing and Manufacturing, June 1997*

*Minor in Wood Products Business and Marketing*

## **RESEARCH EXPERIENCE**

**Graduate Research Assistant**, Oregon State University, Department of Wood Science and Engineering, Corvallis, OR, 2000-2009

- Investigated non-destructive techniques for veneer as a means to predict engineered wood properties
- Investigated influence of veneer characteristics on plywood gluebond performance
- Consulted on project to compare load span tables of U.S. concrete form panels to those of imported Finnish Birch plywood

**Laboratory Assistant**, The Pennsylvania State University, Wood Products Department, University Park, PA, 1996-1997

- Performed testing on wood products
- Participated in research study on various woodworking equipment

**Laboratory Assistant (Intern)**, Georgia-Pacific, Jarratt, VA, 1995

- Studied and implemented a Fiberscan Analysis System as a quality control method
- Investigated influence of chemical additives on performance of panel products

## TEACHING EXPERIENCE

**Instructor**, WDSC 481, Senior Project 2, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term, 2014-ongoing

- Two hour course covering topics related to research methodology and conducting research
- Course heavily focused on research methods and providing student with the tools to implement a research methodology to successfully complete a research project and present their results to a group of peers through formal presentations and written reports

**Instructor**, WDSC 480, Senior Project 1, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term, 2014-ongoing

- Two hour course covering topics related to setting up a research project and preparing a research proposal
- Course heavily focused on research methods and providing student with the tools to develop a research topic and proposal and present their ideas to a group of peers through formal presentations

**Instructor**, WDSC 362, Forest Products Decision Making, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term, 2009-ongoing

- Four hour course covering various decision making tools and techniques employed by the forest products industry to evaluate a manufacturing process and recognize production problems or opportunities
- Course covers use of decision-making tools and techniques such as statistical control charts, simulation-linear programming, network analysis, forecasting, and game theory
- Course heavily focused on statistical quality control methodology in relation to production facilities typically encountered in the forest products industry

**Instructor**, WDSC 320, Sustainable Construction, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Spring Term, 2014-ongoing

- Three hour course that covers the basic techniques and practices used in residential construction
- Course covers sustainable design and energy efficient building practices

**Instructor**, WDSC 693E, Advanced Sustainable Construction, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Spring Term, 2015-ongoing

- Three hour course that covers the advanced construction techniques and practices used in residential construction
- Course covers sustainable design and energy efficient building practices

**Instructor**, WDSC 460 – Plant Layout, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Spring Term, 2010-2014

- Three hour course which was changed in 2010 to a senior project course
- Course covers technical writing, presenting, and research methodology
- Course heavily focused on students developing a research proposal, conducting research, analyzing data and reporting results in a technical research paper and formal presentation

**Instructor**, WDSC 493C/693 – Special Topics: Strategic Forest Products Marketing, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Spring Term, 2012-ongoing

- Course covers markets for forest products with an emphasis on current market trends
- Emphasizes green technology and biofuel potential for forest material
- Course heavily focused on students performing critical thinking activities and developing full strategic marketing plan for a newly developed composite at WVU

**Instructor**, WSE 452, Process Control in the Forest Product Industry, Department of Wood Science and Engineering, Oregon State University, Corvallis, OR, Winter Term, 2008

- Four credit course on the use of sensing devices, analysis methods, and hardware to control variables found in typical wood products processes
- Covered fundamentals of electronics, discontinuous, continuous, and composite control modes, and statistical process control
- Course included two lectures and two lab periods each week, as well as setting up and demonstrating laboratory equipment and exercises

**Guest Lecturer**, FOR 425, Global Forest Resources, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Spring Term: 2013

- Presented lecture on Global Wood Products Markets

**Guest Lecturer**, WDSC 100, Forest Resources in U.S. History, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2011 to on-going

- Presenting lectures on Oak-Chestnut Forests, Wood as an Ideal Green Material, Residential Construction and Materials in the 21<sup>st</sup> Century, Wood Product Research, American Building Construction, The Innovation of Light Frame Construction, and Global Wood Products Markets

**Guest Lecturer**, WDSC 444 (previously 493C/693A), Bio-Based Energy Systems, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2010 to on-going

- Presenting lectures on bio-products, bio-based composite manufacturing

**Guest Lecturer**, FDM 360, Fashion Design and Merchandising, Division of Design & Merchandising, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2011

- Presented lecture on manufacturing of composites from recycled textile waste
- Demonstrated and instructed students in laboratory exercise to make textile composites.

**Guest Lecturer**, WDSC 293G, Residential Building Materials, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2011

- Lectured for 4 sessions on LVL manufacturing, veneer peeling, and OSB and Plywood manufacturing. Included hands on composite manufacturing in laboratory.

**Guest Lecturer**, WDSC 293D, Woodworking Design, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2011

- Instructed and assisted during hands-on work working activities

**Guest Lecturer**, WDSC 293H, Residential Construction Methods, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2011

- Instructed during hands-on building practice and organized guest lecture from a registered architect that discussed alternative wood framing practices for energy efficient building

**Guest Lecturer**, WDSC 293C, Introduction to Bio-Based Energy Systems, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term: 2010

- Presented lecture on bio-based composite materials

**Guest Lecturer**, WDSC 341, Wood Mechanics, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term, 2010

- Presented one lecture on wood characteristics that influence mechanical properties and one lecture on failure and fracture mechanics of wood material

**Guest Lecturer**, FOR 203, Careers in Natural Resources 2, Division of Forestry and Natural Resources, Davis College of Agriculture, Natural Resources, and Design, West Virginia University, Fall Term, 2009

- Discussed current wood products industry and areas for employment opportunities

**Guest Lecturer**, WDSC 494, Seminar, Wood Science and Technology, Division of Forestry and Natural Resources, Davis College of Agriculture, Forestry and Consumer Sciences, West Virginia University, Fall Term: 2009, 2011

- Presented lecture on industry adaptation to changing markets and sustainable products

**Guest Lecturer**, WSE 314, Wood and Fiber Physics, Department of Wood Science and Engineering, Oregon State University, Corvallis, OR, 2006 and 2007

- Presented lectures on acoustical properties of wood and use of non-destructive techniques
- Developed and conducted laboratory exercise on ultrasonic testing of wood properties

**Guest Lecturer**, WSE 211, Wood Properties and Measurements Laboratory, Department of Wood Science and Engineering, Oregon State University, Corvallis, OR, 2007 and 2009

- Presented lecture and conducted laboratory session regarding wood mechanical properties and hardwood lumber grading

**Guest Lecturer**, WSE 565, Wood Quality, Department of Wood Science and Engineering, Oregon State University, Corvallis, OR, 2007

- Presented lecture and conducted laboratory session on hardwood lumber grading

## **CONSULTING EXPERIENCE**

- Non-destructive in-situ testing of large timbers and structures (Momentum Engineers, 2014)
- Structural testing of panel and lumber (Parker National, 2010; ECS Carolinas, 2012; LWM Floors, 2013, Cogun Inc., 2015)
- Evaluation and testing of wood raw material, chips, and pellets (Koch and Co., Inc., 2012; Bloser, 2014; Lumber and Things, 2015; Greene Team Pellet Fuel, 2011-ongoing)
- Development of non-destructive testing system for baseball bat grading and performance prediction (Rawlings, 2013-2015)
- Testing and evaluation of baseball bat properties (Rawlings, 2013-2014)
- Instrumentation of industrial dry kiln systems (Phillips Sawmill, 2013 and 2015)

## **AWARDS AND FELLOWSHIPS**

- George G. Marra Award of Excellence (1<sup>st</sup> Place) from the Society of Wood Science and Technology, 2016
- Elected Vice-President of the Forest Products Society, 2015
- Division of Forestry and Natural Resources Outstanding Teaching Award, 2012
- WVU Faculty Travel Award, 2011 and 2013
- Dorothy D. Hoener Memorial Fellowship, OSU College of Forestry, 2006
- Forest Products Society Wood Award (1<sup>st</sup> place) – 2005 (International Competition)
- Robert E. Dougherty Foundation Scholarship, 2005 (North American Competition)
- Schutz Family Educational Fund Fellowship, OSU College of Forestry, 2005
- OSU College of Forestry Graduate Fellowship, 2004
- Robert E. Dougherty Foundation Scholarship, 2003 (North American Competition)
- College of Agriculture Science Alumni Internship Award, The Pennsylvania State University, 1995
- Xi Sigma Pi National Honor Society

