Gloria S. Oporto

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(a) Professional Preparation

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

(b) Appointments

August 2016 – Present. Associate Professor of Wood Science and Technology, School of Natural Resources, West Virginia University (WVU), Morgantown.
Research areas: Biomaterials; Nanocomposites; Biomass preprocessing; Materials surface engineering;
Long term goal: promoting the utilization of renewable materials for biocomposites.

Teaching:
WDSC 223 Wood Anatomy and Structure; WDSC 623 - Anatomy of North American Wood
WDSC 341 Wood Mechanics; WDSC 693C Advanced Wood Mechanics
WDSC 465 Wood-Based Composite Materials; WDSC 693D Advanced Wood Composites
WDSC 495 - Independent Study

2010 – July 2016. Assistant Professor of Wood Science and Technology, School of Natural Resources, West Virginia University (WVU), Morgantown. Main research projects:

- *McIntire Stennis. Advanced applications for nanomaterials from lignocellulosic sources. November 2015 October 2020 (PI).*
- *USDA-NIFA - Development of novel hybrid cellulose nanocomposite film with potent biocide properties utilizing low quality Appalachian hardwoods. September 2013-August 2016 (PI).*
- *McIntire Stennis. Efficient utilization of biomass for biopolymers in central Appalachia. September 2010-October 2015 (PI).*
- *Energy Research Grants (ERG) - Pre-treatment of Appalachian wood residues for improving its further thermochemical conversion. January 2011-December 2011 (PI).*

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.

(c) Products (last 5 years)

1. O'Donnell K.L., **Oporto G.S.** and Comolli N. **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.
2. Rong-Mullins, X. Winans M.,…**Oporto G.S.** and Gallagher J. **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.
3. Owen, Ch., **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. https://doi.org/10.1155/2017/9461615
4. 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, https://doi.org/10.1155/2017/2102987
5. 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.
6. Hassanzadeh M., **Oporto G.S.***, Sabo R. and A. Rudi. **2016**. Nanofibrillated cellulose from Appalachian Hardwoods Red Oak (*Quercus rubra*) and Yellow Poplar (*Liriodendron tulipifera*) as template for copper

nanoparticles. *In Proceedings of the 59th International Convention of Society of Wood Science and Technology*, March 6-10, 2016, Curitiba, Brazil.

