Gloria S. Oporto-Velasquez, Ph.D.

Associate Professor

Sustainable Biomaterials-Wood Science and Technology

Forest Resources and Conservation Program
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Education and Training

University of Concepción, Chile	Chemical Engineering	B.S., 1994
University of Maine, Orono, ME	Forest Resources	Ph.D., 2009
University of Maine, Orono, ME	Adv. Engineered Wood Composites	Certificate, 2009

Research and Professional Experience

2016–Present	Associate Professor Sustainable Biomaterials (Wood Science and Technology), School of Natural Resources and the Environment, West Virginia University
2010–2016	Assistant Professor of Wood Science and Technology, School of Natural Resources and the Environment, West Virginia University
2005–2009	Graduate Research Assistant, Advanced Structures and Composites Center, University of Maine, Orono, ME
2002–2005	Head of the Advanced Material Area, Unidad de Desarrollo Tecnológico, University of Concepción, Chile
1994–2001	Project Engineer, Unidad de Desarrollo Tecnológico, University of Concepción, Chile

Current Teaching Responsibilities

Wood Anatomy and Structure (*FNRS 223, 3cr*); Anatomy of North American Wood (*FNRS 623, 3cr*); Wood Mechanics (*FNRS 341, 3cr*); Wood-Based Composite Materials (*FNRS 465, 3cr*); Advanced Wood Mechanics (*FNRS 693C, 3cr*); Advanced Wood Composites (*FNRS 693D, 3cr*); Wood Chemistry (*FNRS 413);* Forest Resources in U.S. History (*FNRS 100, 3cr*); Wood Protection (*FNRS 351, 3cr*). Other classes taught: Sustainable Construction (*FNRS 320, 3cr*); Career in Natural Resources (*FNRS 203, 1cr*).

Other Responsibilities

Preparation of the Wood Science and Technology (WST) Assessment Plan for:

a) WST ten-year Accreditation - Society of Wood Science and Technology (SWST)
b) WST Five-year review for the West Virginia University Board of Governors (BOG) reports.

Synergistic Activities

- Ad hoc reviewer for the USDA Agriculture and Food Research Initiative (AFRI) Exploratory Research program.
- Panel member for the USDA-SBIR Phase I and II. Forestry and Related Resources.
- Panel member for the USDA AFRI Sustainable Agricultural Systems competitive grants.
- Past Chair of the Society of Wood Science and Technology (SWST) Education and Accreditation Committee.

Products (selected)

1. Bencsik*, B.; Denes, L.; Sosa E.M., Hassler C. **Oporto, G.S.**, Norris J. and J. McNeel**. 2025**. Flexural properties evaluation of homogeneous and hybrid hardwood cross-laminated timber (CLT): A comparative analysis using destructive and non-destructive methods. *Case Studies in Construction Materials*, 22, e04673. https://doi.org/10.1016/j.cscm.2025.e04673
2. Bencsik, B.; Denes, L.; McNeel, J.; Chaddock, L.; **Oporto, G.S*. 2025**. Unlocking the Main Factors Affecting the Strength and Stability of Yellow Poplar (*Liriodendron tulipifera*) After a Mild and Environmentally Friendly Densification Process. *Forests* 2025, 16, 323. https://doi.org/10.3390/f16020323
3. Norris, J.R., Hassler, C.C., Denes, L., **Oporto, G.**, Bencsik, B., McNeel, J.F. **2024**. Producing Hardwood Cross-Laminated Timber (HCLT) Mats from Low-Grade Lumber. *Forest Products Journal* 74(1) 88.