## PROFESSIONAL TRAINING & CERTIFICATION

- Calibration of Testing Equipment Training, Advanced Calibration Technologies Inc., 2005
- Measurement Uncertainty for Testing Training, International Accreditation Service (IAS), 2005
- ISO 9000 Training, Madison, WI, 1999
- HUD General Construction Examination, Passed, 1998
- HUD Inspector Training, Elkhart, IN, 1997

## FUNDED RESEARCH PROJECTS

- **DeVallance, D.**, K. Hassler, E Thomas, R. Ross, A. Senalik, J. Wang, and X. Wang. 2015. Integrated Log Grading/Scanning. Hardwood Research Trust Grant Program.
- Ciolkosz, D., **D. DeVallance**, and K. DiMarco. 2015. Enabling energy willow business opportunities with key knowledge development. Seed Grant - Northeast Woody/Warm-Season Biomass Consortium. USDA/NIFA Grant Program.
- Wang, J., J. Zondlo, E. Solbosky, **D. DeVallance**, and X. Xie. 2015. Enhancing the Nanostructure of the Lignocellulosic Cell Wall as a Natural Template for Highly-Ordered Mesoporous Carbons. USDA/NIFA – AFRI Grant Program.
- Wang, J., **D. DeVallance**, S. Grushecky, .... 2014. Strengthening a Wood Energy Team to Facilitate Bio-Business Development in West Virginia. USDA Forest Service WERC Program.
- **DeVallance, D.** 2013. Innovation in Cross Laminated Timbers from Low-Value Hardwoods. Hardwood Research Trust Grant Program.
- **DeVallance, D.**, and J. Faulkner. 2013. Linking bench-scale evaluation and field-scale application of thermally-treated biomass media in livestock heavy-use areas for reducing environmental impacts of agriculture. WVU Faculty Senate Grant Program.
- Oporto, G., J. Jaczynski, **D. DeVallance**, and J. Wang. 2013. Development of novel hybrid cellulose nanocomposite film with potent biocide properties utilizing low quality Appalachian hardwoods, USDA/NIFA Forest Products Research Grant Program
- Participant in Sierros, K. and D. Korakakis. 2013. NUE: Nanosystems fabrication, integration, and testing (Nano FIT) for sustainable living. NSF EEC Nanotechnology Undergraduate Education.
- Richard, T., T. Volk, L. Smart, J. Wang (WVU PI) ... **DeVallance**. 2012. NEWBIO Northeast Woody/Warm-season Biomass Consortium (NEWBio), USDA/NIFA.
- Hindman, D., **D. DeVallance**, H. Quesada Pineda, T. Young, B. Bond, J. Lofersky, D. Kline, D. Kenealy. 2012. Development of low-grade hardwood cross-laminated timbers. USDA/NIFA Integrated Forest Products Research Program.
- Grushecky, S., **D. DeVallance**. 2012. Research Agreement with Stella-Jones: Mechanical Testing of Railroad Ties. Stella-Jones, Inc.

- **DeVallance, D.**, J. Wang. 2012. Enhancing Appalachian Hardwood Manufacturer Competitiveness Through Educational Outreach. WVU Grants for Public Service.
- Wang, J., J. Zondlo, D. Bhattacharyya, **D. DeVallance**, S. Grushecky. 2012. Feasibility of a coal-biomass to liquids plant in southern West Virginia. US Department of Energy/NETL.
- S. Grushecky, **D. DeVallance**, J. Slahor. 2011. Evaluating the effectiveness of a 1-step preservations in wood posts against termite attack. Stella-Jones, Inc.
- **DeVallance, D.**, J. Wang, and J. Gray. 2011. Demand and product innovations for green products sourced from Appalachian hardwoods. USDA Forest Service WERC Program.
- Wang, J., **D. DeVallance**, and J. McNeel. 2011. Promoting hardwood processing efficiency and economic competitiveness for small sawmills in the Appalachian region. USDA Forest Service WERC Program.
- Wang, J. and **D. DeVallance**. 2011. Using a 3D laser scanning and log defect prediction model to determine internal defect distributions in Appalachian hardwood logs. USDA Forest Service.
- Wang, J., J. Zondlo, S. Difazio, K. Singh, and **D. DeVallance**. 2011. Advancing an interdisciplinary and competitive bioenergy research team at West Virginia University. WVU – Advanced Energy Initiative Program.
- Oporto G.S., K. Singh, **D. DeVallance**, and Q. Cheng. 2011. Pre-treatment of Appalachian Hardwood Residues for Improving its Further Thermochemical Conversion. WVU Energy Research Grant.
- **DeVallance, D.** and S. Grushecky. 2010. Assessment of Local and Certified Wood Product Demand in Affordable Housing Construction in the Central Appalachian Region. Ford Foundation Grant through Rural Action.
- Grushecky, S., E. Crowe, B. Gopalakrishnam, C. Altizer, and **D. DeVallance**. 2010. FEMP – South Dakota Energy. KeyLogic Systems.
- **DeVallance, D.** 2010. Promoting Appalachian Hardwood Utilization for Value-Added Wood Products and Biofuels. USDA/National Institute of Food and Agriculture.
- **DeVallance, D.B.** 2009. Development of an Innovative Non-destructive Evaluation System and Alternative Composite Materials for Under-utilized Appalachian Harwood Veneer. McIntire-Stennis Project. West Virginia Agriculture and Forestry Experiment Station.
- **DeVallance, D.B.**, H. Lentz, K. Eason, and J. Gray. 2009. Utilization of Postconsumer Textile Waste Fibers in Manufacturing Sustainable Composite Materials. Environmental Research Center Mini-Grant. West Virginia University, Davis College of Agriculture, Natural Resources and Design.

## SELECTED PREPARED PROPOSALS

- **DeVallance, D.**, X. Xie, and J. Wang. 2016. Conversion of bioenergy feedstock to high-value carbonized materials for composite and electrical sensing applications. Submitted to the USDA Northeast Region Sun Grant Program.



- Quesada Pineda, H., D. Ciolkosz, J. Kays, **D. DeVallance**, S. Wurzbacher. 2016. Emerging opportunities for small scale wood energy in the middle Appalachian region: Regional extension in sustainable bioenergy to address critical issues faced by small woodland owners and communities. Submitted to the USDA/NIFA Renewable Resources Extension Act – National Focus Fund Project Grant Program.
- **DeVallance, D.**, T. Basden, L. McDonald, M. Minch, and J. Faulkner. 2015. Pre-Proposal: Evaluation of Combined Livestock Heavy-Use Area Wood Chip Pads and Vegetative Treatment Areas. WV Natural Resources Conservation Service (Davis College cooperative program)
- **DeVallance, D.**, T. Basden, J. Faulkner, L. Christianson. 2015. Bundled woodchip heavy-use areas and woodchip denitrification bioreactors for improved water quality from livestock operations. Submitted to Natural Resources Conservation Service, Conservation Innovation Grants Program
- Wang, J., J. Zondlo, X. Xie, **D. DeVallance**, and R. Carr. 2014. High Capacity Energy Storage Carbon Material from Pyrolyzed Lignocelluloses. Submitted to the Sun Grant Program.
- **DeVallance, D.**, A. Sinha, and J. Jakes. 2013. Collaborative Research: Nano-mechanical, physical, thermal, and chemical properties of thermally carbonized wood for advanced sensor and composite materials. Submitted to the National Science Foundation, CMMI Materials Engineering and Processing Program.
- Faulkner, J., V. Nickerson, **D. DeVallance**, T. Basden, and L. Prim. 2013. Making riparian buffers pay: A research and education project to evaluate the multifunctional uses of woody riparian species. Submitted to Northeast SARE Grant Program.
- **DeVallance, D.**, X. Xie, G. Oporto, J. Zondlo, and J. Wang. 2013. Thermal conversion of low-value Appalachian hardwoods to advanced carbon fuel and carbon nano-materials for electrochemical energy production and storage. Submitted to USDA/NIFA Forest Products Research Program.
- McNeel, J., J. Wang, **D. DeVallance**, J. Schuler, R. Barricelli, S. Resh, and J. Downs. 2013. Advancing a sustainable energy land management education program in Central Appalachian region. Submitted to the National Institute of Food and Agriculture.
- Wang, J., S. Grushecky, **D. DeVallance**, T. Basden, B. Gopalakrishnan, J. Moritz, G. Henthorn, T. Buggiey, J. Gandee, J. Herholdt, R. Dye, J. Ours, D. Wagner, and M. Jenkins. 2013. Strengthening a wood energy team to facilitate bio-business development in West Virginia. Submitted to the Wood Education and Resource Center Statewide Wood Energy Team Project Program.
- Wang, J., X. Xie, and **D. DeVallance**. 2013. Nanostructured carbon from lignocelluloses precursors for high capacity energy storage material. Submitted to WVU – PSCoR.
- Ciolkosz, D., V. Puri, H. Yi, **D. DeVallance**, and J. Zondlo. 2013. Pelletization of miscanthus for enhanced performance in the regional bioenergy supply chain. Submitted to NEWBio Seed Grant Program.
- **DeVallance, D.** and A. Sinha. 2013. Collaborative Research: Insulating panels for enhanced fire resistance in green buildings. Submitted to the National Science Foundation, CBET Environmental Sustainability Program.

