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Summary

More than twenty-five years of experience in teaching, research, and consultancy activities on energy planning, energy management, biomass for bioenergy and bioproducts, thermal energy, electrolytic hydrogen, natural fibers for composites manufacture, biochar, and industrial equipment and systems. Nine years of experience in industrial production and management. More than eighty scientific papers, books/book chapters, and conference presentations. Reviewer of more than one hundred fifty papers.

Professional experience

2021/10-current: Adjunct Professor, Composite Materials and Engineering Center, Voiland College of Engineering and Architecture, Washington State University, Pullman, WA, USA.
2020/10-2021/09: Visiting Professor, Composite Materials and Engineering Center, Voiland College of Engineering and Architecture Washington State University, Pullman, WA, USA.
2018/11-2022/04: Chair of the Department of Applied Chemistry and Production Systems, Universidad de Cuenca, Cuenca, Ecuador.
2015/09–current: Professor (Full), University of Cuenca, Cuenca, Ecuador.
2014-2015: Postdoctoral Research Associate, Washington State University, Pullman, WA, USA.
2010-2014: Graduate Research Assistant, Washington State University, Pullman, WA, USA.
2007–2015: Part-time Associate Professor, Universidad de Cuenca, Cuenca, Ecuador.
2001–2007: Part-time Lecturer, Universidad de Cuenca, Cuenca, Ecuador.
2005-2007: Graduate Research Assistant, UNICAMP, SP, Brazil
1996–2001: Part-time Lecturer, Salesian Polytechnic University, Cuenca, Ecuador.
1996–2005: Production Manager at INDALUM Ltd., Cuenca, Ecuador.

Educational qualifications

Post-doctorate, Civil and Environmental Engineering Department and Department of Biological Systems Engineering, Washington State University, Pullman, WA, USA.
Ph.D. in Biological and Agricultural Engineering, Washington State University, Pullman, WA, USA, 2014 (Ph.D. Thesis: Thermochemical pretreatment of underutilized woody biomass for manufacturing wood composites, Supervisor Prof. Vikram Yadama).
M.S. Energy Systems Planning, State University of Campinas (UNICAMP), Campinas, SP, Brazil (Supervisor Prof. Luis A. Barbosa Cortez).
B.S. Mechanical Engineering, University of Orient, Santiago de Cuba, Cuba (Rank: 1/144). Gold Degree and *Summa Cum Laude*.

Expertise and research interests

- Energy management and planning
- Industrial energy efficiency
- Biomass thermochemical conversion
- Natural fibers: Characterization and conversion into fuels, energy, and bioproducts

- Wood/fiber composites manufacture and testing
- Thermal power plants
- Energy, environment, and climate change
- Energy storage systems
- Energy balances
- Electrolytic hydrogen (production, use, planning)
- Design of machine elements
- Machining processes
- Industrial equipment

Skills in equipment operation and design

Technical expertise on analytical techniques/equipment for materials' characterization and processing: GC (Gas Chromatography); Py-GC/MS (Pyrolysis-Gas Chromatography/Mass Spectrometer); HPLC (High Performance Liquid Chromatography); IC (Ion Chromatography); FTIR (Fourier Transform Infrared Spectrometry); TG/DTG (thermogravimetry/differential thermogravimetry); DSC (differential scanning calorimetry); SEM (Scanning Electron Microscopy); Confocal and optical microscopy; AFM (atomic force microscopy); Bomb calorimeter; Elemental analysis equipment (CHNS); Particle size analyzer (e.g., Mastersizer); *Equipment/processes for biomass characterization* (extractives, lignin, and carbohydrates content; ash and moisture content; calorific value); Auger, spoon, and tube furnace pyrolysis reactors; High-pressure reactors (e.g., Parr reactors); *Equipment for mechanical testing* (bending, tension, compression, impact); Rotational, capillary, and torque rheometers; X-ray diffractometry; UV-Vis Spectrometry; X-ray density profile analyzer; DCAA (dynamic contact angle analysis); *Industrial equipment operation and maintenance* (e.g., hydraulic presses, hydraulic pumps, heat exchangers); *Machine tools operation* (lathe, drill, planner milling, and CNC lathe and milling machines); 3D printers. *Design and evaluation of* boilers, furnaces, ovens, dryers, and conveyors.