7. Jiang Ch., **Oporto G.S.***, Zhong T. Jaczynski J. **2016**. TEMPO nanofibrillated cellulose as template for controlled release of antimicrobial copper from PVA films. *Cellulose*. 23(1)713-722.
8. DeVallance D.B.*, **Oporto G.S.** and Quigley P. **2016**. Investigation of hardwood biochar as replacement for wood flour in wood-polypropylene composites. *Journal of Elastomers & Plastics* 48(6)510-522.
9. Gardner, D. J., **Oporto .S.** and W. Tze. **2016**. Wood and fiber-based composites: surface properties and adhesion. In: *Lignocellulosic fibers and wood handbook: renewable material's for today's environment.* M. N. Belgacem and A. Pizzi, Eds. John Wiley & Sons, Inc. Hoboken, NJ and Scrivener Publishing LLC, Salem, MA pp. 345-383.
10. Zhong T., **Oporto G.S.***, Peng Y., Xie X., Gardner D.J. **2015**. Drying cellulose-based materials containing copper nanoparticles. *Cellulose* 22:2665-2681.
11. Zhong T., **Oporto G.S.***, Jaczynski J., Jiang Ch. **2015**. Nanofibrillated cellulose and copper nanoparticles embedded in polyvinyl alcohol films for antimicrobial applications. *Biomed Research International* Article ID 456834.
12. Jiang Ch., **Oporto G.S.***, Zhong T. and J. Jaczynski. **2015**. Effect of TEMPO nanofribrillated cellulose content on copper release from antimicrobial polyvinyl alcohol films. In Proceedings of the 58th International Convention of Society of Wood Science and Technology, June 7-12, 2015, Jackson, Wyoming, USA.
13. Zhong T., **Oporto G.S.*,** Jaczynski J., Jiang Ch. **2015**. Hybrid Cellulose-Copper Nanoparticles Embedded in Polyvinyl Alcohol for Antimicrobial Applications. In Proceedings of the 58th International Convention of Society of Wood Science and Technology, June 7-12, 2015, Jackson, Wyoming, USA.
14. Carrasco J.C., **Oporto G.S.***, Zondlo J. and J. Wang. **2014**. Observed Kinetic Parameters during the Torrefaction of Red Oak (Quercus rubra) in a Pilot Rotary Kiln Reactor. *Bioresources* 9(3) 5417-5437.
15. **Oporto G.S.***, Zhong T., Jaczynski J. and R. Sabo. **2014**. Microstructure, Mechanical, Thermal and Antimicrobial Properties of Hybrid Copper Nanoparticles and Cellulose Based Materials Embedded in Thermoplastic Resins. In *Proceedings of the 57th International Convention of Society of Wood Science and Technology,* June 23-27, Zvolen, Slovakia.
16. Moya R.*, Camacho D., **Oporto G.S.**, Soto R., Mata J. and J. Valverde. **2014**. Physical, mechanical and hydration kinetics of particleboards manufactured with woody biomass (*Cupressus lusitanica, Gmelina arborea,Tectona grandis*), agricultural wastes and tetra pak residues. *Waste Management & Research* 32(2) 106-114.
17. Carrasco J.C., **Oporto G.S.***, Zondlo J. and J. Wang. **2013**. Torrefaction kinetics of red oak (*Quercus rubra*) in a fluidized reactor. *Bioresources* 8(4) 5067-5082.
18. Zhong T., **Oporto G.S**.*, Jaczynski J. Tesfai A. and J. Armstrong. **2013**. Antimicrobial properties of the hybrid copper nanoparticles-carboxymethyl cellulose. *Wood Fiber Sci. 45(2) 1-8*.

* Corresponding author.

(d) Collaborators, Co-Editors and other affiliations

Alex Berg (University of Concepcion, Chile), Juan Carrasco (University of Concepcion, Chile), David DeVallance (Forestry, WVU), Douglas Gardner (University of Maine), Jennifer Gallagher, (Biology, WVU), Jacek Jackzinsky (Animal and Nutritional Science, WVU), Ronald Sabo (Forest Product Laboratory, Madison, WI), Kauslendra Singh (Forestry, WVU), Jingxin Wang (Forestry, WVU), Roger Moya (Ingenieria Forestal, Instituto Tecnologico de Costa Rica), Yon Rojanasakul (Pharmaceutical Sciences, WVU), Marina Galvez (Pharmaceutical Sciences, WVU), Luis Arroyo (Forensic and Investigative Science, WVU), Bjorn Soderberg (Chemistry, WVU), Sushant Agarwal (Chemical Engineering, WVU), Noelle Comolli (Chemical Engineering, Villanova University, PA), Justinus Satrio (Chemical Engineering, Villanova University, PA), Marcia Vidal (ECAM, France).

Graduate students / Research Assistants (2)
Graduated Students Advisor: Masoumeh Hassanzadeh, PhD (2018); Tuhua Zhong, PhD (2015).
Graduated Students Co-Advisor: Peter M. Jacobson, MS (2011); Tianmiao Wang MS (2014); Rafael Azambuja, PhD (2018); Oluwatosin Oginni, PhD (research in progress).
Undergraduate students (10)
Graduate Advisor: Dr. Douglas Gardner, University of Maine

(e) Others

- Ad hoc reviewer for the USDA Agriculture and Food Research Initiative (AFRI) Exploratory Research program.
- Panel member for the USDA-SBIR Phase I.
- Chair of the Society of Wood Science and Technology (SWST) Education and accreditation Committee.