- **DeVallance, D.** and P. Badger. 2013. Adding value to biochar produced from underutilized Appalachian hardwoods. Submitted to the Hardwood Research Trust Grant Program.
- **DeVallance, D.,** J. Wang, J. Zondlo, and X. Xie. 2013. Promoting the utilization of low-value, low-quality Appalachian hardwoods for energy storage materials. Submitted to the Hardwood Research Trust Grant Program.
- Faulkner, J., T. Basden, **D. DeVallance.** 2012. Denitrifying permeable reactive barriers incorporating thermally treated biomass for remediating agricultural non-point source pollution. Submitted to the Water Resources Research National Competitive Grants Program.
- Faulkner, J., **D. DeVallance,** T. Basden. 2012. Linking bench-scale evaluation and field-scale application of thermally-treated biomass media in livestock heavy-use areas for reducing environmental impacts of agriculture. Submitted to WVU – PSCoR.
- Sinha, A. and **D. DeVallance.** 2012. Resubmission: Collaborative Research: Novel oriented layered strand composite for structural applications. Submitted to NSF, CMMI Structural Materials and Mech.
- Wang, J., J. Zondlo, R. Andrews, E. Searcy, S. DiFazio, S. Grushecky, M. Langholtz, **D. DeVallance,** D. Bhattacharyya, K. Singh, G. Oporto, D. Jacques, D. Challman. 2012. Promoting high-value bioproduct production using abundant central Appalachian biomass resources. Submitted to NIFA, Biomass Research and Development Initiative USDA-NIFA-9008-003828.
- **DeVallance, D.,** J. Wang, S. Wang, G. Oporto, K. Singh, S. Grushecky. 2012. Value-added feedstock and products via harvesting and pre-processing optimization of low value Appalachian Hardwoods. Submitted to USDA/NIFA Integrated Forest Products Research Program.
- GangaRao, H., R. Sharma, R. Guptam B. Woerner, J. Wang, J. Kilwein, M. Valenti, **D. DeVallance** (Faculty Participant, not Co-PI), et al.(12 other faculty participants). IGERT Proposal, R&E for Smart Sustainable Infrastructure. Submitted to NSF, IGERT Program.
- McNeel, J., J. Wang, J. Brooks, and **D. DeVallance.** 2012. Advancing a sustainable energy education program in Central Appalachian region. Submitted to the National Institute of Food and Agriculture.
- Sinha, A. and **D. DeVallance.** 2012. Collaborative Research: Novel oriented layered strand composite for structural applications. Submitted to the National Science Foundation, CMMI Structural Materials and Mech.
- Wang, J., J. Zondlo, K. Singh, **D. DeVallance.** 2012. Advancing bioenergy production in central Appalachian region. Submitted to WVU – PSCoR.
- **DeVallance, D.,** H. Lentz, and J. Gray. 2011. Novel Wood-Recycled Textile Composite Panels with Enhanced Thermal Properties. Submitted to National Science Foundation-NSF-Engineering.
- Borrer, M., J. Wang, **D. DeVallance,** K. Singh, B. Spong, D. McGill. 2011. Wood to Watts: Promoting the increased use of woody biomass for the production of energy in West Virginia State and Private Forest Program, submitted by the WV Division of Forestry.

- J. Wang, S. DiFazio, D. Bhattacharyya, J. Zondlo, K. Singh, S. Grushecky, **D. DeVallance**. 2011. West Virginia Center for Advanced Renewable Bioenergy WV Higher Education Policy Commission/Div of Science and Research-prev WV EPSCoR.
- **DeVallance, D.**, J. Wang. 2011. Enhancing Appalachian Hardwood Manufacturer Competitiveness Through Educational Outreach WVU Grants for Public Service.
- **D. DeVallance**. 2011. Potential of Biochar to Enhance Fire and Thermal Performance of Wood-Based Insulating Composites. WVU Senate Grant.
- J. Wang, J. W. Zondlo, R. Andrews, S. Goetz, K. Singh, S. DiFazio, D. VanEssendelft, B. Gopalakrishnan, D. McGill, E. Sabolsky, K. Means, **D. DeVallance**, S. Grushecky, and Q. Cheng. 2010. Bioenergy production in the Appalachian Region. USDA-BRDI.
- **DeVallance, D.**, G.S. Oporto, and K, Singh. 2010. Development of lightweight insulating composites and substrate material from Appalachian hardwood residue and biochar. Wood Utilization Research Grant Program.
- Singh, K., J. Wang, J. Zondlo, and **D. DeVallance**. 2010. Influence of feedstock type and moisture content on absorption properties of bio-char produced from slow pyrolysis using invasive tree species. Wood Utilization Research Grant Program.
- Singh, K., J. Wang, J. Zondlo, and **D. DeVallance**. 2010. Feedstock Preprocessing and Reactive Properties of Conditioned Coal-Biomass Mixtures. National Energy Technology Laboratory, Fossil Energy Research and Development, Funding opportunity DE-FOA-0000240.
- Wang, J., J. McNeel, **D.B. DeVallance**, E. Thomas, and C. Ray. 2010. Promoting appropriate milling technology and competitiveness for small sawmills in the Appalachian hardwood region. The Wood Education and Resource Center (WERC) Grant Program.
- Wang, J., S.P. DiFazio, **D.B. DeVallance**, and R. Rio. 2009. Alternative environmentally-friendly pretreatments on hybrid poplar for biofuel production. The WVU Advanced Energy Initiative (AEI), Energy Research Grant Program.

## PUBLICATIONS

### Refereed Journal Articles:

1. Estep, G.D., **D.B. DeVallance**, and J.C. Haddox. 2016. Hot spot analysis and specifier perceptions of wood products use in commercial LEED certified projects in the Appalachian region. Submitted to BioProducts Business Journal.
2. Kasson, M.T., K.L. Wickert, C.M. Stauder, A.M. Macias, M.C. Berger, D. Rabern Simmons, D.P.G. Short, **D.B. DeVallance**, and J. Hulcr. 2016. Mutualism with aggressive wood-degrading *Flavodon ambrosius* (Polyporales) facilitates niche expansion and communal social structure in *Ambrosiophilus ambrosia* beetles. *Fungal Ecology*. 23(October):86-96.
3. Dahle, G., A. Carpenter, and **D. DeVallance**. 2016. Non-destructive Measurement of the Flexural Modulus of Elasticity of Wood Using Acoustical Stress Waves. *Arboriculture and Urban Forestry*. 42(4): 227-233.