4. Armstrong J.P., and **Oporto G.S. 2024**. Forest Resources in U.S. History (eBook). ISBN: 9798385113132, https://he.kendallhunt.com/product/forest-resources-us-history
5. Sivaneri K., **Oporto, G.***, Barre, M., Terada M., Boyd J., Goldsmith W., Nurkiewicz T., Gupta R. and E. Sabolsky. **2023**. Eco-Friendly Hierarchical Nanoporous Microfiber Respirator Filters Fabricated Using Rotary Jet Spinning Technology (RJS). *ACS Applied Polymer Materials*. 5(3) 1657–1669. https://doi.org/10.1021/acsapm.2c01387
6. Ponce G., Rodriguez S, Castano P., **Oporto G.**, Sabando C. and G. Cabrera. 2022. Biocomoposites of polylactic acid/ poly(butylene adipate-co-terephthalate) blends loaded with quinoa husk agro-waste: thermal and mechanical properties. *Journal of Polymer Research.* 29: 356. https://doi.org/10.1007/s10965-022-03196-y
7. O'Donnell K.L., **Oporto G.S.*** and Comolli N.2020. Evaluation of Acetaminophen Release from Biodegradable Poly (Vinyl Alcohol) (PVA) and Nanocellulose Films Using a Multiphase Release Mechanism. *Nanomaterials* 2020, 10, 301; doi:10.3390/nano10020301.
8. Rigg-Aguilar P., Moya R., **Oporto G.S.**, Vega-Baudrit J., Starbird R., Puente-Urbina A., Méndez D., Potosme L.D. and Esquivel M. 2020. Micro- and Nanofibrillated Cellulose (MNFC) from Pineapple (*Ananas comosus*) Stems and Their Application on Polyvinyl Acetate (PVAc) and Urea-Formaldehyde (UF) Wood Adhesives. *Journal of Nanomaterials*, Volume 2020, Article ID 1393160, 12 pages. http://doi.org/10.1155/2020/1393160
9. Hao J., Wu X., **Oporto G.S**., Liu W. and Wang J. 2020. Structural analysis and strength-to-weight optimization of wood-based sandwich composite with honeycomb core under three-point flexural test. *European Journal of Wood and Wood Products*. https://doi.org/10.1007/s00107-020-01574-1
10. Hao J., Wu X., **Oporto G.S**., Wang J., and Dahle G. 2020. Compression Properties and Its Prediction of Wood-Based Sandwich Panels with a Novel Taiji Honeycomb Core. *Forests*. 11, 886; doi:10.3390/f11080886.
11. Winans M., Gallagher J.E.G.; Jaczynski J and **G.S Oporto**. 2019. Pick Your Poison: Benzalkonium Chloride and Copper Enable Nanocellulose Derivatives to Form Antimicrobial Properties Against a Spectrum of Microorganisms. https://www.biorxiv.org/content/10.1101/783076v1
12. Tosin O., Singh K. **Oporto G.S.,** Dawson-Andoh B. McDonald L. and Sabolsky E. 2019. Effect of one-step and two-step H3PO4 activation on activated carbon characteristics, *Bioresource Technology Reports*, https://doi.org/10.1016/j.biteb.2019.100307
13. Tosin O., Singh K. **Oporto G**., Dawson-Andoh B. McDonald L. and Sabolsky E. 2019. Influence of one-step and two-step KOH activation on activated carbon characteristics, *Bioresource Technology Reports*, 7(2019)100266. https://doi.org/10.1016/j.biteb.2019.100266
14. Moya R., Tenorio C., **Oporto G**. 2019. Short Rotation Wood Crops in Latin American: A Review on Status and Potential Uses as Biofuel. *Energies* 12, 705.
15. O'Donnell K.L., **Oporto G.S*.** and N. Comolli. 2018. Nanocellulose in combination with inorganic/organic materials for food packaging *applications – Safety issues review in "Composite materials for food packaging." Scrivener Publishing LLC and John Willey and Sons Ltd. DOI: 10.1002/9781119160243.ch11
16. Rong-Mullins, X. Winans M., Lee J.B., Lonergan Z.R., Pilolli V.A., Weatherly L.M., Carmenzind T.W., Jiang L., Cumming J.R., **Oporto G.S.** and J.E.G. Gallagher. 2017. Proteomic and genetic analysis of *S. cerevisiae* response to soluble copper leads to improvement of antimicrobial function of cellulosic copper nanoparticles. *Metallomics*, 9:1304. DOI: 10.1039/C7MT00147A
17. Owen, C.W., **Oporto G.S.***, Söderberg B.C. and K. E. Lambson. 2017. Lignocellulosic micro- and nanomaterials as Copper Frames for the Evaluation of the Copper (I) Catalyzed Azide-Alkyne Cycloaddition (CuAAC). *Journal of Nanomaterials*, Volume 2017, Article ID 9461615. DOI: 10.1155/2017/9461615
18. Hassanzadeh M., Sabo R., Rudie A., Reiner R., Gleisner R. and **G.S. Oporto***. 2017. Nanofibrillated Cellulose from Appalachian Hardwoods Logging Residues as Template for Antimicrobial Copper. *Journal of nanomaterials*, Volume 2017, Article ID 2102987. DOI: 10.1155/2017/2102987
19. Zhong, T., **Oporto, G.S.*** and J. Jazynski. 2017. Antimicrobial food packaging with cellulose-copper nanoparticles embedded in thermoplastic resins. In: *Volume 6. Food Preservation, Series: Nanotechnology in the Agri-Food industry (Volumes 1-10)*, edited by Alexandru Mihai Grumezescu, Ed. Elsevier Inc, London, United Kingdom, pp.671-699. DOI: 10.1016/B978-0-12-804303-5.00019-5
20. Jiang C., **Oporto G.S.***, Zhong T. and J. Jaczynski. 2016. TEMPO nanofibrillated cellulose as template for controlled release of antimicrobial copper from PVA films. *Cellulose*, 23(1): 713-722. DOI: 10.1007/s10570-015-0834-5