4. Estep, G.D., **D.B. DeVallance**, and D.J. Lacombe. 2015. Analysis of certified wood product use in commercial LEED building projects. *Wood Fiber Sci.* 47(3):1-13.
5. **DeVallance, D.B.**, G.S. Oporto, and P. Quigley. 2015. Investigation of hardwood biochar as a replacement for wood flour in wood-polypropylene composites. *J Elast Plastics*. Advance online publication. doi:10.1177/0095244315589655.
6. Nan, N., **D.B. DeVallance**, X. Xie, and J. Wang. 2015. The effect of bio-carbon addition on the electrical conductive, mechanical, and thermal properties of polyvinyl alcohol/biochar composites. *Journal of Composite Materials*. Advance online publication. doi:10.1177/0021998315589770.
7. Wang, J., X. Xie, **D. DeVallance**, J. Jiang, L. Huang, L. Denes. 2015. Editorial-Biomass-based materials and technologies for energy. *Advances in Materials Science and Engineering*. 2015: 2 pages, doi:10.1155/2015/393619.
8. Faulkner, J.W., J.L. Miller, T.J. Basden, and **D.B. DeVallance**. 2015. Woodchip heavy-use area effluent quality, quantity, and hydrologic design considerations. *Applied Engineering in Agriculture*. 31(5): 783-790.
9. Estep, G.D., **D.B. DeVallance**, and S.T. Grushecky. 2013. Affordable home builder demand for green and certified wood products. *Forest Prod. J.* 63(1/2):4-11.
10. **DeVallance, D.B.**, J.D. Gray, and S.T. Grushecky. 2013, IMPROVING STRAND QUALITY OF UPLAND OAKS FOR USE IN ORIENTED STRAND BOARD. In *Proceedings of the 18th Central Hardwoods Conference*. USDA Forest Service General Technical Report NRS-P-117, p. 284-291.
11. Jingxin Wang, Shirong Liu, Tom Gallagher, **David DeVallance**, and Levente Denes, "Forest Biomass Utilization for Biofuels and Bioproducts," *International Journal of Forestry Research*, vol. 2012, Article ID 656834, 2 pages, 2012. doi:10.1155/2012/656834
12. **DeVallance, D.B.**, J.D. Gray, and H. Lentz. 2012. Properties of wood/textile composite panels. *Wood Fiber Sci.* 44(3):310-318.
13. Lin, W., J. Wang, **D. DeVallance**, and D. Summerfield. 2011. Impact Assessment of the 2008 Economic Downturn on Appalachian Hardwood Sawmills Operations. *Forest Prod. J.* 61(8):649-655.
14. Lin, W., J. Wang, J. Wu, and **D. DeVallance**. 2011. Log sawing practices and lumber recovery of small hardwood sawmills in West Virginia. *Forest Prod. J.* 61(3):216-224.
15. Wu, J., J. Wang, Q. Cheng, and **D. DeVallance**. 2011. Assessment of coal and biomass to liquid fuels in central Appalachia, USA. *International Journal of Energy Research*. (2011) DOI: 10.1002/er.1838.
16. **DeVallance, D.B.**, J.W. Funck, and J.E. Reeb. 2011. Evaluation of laminated veneer lumber tensile strength using optical scanning and combined optical-ultrasonic techniques. *Wood Fiber Sci.* 43(2):169-179.
17. Adebayo, A., J. Wang, Q. Cheng, and **D. DeVallance**. 2011. Bioenergy properties of juvenile hybrid poplars and their parent species. *Wood Fiber Sci.* 43(4):412-420.
18. Wang, J., J. Wu, **D.B. DeVallance**, and J.P. Armstrong. 2010. Appalachian hardwood product exports-An analysis of the current Chinese market. *Forest Prod. J.* 60(1):94-99.

19. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2007. Veneer roughness, lathe checks and annual ring characteristics: Effects on Douglas-fir plywood gluebond performance. *Forest Prod. J.* 57(1/2):21-28.
20. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2006. Influence of several preparation conditions on plywood gluebond quality test results. *Forest Prod. J.* 56(2):47-50.

### **Funded Project Reports:**

1. Grushecky, S., X. Xie, and **D.B. DeVallance**. 2014. Mechanical properties of green oak, pine, and gum railroad ties. Project Report for STELLA-JONES, Inc. 13pp.
2. Grushecky, S. and **D.B. DeVallance**. 2012. Mechanical properties of green, air-dried, and treated railroad ties. Project Report for STELLA-JONES, Inc. 43pp.
3. **DeVallance, D.B.**, Estep, G.D., and S.T. Grushecky. 2012. Assessment of local and certified wood product demand in affordable housing construction in the Central Appalachian region. Project Report to Rural Action and RUPRI Center for Rural Entrepreneurship. 8pp.
4. **DeVallance, D.**, C. Altizer, S. Chaudhari, S. Grushecky, E. Crowe, B. Gopalakrishnan, and C. Hustwit. 2010. Preliminary Feasibility Assessment for a proposed biomass combined heat & power facility in Rushmore, SD. Prepared for USDA Forest Service, Black Hills National Forest through US Department of Energy/National Energy Technology Laboratory. 66pp.
5. **DeVallance, D.**, C. Altizer, S. Chaudhari, S. Grushecky, E. Crowe, B. Gopalakrishnan, and C. Hustwit. 2010. Preliminary Feasibility Assessment for a proposed biomass facility in Hot Springs, SD. Prepared for USDA Forest Service, Black Hills National Forest through US Department of Energy/National Energy Technology Laboratory. 57pp.
6. **DeVallance, D.**, C. Altizer, S. Chaudhari, S. Grushecky, E. Crowe, B. Gopalakrishnan, and C. Hustwit. 2010. Preliminary Feasibility Assessment for a proposed biomass combined heat & power facility in Spearfish, SD. Prepared for USDA Forest Service, Black Hills National Forest through US Department of Energy/National Energy Technology Laboratory. 67pp.

### **Unreviewed Publications:**

1. Basden, T., J. Faulkner, and **D. DeVallance**. 2015. Wood chip pad winter feeding area as a new livestock manure management system. Proceedings of the 2015 From Waste to Worth: Advancing Sustainability in Animal Science. March 31-April 3, 2015, Seattle, WA.
2. **DeVallance, D.B.** and N. Nan. 2014. Bio-based carbon/polyvinyl alcohol piezoresistive sensor material. Proceedings of the 57<sup>th</sup> International Convention of Society of Wood Science and Technology. June 23-27, 2014, Zvolen, Slovakia.
3. **DeVallance, D.B.**, G. Estep, and S. Grushecky. 2014. Spatial analysis of certified, local, and low-emitting wood material use in LEED green building projects. Proceedings of the 57<sup>th</sup> International Convention of Society of Wood Science and Technology. June 23-27, 2014, Zvolen, Slovakia.

4. Wang, J., J. Wu, **D.B. DeVallance**, and J.P. Armstrong. 2010. Appalachian Hardwood Product Exports – An Analysis of the Current Chinese Market. Proceedings of the International Convention of Society of Wood Science and Technology and United Nations Economic Commission for Europe – Timber Committee. October 11-14, 2010, Geneva, Switzerland.
5. **DeVallance, D.B.** 2009. Non-Destructive Evaluation of Veneer Using Optical Scanning and Ultrasonic Stress Wave Analysis Systems. PhD Dissertation. Oregon State University, Corvallis, OR.
6. **DeVallance, D.B.**, J.W. Funck, and J.E. Reeb. 2006. Veneer quality influences on plywood gluebond quality. Proceedings of the Second International Symposium on Veneer Processing and Products. Vancouver, Canada. May 9-10. 367-378.
7. **DeVallance, D.B.** 2003. Influence of veneer roughness, lathe check, and annual ring characteristics on glue-bond Performance of Douglas-fir plywood. M.S. Thesis. Oregon State University, Corvallis, OR.

#### **Book Chapters:**

1. **DeVallance, D.B.**, X. Xie, and J. Wang. 2016. Advancements in wood pretreatment for bioenergy and biofuel applications. Practices and Perspectives in Sustainable Bioenergy: A Systems Thinking Approach. Springer. Accepted for publication.
2. Qingzheng Cheng, **David DeVallance**, Jingxin Wang and Siqun Wang (2011). Advanced Cellulosic Nanocomposite Materials, Advances in Composite Materials for Medicine and Nanotechnology, Brahim Attaf (Ed.), ISBN: 978-953-307-235-7, InTech, Available from: <http://www.intechopen.com/articles/show/title/advanced-cellulosic-nanocomposite-materials>

#### **Un-reviewed Abstracts:**

1. **DeVallance, D.** 2014. Abstract included in the Energy and Environmental Research booklet. Second Annual Showcase for Energy and Environmental Research. WVU LIINC Program, Morgantown, WV, September 4.
2. **DeVallance, D.** 2014. Abstract included in the Bioscience and Biomedical booklet. Bioscience and Biomedical Research Showcase. WVU LIINC Program, Morgantown, WV, February 18.
3. **DeVallance, D.** 2013. Advancement of Bioproducts and Bioenergy Feedstock from Renewable Resources. Abstract included in the Energy and Environmental Research booklet. Second Annual Showcase for Energy and Environmental Research. WVU LIINC Program, Morgantown, WV, October 3.
4. **DeVallance, D.** 2013. Wood-based Materials. Abstract included in the Bioscience and Biomedical Research booklet. Showcase for Bioscience and Biomedical Research. WVU LIINC Program, Morgantown, WV, February 12.
5. **DeVallance, D.** 2012. Abstract included in the Security and Intelligence Research booklet. Security and Intelligence Research Showcase. WVU LIINC Program, Morgantown, WV, November 8.

6. **DeVallance, D.** 2012. Abstract included in the Bioscience and Biomedical booklet. Bioscience and Biomedical Research Showcase. WVU LIINC Program, Morgantown, WV, February 21.

## PRESENTATIONS

1. Nan, N. and **D. DeVallance**. 2016. Impact of biochar source and particle size on the piezoresistivity of polyvinyl alcohol/biochar sensor material. Forest Products Society 70th International Convention, Portland, OR. June 29.
2. **DeVallance, D.**, E. Thomas, and X. Wang. 2016. Assessment of Logs. Forest Products Society 70th International Convention, Portland, OR. June 28.
3. **DeVallance, D.** and D. Hovanec. 2016. Influence of inherent yellow-poplar lumber characteristics on adhesive bond quality needed for use in cross-laminated timbers. Forest Products Society 70th International Convention, Portland, OR. June 27.
4. **DeVallance, D.** and N. Nan. 2016. Influence of Processing Parameters on the Piezoresistivity of Bio-based Carbon Sensor Material. Society of Wood Science and Technology 59th International Convention. Curitiba, Brasil. March 7.
5. **DeVallance, D.** 2016. Carbonization of biomass for energy and composite material applications. Invited Visiting Scientist Guest Speaker. ABE Department Seminar Series, Pennsylvania State University, University Park, PA. March 31.
6. **DeVallance, D.**, X. Xie, J. Wang, J. McNeel. 2015. Bioproducts and bioenergy from woody biomass. 4th Annual TransTech Energy Business Development Conference-2015, WVU TransTech Energy Business Development Program, Morgantown, WV. November 7.
7. **DeVallance, D.** 2015. Determining wood properties using destructive tests. Davey Tree Experts Field Day: WVU – Davey Institute Plant Sciences Research Collaboration on Wood Behavior, Shalersville, OH, October 14.
8. **DeVallance, D.** 2015. Determining wood properties using acoustic tests. Davey Tree Experts Field Day: WVU – Davey Institute Plant Sciences Research Collaboration on Wood Behavior, Shalersville, OH, October 14.
9. Xie, X., **D. DeVallance**, J. Wang, J. McNeel. 2015. Bioproducts and bioenergy from woody biomass. National STEM Teachers Workshop, Bioenergy and Bioproducts Education Program, Horseheads, NY, July 27-30.
10. **DeVallance, D.**, J. Faulkner, and T. Basden. 2015. Laboratory evaluation of biomass media for use in livestock heavy-use areas. ASABE International Convention. New Orleans, LA. July 29.
11. Faulkner, J., T. Basden, and **D. DeVallance**. 2015. Woodchip heavy-use area effluent quality, quantity, and hydrologic design considerations. ASABE International Convention. New Orleans, LA. July 29.
12. **DeVallance, D.** and G. Estep. 2015. Hotspot Markets and Specifier Perception for Wood-Based Materials in Appalachian LEED Building Projects. Society of Wood Science and Technology 58th International Convention. Jackson, WY. June 12.
13. **DeVallance, D.** and D. Hovanec. 2015. Influence of inherent yellow-poplar characteristics on adhesion properties needed for cross laminated timber panels. Poster presentation at the

- Society of Wood Science and Technology 58th International Convention. Jackson, WY. June 9.
14. Xie, X., J. Wang, J. Zondlo, J. McNeel, **D. DeVallance**. 2015. Bioproducts and bioenergy from underutilized biomass. U.S. Department of Energy National Energy Technology Laboratory, Morgantown, WV. May 12.
  15. Hovanec, D. and **D. DeVallance**. 2015. Effect of wood characteristics on adhesive bond quality of yellow-poplar for use in cross-laminated timbers. Poster presentation at the 49<sup>th</sup> International Wood Composites Symposium. Seattle, WV. April 21.
  16. Estep, G. and **D. DeVallance**. 2015. Specifier perceptions of wood-based materials in green building projects. Workshop on Wood Product Supply and Demand for the Appalachian Green Construction Markets. USDA Forest Service Wood Education and Resource Center. Princeton, WV. April 16.
  17. **DeVallance, D.** 2015. The green building industry. Workshop on Wood Product Supply and Demand for the Appalachian Green Construction Markets. USDA Forest Service Wood Education and Resource Center. Princeton, WV. April 16.
  18. Basden, T., J. Faulkner, and **D. DeVallance**. 2015. Wood chip pad winter feeding area as a new livestock manure management system. 2015 From Waste to Worth: Advancing Sustainability in Animal Science, Seattle, WA. April 2.
  19. **DeVallance, D.**, X. Xie, J. Wang, J. McNeel. 2015. Biofuels and energy efficient bioproducts from underutilized woody biomass. Poster presented at the 2015 Innovation & Entrepreneurship Day at the State Capitol, Charleston, WV. January 28.
  20. Basden, T., J. Faulkner, and **D. DeVallance**. 2014. Wood chip pad winter feeding area as a new livestock manure management system. Mid-Atlantic 2014 Crop Management School Workshop. Princess Royale Hotel and Conference Center, Ocean City, MD. November 18.
  21. Estep G.D., **D. DeVallance** and S. Grushecky. 2014. Hotspot Markets and Specifier Perception for Wood-Based Materials in Appalachian LEED Building Projects. 2014 CreateWV and The Building Conference - Connecting Cultures. Glenville, West Virginia. October 27, 2014.
  22. D. Hovanec and **D. DeVallance**. 2014. Potential growth for Cross-Laminated Timbers. 2014 CreateWV and The Building Conference - Connecting Cultures. Glenville, West Virginia. October 27, 2014.
  23. Basden, T., **D. DeVallance** and J. Faulkner. 2014. Evaluation of effluent and sorption nutrients onto thermally-treated biomass in a woodchip heavy use area for wintering dairy cattle. Poster presentation at the Smith-Lever Scholarly Symposium. Waterfront Hotel. Morgantown. WV. September 24.
  24. **DeVallance, D.** and J. Wang. 2014. Global wood products markets: Opportunities for Appalachian hardwoods. Workshop on Promoting Hardwood Processing and Economy. USDA Forest Service Wood Education and Resource Center. Princeton, WV. September 4.
  25. **DeVallance, D.** 2014. Renewable Material Research for Bioenergy and Bioproducts. Abstract included in the Energy and Environmental Research booklet. Third Annual Showcase for Energy and Environmental Research. WVU LIINC Program, Morgantown, WV, September 4.



26. **DeVallance, D.** and T. Wang. 2014. Pelletized fuel from torrefied biomass. Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
27. **DeVallance, D.** 2014. Cross laminated timbers (CLTs) in building construction in the Appalachian region. Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
28. Hovanec, D. and **DeVallance, D.** 2014. Effect of wood characteristics on adhesive bond quality of yellow-poplar for use in cross laminated timbers. Poster presentation at the Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
29. Nan, N. and **DeVallance, D.** 2014. Bio-based carbon/polyvinyl alcohol piezoresistive sensor films. Poster presentation at the Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
30. Estep, G. and **DeVallance, D.** 2014. Spatial analysis of certified wood material use in LEED green building projects. Poster presentation at the Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
31. Wang, J., J. McNeel, **D. DeVallance,** and X. Xie. 2014. Biofuels and energy efficient bioproducts from underutilized woody biomass. Poster presentation at the Conference on Biomass Utilization for Green Materials and Energy. Erickson Alumni Center. Morgantown, WV. September 2.
32. Basden, T., **D. DeVallance** and J. Faulkner. 2014. Evaluation of effluent and sorption nutrients onto thermally-treated biomass in a woodchip heavy use area for wintering dairy cattle. Poster presentation at the 2014 Soil and Water Conservation Annual Conference. Lombard, IL. July 28.
33. **DeVallance, D.** and N. Nan. 2014. Bio-based carbon/polyvinyl alcohol piezoresistive sensor material. Society of Wood Science and Technology 57<sup>th</sup> International Convention. Zvolen, Slovakia. June 26.
34. **DeVallance, D.,** G. Estep, and S. Grushecky. 2014. Spatial analysis of certified wood material use in LEED green building projects. Society of Wood Science and Technology 57<sup>th</sup> International Convention. Zvolen, Slovakia. June 25.
35. **DeVallance, D.,** J. Faulkner, and T. Basden. 2014. Use of non-treated and thermally-treated biomass media in livestock heavy-use areas to reduce the environmental impacts of agriculture. Poster presentation at the Society of Wood Science and Technology 57<sup>th</sup> International Convention. Zvolen, Slovakia. June 24.
36. **DeVallance, D.** 2014. Alternative uses of biomass: Thermally treated biomass in building materials. New Markets for Bioenergy Crops Short Course. NEWBio Bioenergy Short Course Series. Penn Stater Hotel and Conference Center. State College, PA. May 21.
37. **DeVallance, D.** 2014. Workshop laboratory activity: Thermally modified wood for use in conductive applications. BBEP Teacher Train the Trainer Workshop. Delaware State University. Dover, Delaware. May 15.
38. Nan, N. and **D. DeVallance.** 2014. Bio-based carbon/polyvinyl alcohol composite materials. Poster presentation at the 2014 Nanosafe Bioelectronics and Biosensing International Symposium. Waterfront Place Hotel. Morgantown, WV. April 27.

39. Estep, G., **DeVallance, D.**, and S. Grushecky. 2014. Spatial analysis of certified wood material use in LEED green building projects. Poster presentation at the 2014 Davis College Student Research and Creative Work Conference. Towers Hall. Morgantown, WV. April 9.
40. **DeVallance, D.** 2014. Business opportunities for wood: Focus on cross laminated timber production in West Virginia. Invited Speaker at the West Virginia House of Delegates Small Business Entrepreneurship and Economic Development Committee Meeting. January 29.
41. **DeVallance, D.**, J. Wang, J. McNeel, and X. Xie. 2014. Biofuels and energy bioproducts from underutilized woody biomass. Poster presented at the 2014 IOF-WV Day at the State Capitol, Charleston, WV. January 29.
42. **DeVallance, D.** 2013. Wood and biomass pellets for regional and global energy. Invited Webinar Speaker. NEWBio Extension Programs. December 10.
43. **DeVallance, D.**, K. Singh, and G. Oporto. 2013. Wood Science and Technology: Renewable Materials and bioenergy. Presentation to WVU students at Braxton Tower. Morgantown, WV, October 28.
44. Patel, N.S., C. Rutzke, M. Guo, T. Fleming, M. Mitra, A. Nagchaudhuri, Z. Wojnar, D. Hall, D. Homan, L. Bug, S. Guran, **D. DeVallance**, and R. Stedman. 2013. Bioenergy and bioproducts education partners (BBEP): High school students' and educators' attitudes toward renewable energy education (REE). Association for the Advancement of Industrial Crops. Washington, D.C. October 15.
45. Martino, D., J. Wang, A. Falcon, and **D. DeVallance**. Biomass Preprocessing and Pretreatment for Biofuels and Bioproducts. Poster presented at the 2013 NEWBio Bioenergy Symposium. The Pennsylvania State University. University Park, PA. August 16.
46. Nan, N. and **D. DeVallance**. 2013. Addition of biochar nano-particles to packaging film. American Society of Agricultural and Biological Engineers International Meeting, Kansas City, MO. July 22.
47. **DeVallance, D.** 2013. Pellet feedstock characteristics and pellet quality. Invited Speaker for the Business of Biomass: Pellets and Power Bioenergy Short Course. Erickson Alumni Center. West Virginia University, Morgantown, WV. June 25.
48. **DeVallance, D.** and T. Wang. 2013. Compaction behavior, energy requirements, and durability of torrefied biomass pellets. Forest Products Society 67th International Convention, Austin, Texas. June 10.
49. **DeVallance, D.**, J. Slahor and L. Osborn. 2013. Phytosanitation of wood packaging materials (WPM) in domestic U.S. commerce. Poster presentation at the Forest Products Society 67th International Convention, Austin, Texas. June 9.
50. Estep, G.D., **D. DeVallance**, and J. Wang. 2013. Market feasibility of a coal-biomass to liquid fuel facility in the southern West Virginia region. Poster presentation at the Forest Products Society 67th International Convention, Austin, Texas. June 9.
51. Estep, G.D. and **D. DeVallance**. 2013. Demand driven indicators of material specifiers in the green building sector. Forest Products Society 67th International Convention, Austin, Texas. June 9.
52. Wang, J., J. McNeel, **D. DeVallance**, D. Hartley, G. Estep. 2013. Biofuels and Energy Efficient Bioproducts from Underutilized Woody Biomass. Poster presentation at the IOF-WV, Innovation and Entrepreneurship Day at the Capitol. March 11.

53. **DeVallance, D.** 2013. Forest Products Research at West Virginia University. Invited Speaker for the Forest Products Research and Development Institute (FPRDI) Technology Seminar-Forum. FPRDI Conference Hall, College, Laguna, Philippines. February 5.
54. **DeVallance, D.** 2013. Advances in wood-based composites for green building applications. Invited Speaker. 33<sup>rd</sup> Annual Philippine-American Academy of Science and Engineering (PAASE) Meeting and Symposium. Plaza del Norte Hotel and Convention Center, Laoag City, Ilocos Norte, Philippines. January 31.
55. **DeVallance, D.** 2013. Grantsmanship: Preparing fundable proposals. Invited Speaker. 33<sup>rd</sup> Annual Philippine-American Academy of Science and Engineering (PAASE) Meeting and Symposium. Plaza del Norte Hotel and Convention Center, Laoag City, Ilocos Norte, Philippines. January 31.
56. Funck, J. W., and **DeVallance, D.B.** 2012. Quality veneer for quality plywood and engineer wood products. Pre-Timber Products and Energy Expo Short Course. Red Lion Inn, Janzten Beach, Portland, OR. October 16.
57. **DeVallance, D.** 2012. Renewable Bioenergy and bio-composite research program. Poster presentation at the Energy and Environmental Research Showcase. WVU LIINC Program, Morgantown, WV, September 6.
58. Oporto, G.S., R.H. Jara, **D. DeVallance**, J. Carrasco, and T. Zhong. 2012. Surface energy analysis on hot-water extracted and torrefied Appalachian wood species for pellet production. 2012 American Society of Agricultural and Biological Engineers International Meeting, Dallas, TX, July 30.
59. **DeVallance, D.B.**, J. Gray, and S. Grushecky. 2012. Properties of OSB made from upland oak strands. Forest Products Society 66th International Convention, Washington, DC. June 5.
60. **DeVallance, D.B.**, S. Grushecky, and G. Estep. 2012. Demand for certified and green labeled wood products in affordable housing construction in the central Appalachian regionable housing projects. Forest Products Society 66th International Convention, Washington, DC. June 5.
61. **DeVallance, D.B.** and L. Moya. 2012. International perceptions and market opportunities of Appalachian hardwoods. Poster presentation at the Forest Products Society 66th International Convention, Washington, DC. June 4.
62. **DeVallance, D.B.**, N. Nan and G. Oporto. 2012. Biochar as a possible reinforcement for polyvinyl alcohol nanocomposite films. Poster presentation at the Forest Products Society 66th International Convention, Washington, DC. June 4.
63. Estep, G.D. and **D.B. DeVallance**. 2012. Demand driven indicators and innovations for the green building sector. Poster presentation at the Forest Products Society 66th International Convention, Washington, DC. June 4.
64. Oporto, G.S., R.H. Jara, **D. DeVallance**, J. Carrasco, and T. Zhong. 2012. Surface energy analysis on hot-water extracted and torrefied Appalachian wood species for pellet production. Forest Products Society 66th International Convention, Washington, DC. June 4.
65. **DeVallance, D.B.**, J.D. Gray, and S.T. Grushecky. 2012. Improving strand quality of upland oaks for use in oriented strand board. 18th Central Hardwoods Conference, Morgantown, WV, March 28.

66. Oporto, G., J. Carrasco, T. Zhong, **D. DeVallance**, and R.H. Jara. 2012. Surface energy analysis on hot-water extracted and torrefied Appalachian wood species for pellet production. Poster presentation at the 18th Central Hardwoods Conference, Morgantown, WV, March 27.
67. Estep, G. and **D. DeVallance**. 2012. Demand driven indicators and innovations for the green building sector. Poster presentation at the 18th Central Hardwoods Conference, Morgantown, WV, March 27.
68. **DeVallance, D.B.**, S. Grushecky, and G. Estep. 2012. Potential for Appalachian hardwood product utilization in affordable housing projects. 18th Central Hardwoods Conference, Morgantown, WV, March 27.
69. **DeVallance, D.B.** 2012. Solar Decathlon Opportunities: Wood Science and Technology. Presentation to WVU students interested in or involved in the Solar Decathlon Project on opportunities to work on wood design and construction projects. Morgantown, WV, March 21.
70. Wang, J., K. Singh, and **D.B. DeVallance**. 2012. Wood Science and Technology. Presentation to WVU students at Braxton Tower. Morgantown, WV, March 19.
71. **DeVallance, D.** 2012. Adapt and Innovate in the Wood Products Industry. Plus: Going Green. Invited Visiting Scientist Guest Speaker. Wood Products Program, Pennsylvania State University, University Park, PA. March 1.
72. Wang, J., J. McNeel, and **D. DeVallance**. 2012. Biofuels and Energy Efficient Bioproducts from Underutilized Woody Biomass. Poster presentation at the Bioenergy Symposium: Pathways to the Future Symposium at Pennsylvania State University, University Park, PA. February 29.
73. Wang, J., J. McNeel, **D. DeVallance**, and Damon Hartley. 2012. Biofuels and Energy Efficient Bioproducts from Underutilized Woody Biomass. Poster presented at the 2012 IOF-WV Day at the State Capitol, Charleston, WV. January 24.
74. **DeVallance, D.**, J. Wang, R. Jara, and W. Lin. 2011. Biofuels and Energy Efficient Bioproducts From Underutilized Woody Biomass. Poster and display presented at Family Day at the Farm, WVU's Animal Science Farm, Morgantown, WV. October 15.
75. Estep, G. and **D.B. DeVallance**. 2011. Demand Driven Indicators and Innovations for the Green Building Sector. Poster Presentation to the College Visiting Committee, West Virginia University, Morgantown, WV. October 13.
76. Moya, L.O. and **D.B. DeVallance**. 2011. Market opportunities for underutilized Appalachian hardwoods. Poster presented at the Society of Wood Science and Technology 54<sup>th</sup> International Convention, Portland, OR. June 22.
77. **DeVallance, D.B.**, G. Oporto, Q. Cheng, and P. Quigley. 2011. Thermal, mechanical, and physical properties of wood-plastic composites with added biochar. Forest Products Society 65<sup>th</sup> International Convention, Portland, OR. June 21.
78. **DeVallance, D.B.**, J.D. Gray, H. Lentz, and K. Eason. 2011. Utilization of textile waste as core material in sustainable construction. Forest Products Society 65<sup>th</sup> International Convention, Portland, OR. June 21.
79. **DeVallance, D.B.** and S. Grushecky. 2011. Assessment of "green" wood product demand in affordable housing construction in the central Appalachian region. Poster presented at the Forest Products Society 65<sup>th</sup> International Convention, Portland, OR. June 21.

80. Moya, L.O. and **D.B. DeVallance**. 2011. Market opportunities for underutilized Appalachian hardwoods. Poster presented at the Forest Products Society 65<sup>th</sup> International Convention, Portland, OR. June 21.
81. **DeVallance, D.B.**, G. Oporto, Q. Cheng, and P. Quigley. 2011. Development of wood/biochar/plastic composites. Poster presented at the Forest Products Society 65<sup>th</sup> International Convention, Portland, OR. June 20.
82. Oporto, G., **D. DeVallance**, G. Cheng, and P. Quigley. 2011. Novel composite materials fabricated from wood, polypropylene, and biochar. Poster presented at the 11<sup>th</sup> International Conference on Wood and Biofiber Plastic Composites, Madison, WI. May 16.
83. Jacobson, P.M., **D.B. DeVallance**, and G.S. Oporto. 2011. Evaluation of cellulosic nanocomposite biofilms utilizing polyvinyl alcohol and red oak residue. Poster presented at the Nanotechnology in Wood Composites Symposium, Madison, WI. May 18.
84. Singh, K. and **D. DeVallance**. 2011. Bioenergy and Bioproducts Research, Education, and Outreach Initiative at West Virginia University. Presented to Mr. Richie Parsons (aide to Congressman McKinley), West Virginia University – NRCCE Building, Morgantown, WV. July 29.
85. Wang, J., J. McNeel, Q. Cheng, and **D. DeVallance**. 2011. Biofuels and Energy Efficient Bioproducts From Underutilized Woody Biomass. Poster Presentation to the College Visiting Committee, 2011 IOF-WV Day at the State Capitol, Charleston, WV. January 18.
86. Wang, J., J. Wu, **D.B. DeVallance**, and J.P. Armstrong. 2010. Appalachian Hardwood Product Exports – An Analysis of the Current Chinese Market. The International Convention of Society of Wood Science and Technology and United Nations Economic Commission for Europe – Timber Committee. October 11-14, 2010, Geneva, Switzerland.
87. **DeVallance, D.B.**, Wang, J., J. Wu, and J.P. Armstrong. 2010. Competitiveness of Appalachian hardwood products in China. Conference on Global Competitiveness of Hardwood Products: Strategies for Success in a Chinese Market. Lansdowne, MD. August 23.
88. **DeVallance, D.B.**, J. Gray, H. Lentz, and K. Eason. 2010. Preliminary investigation: Utilization of postconsumer textile waste fibers to manufacture sustainable composite materials. Poster Presented at Technical Session of the 64<sup>th</sup> Forest Products Society International Convention, Madison, WI. June 21.
89. **DeVallance, D.B.**, J. F. Funck, and J.E. Reeb. 2010. Using optical scanning as means to predict LVL tensile strength. Poster Presented at Technical Session of the 64<sup>th</sup> Forest Products Society International Convention, Madison, WI. June 21.
90. **DeVallance, D.B.** 2009. Relationship of product quality and installation to in-service performance of structural-use panels. Division of Forestry and Natural Resources, Davis College of Agriculture, Forestry and Consumer Sciences, West Virginia University, Morgantown, WV. April 30.
91. **DeVallance, D.B.**, J.W. Funck. 2008. Non-Destructive Evaluation of Veneer via Optical Scanning and Ultrasonic Stress Wave Systems. 2008 Forest Products Society 62<sup>nd</sup> International Convention, St. Louis, MO. June 24.
92. **DeVallance, D.B.**, J.W. Funck. 2007. Nondestructive Evaluation of Veneer Using Machine Vision and Ultrasonic Systems. Wood-Based Composite Center Meeting, Department of Wood Science and Engineering, Oregon State University, Corvallis, OR. October 20.

93. Funck, J. W., **D. B. DeVallance** and J. E. Reeb. 2006. Plywood gluebond quality tests: An important source of feedback or just something we have to do? Western Hardwood Plywood Producers Meeting, Eugene, OR. September 15.
94. **DeVallance, D.B.**, J.W. Funck. 2006. Non-destructive evaluation of veneer using optical scanning and ultrasonic stress wave analysis systems. Poster Presented at Technical Session of the 2006 Forest Products Society 60<sup>th</sup> International Convention, Newport Beach, CA. June 27.
95. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2006. Veneer quality influences on plywood gluebond quality. Second International Symposium on Veneer Processing and Products. Vancouver, Canada. May 10.
96. **DeVallance, D.B.** 2006. Product quality: relation to in-field uses. Plywood Manufacturing 2006. Continuing Education Course. College of Forestry, Oregon State University, Corvallis, OR. April 3.
97. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2005. Douglas-fir plywood gluebond quality as influenced by veneer roughness, lathe checks and annual ring characteristics. 1<sup>st</sup> Place Wood Award. Poster Presented at Technical Session of the 2005 Forest Products Society 58<sup>th</sup> International Meeting, Quebec City, Quebec, Canada. June 20.
98. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2003. Veneer roughness and lathe checks: Affect on Douglas-fir plywood glue-bond performance. Poster Presented at Technical Session of the 2003 Forest Products Society 57<sup>th</sup> Annual Meeting, Bellevue, WA. June 23.
99. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2003. Influence of several test conditions on plywood glue-bond performance. Poster Presented at Technical Session of the 2003 Forest Products Society 57<sup>th</sup> Annual Meeting, Bellevue, WA. June 23.
100. **DeVallance, D.B.** 2003. Issues concerning product quality of in-service plywood. Plywood Manufacturing. 2003. Continuing Education Course. College of Forestry, Oregon State University, Corvallis, OR. April 29.
101. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2002. How veneer surface quality impacts plywood glue-bond performance. 2002 TECO Industry Advisory Council Meeting, Milwaukee, WI. September 4.
102. Vogt, J.J. and **D.B. DeVallance**. 2002. Secondary property testing for OSB and plywood. 2002 TECO Industry Advisory Council Meeting, Milwaukee, WI. September 4.
103. **DeVallance, D.B.**, J.W. Funck and J.E. Reeb. 2002. Influence of veneer roughness and lathe check crack propagation on glue-bond performance of Douglas-fir plywood. Poster Presented at Technical Session of the 2002 Forest Products Society 56<sup>th</sup> Annual Meeting, Madison, WI. June 24.
104. **DeVallance, D.B.** 2002. Relating Douglas-fir plywood glue-bond performance to lathe check characteristics and veneer roughness. Poster Presented at the 2002 Society of Wood Science and Technology Student Poster Competition, Madison, WI. June 23.
105. **DeVallance, D. B.**, J. W. Funck and J. E. Reeb. 2002. Influence of veneer roughness and lathe check crack propagation on glue-bond performance of Douglas-fir plywood. Poster Presented at the Wood-Based Composites Center Spring 2002 Industry Advisory Board Meeting, Department of Wood Science & Engineering, Oregon State University, Corvallis, OR. May 14-15.

106. **DeVallance, D.B.**, J.J. Vogt and S.G. Winistorfer. 2001. Design values of oriented strandboard. 2001 Forest Products Society 55<sup>th</sup> Annual Meeting, Baltimore, MD. June 27.
107. **DeVallance, D.B.** and J. Elliot. 2001. Plywood standards and product quality: Relation to in-field use. Plywood Manufacturing. 2001. Continuing Education Course. College of Forestry, Oregon State University, Corvallis, OR. May 2.
108. **DeVallance, D.B.** 1998. Manufacturing tolerances for fastening methods and fire stopping. PFS Seminar #56 for Inspectors, Trainees and Maintenance of In-Plant Inspectors. Wisconsin Dells, WI. April 24.
109. **DeVallance, D.B.** 1998. Workshop: Demonstration on roofing, construction, and electrical installations and testing for use in factory built structures. PFS Seminar #56 for Inspectors, Trainees and Maintenance of In-Plant Inspectors. Wisconsin Dells, WI. April 24. (Headed and Presented).
110. **DeVallance, D.B.** 1997. Workshop: Demonstration on roofing and electrical installation. PFS Seminar #55 for Inspectors, Trainees and Maintenance of In-Plant Inspectors. Wilkes-Barre, PA. November 13. (Headed and Presented).

## **PATENTS**

1. Gray, J., **D. DeVallance**, and H. Lentz. 2011. Textile Fiber Structural Composite. Provisional Patent Application No. 61/571,065
2. Gray, J., **D. DeVallance**, and H. Lentz. 2011. Textile Fiber Laminated Composite Furniture Panel. Provisional Patent Application No. 61/571,046
3. Gray, J., **D. DeVallance**, and H. Lentz. 2011. Textile Fiber Resilient Panel. Provisional Patent Application No. 61/571,048

## **PROFESSIONAL MEMBERSHIPS**

- Forest Products Society
- Society of Wood Science and Technology

## **SERVICE ACTIVITIES**

- President-Elect – Forest Products Society, 2016-ongoing
- Co-Chair and session moderator for the Lignocellulosic Materials Science Session of the Society of Wood Science and Technology 58th International Convention
- Vice-President – Forest Products Society, 2015-2016
- Technical Program Chair – Forest Products Society 70<sup>th</sup> International Convention, 2015-2016
- Guest Editor: Special issue of Advances in Material Science and Engineering: “Biomass-based materials and technology for energy”, 2014-2015
- SWST Accreditation Visiting Team (University of Idaho), 2015
- Co-Chair and session moderator for the Energy, Fuels and Chemicals Technical Session of the Society of Wood Science and Technology 57th International Convention

- FPS - Wood Award Committee Chair, 2015
- Undergraduate Research Committee, WVU – Division of Forestry and Natural Resources, 2014-present
- Visiting Seminar Committee, WVU – Division of Forestry and Natural Resources, 2011-present
- Scholarship Committee, WVU – Division of Forestry and Natural Resources, 2011-present
- National Science Foundation Grant Proposal Review Panel P131951 Composite Materials for CMMI program, 2013
- Chair of the Membership Committee, Society of Wood and Fiber Science, 2013-present
- Reviewer of manuscripts for ASABE – Applied Engineering in Agriculture, Advances in Civil Engineering, Journal of Elastomers and Plastics, Journal of Polymers and the Environment, BioResources, Forests, Wood and Fiber Science, Forest Products Journal, Journal of Materials in Civil Engineering, Central Hardwood Forestry Conference, International Journal of Forestry Research
- Guest Editor: Special Publication of the International Journal of Forestry Research on Forest Biomass Utilization for Biofuels and Bioproducts, 2012-2013
- Guest Editor: International Journal of Forestry Research, 2011-2012
- Steering Committee, FPS 66<sup>th</sup> International Convention, 2011-2012
- Student Activity Committee, FPS 66<sup>th</sup> International Convention, 2011-2012
- Session Organizer, ASABE Annual Meeting, 2012-2013
- Session Moderator, ASABE Annual Meeting, 2012
- WVU Family Day at the Farm, 2011-present
- Vice Chair Membership Committee, Society of Wood and Fiber Science, 2011-2013
- Research Initiative Committee, Society of Wood and Fiber Science, 2010-2011
- Advisor: Representing WVU's Wood Science in Solar Decathlon Project, 2011-2013
- Advisor: WVU Student Forest Products Society Chapter, 2009-present
- Advisor: WVU Frisbee Golf Student Organization, 2012-2013
- Session Moderator: FPS and Biomass Thermal Conferences, 2011
- Oregon State University (OSU) Wood Magic, 2003-2007
- Graduate Affairs Committee, OSU Department of Wood Science and Engineering, 2006-2007
- PFS Research Foundation Technical Committee, 1998-2006
- Winter Seminar Committee, OSU Department of Wood Science and Engineering, 2004
- Industry Representative, National Conference on Weights and Measures, 2000
- Industry Advisor, USDA Forest Products Laboratory Research Liaison Meetings, 1999-2000