Peer-reviewed publications

1. **Pelaez-Samaniego, M.R.,** Haghighi Mood, S., Fajardo, J., Yadama, V., Cisneros, J.F., Garcia-Perez, T., 2024. Aqueous byproducts from biomass wet thermochemical processing: Valorization into fuels, chemicals, and bioproducts, *Energy Conversion and Management,* https://doi.org/10.1016/j.enconman.2024.118360
2. Garcia-Perez, T., Ortiz-Ulloa, J., Jara-Cobos, L., **Pelaez-Samaniego, M.R**., 2023, Adding Value to Sugarcane Bagasse Ash: Potential Integration of Biogas Scrubbing with Vinasse Anaerobic Digestion, *Sustainability* 2023, *15*(21), 15218; https://doi.org/10.3390/su152115218
3. Zalamea-León, E., Astudillo-Flores, M., Barragán-Escandón, A., **Pelaez-Samaniego, M.R.**, 2023. Comparative capacities of residential solar thermal systems versus F-chart model predictions and economic potential in an equatorial-latitude country, *Energy Reports*, https://doi.org/10.1016/j.egyr.2023.09.072
4. Rhodes, K., **Pelaez-Samaniego, R.**, Yadama, V., 2023. Effect of thermal and ultraviolet exposure on volatile organic compounds emitted from basalt-hemp fiber reinforced polypropylene composite material, *Polymer Composites,* https://doi.org/10.1002/pc.27638
5. Mainalis, K., Haghighi Mood, S., **Pelaez-Samaniego, M.R.**, Sierra-Jimenez, V., Garcia-Perez, M., 2023, Production and Applications of N-Doped Carbons from Bio-Resources: A Review, *Catalysis Today*, https://doi.org/10.1016/j.cattod.2023.114248.
6. Rhodes, K., **Pelaez-Samaniego, R.**, Kiziltas, A., Preston, J., Meysami, M., Geda, A., Yadama, V., 2023. Mechanical and viscoelastic properties of basalt-hemp hybrid reinforced polypropylene, *Journal of Thermoplastic Composite Materials*, https://doi.org/10.1177/08927057231177249.
7. Jerves, R., Yadama, V., Aro, M., **Pelaez-Samaniego, M.R.**, 2023. Cross-laminated strand veneer lumber (CLSVL) from thermally modified strands for construction applications, *Construction and Building Materials*, 368:130370, https://doi.org/10.1016/j.conbuildmat.2023.130370.

8. Haghighi Mood, S., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., 2022. Perspectives of Engineered Biochar for Environmental Applications: A review, *Energy and Fuels,* https://doi.org/10.1021/acs.energyfuels.2c01201.
9. Garcia-Perez, T., **Pelaez-Samaniego, M.R.**, Delgado-Noboa, J., Chica-Martinez, E., 2022. Combined effect of biochar and fertilizers on Andean highland soils before and after cropping, *Sustainability,* https://doi.org/10.3390/su14148912.
10. Wensel, P.C., Bule, M., Gao, A., **Pelaez-Samaniego, M.R.**, Yu, L., Hiscox, W., Helms, G.L., Davis, W.C., Kirchhoff, H., Garcia-Perez, M. et al., 2022. Biorefinery processing of waste to supply cost-effective and sustainable inputs for two-stage microalgal cultivation. *Applied Sciences*, 12, 1485. https://doi.org/10.3390/app12031485.
11. Cisneros, J.F., Cobos, F., **Pelaez-Samaniego, M.R.**, Rehman, U., Nopens, I., Alvarado, A., 2021. Hydrodynamic evaluation of five influent distribution systems in a cylindrical UASB reactor using CFD-based modeling, *Water* 13, 3141, https://doi.org/10.3390/w13213141.
12. Cisneros, J.F., **Pelaez-Samaniego, M.R.**, Pinos, V., Nopens, I., Alvarado, A., 2021. Development of an automated tracer testing system for UASB laboratory-scale reactors, *Water*, 13, 1821, https://doi.org/10.3390/w13131821.
13. Astudillo-Flores, M., Zalamea-Leon, E., Barragán-Escandón, A., **Pelaez-Samaniego, M.R.**, Calle-Siguenza, J., 2021. Modelling of solar thermal energy for household use in equatorial latitude by using the F-Chart model, *Renewable Energy and Power Quality Journal* (RE&PQJ) 19:269-275. https://doi.org/10.24084/repqj19.273.
14. Sánchez-Alvarracín, C., Albuja-Arias, D., Criollo-Bravo, J., Garcia-Avila, F., **Pelaez-Samaniego, M.R**., 2021, Management of used lubricant oil and its regeneration potential in a Latin-American medium size city, *Recycling* https://doi.org/10.3390/recycling6010010
15. **Pelaez-Samaniego, M.R.**, Perez, J.F., Ayiania, M., Garcia-Perez, T., 2020. Chars from wood gasification for removing H_2S from biogas, *Biomass and Bioenergy* 142, 105754, https://doi.org/10.1016/j.biombioe.2020.105754
16. **Pelaez-Samaniego, M.R.**, Espinoza-Abad, J.L., Jara-Alvear, J., Arias-Reyes, P., Maldonado, F., Recalde, P., Rosero, P., Garcia-Perez, T., 2020. Potential and impacts of cogeneration in tropical climate countries. Ecuador as a case study, *Energies*. 13-5254, https://doi.org/10.3390/en13205254.
17. Ortiz-Ulloa, J.A.. Abril-González, M.F., **Pelaez-Samaniego, M.R.,** Zalamea-Piedra, T.S., 2020. Biomass yield and carbon abatement potential of banana crops (*Musa spp.*) in Ecuador, *Environmental Science and Pollution Research*, https://doi.org/10.1007/s11356-020-09755-4
18. Pérez, J.F., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., 2019. Torrefaction of fast-growing Colombian wood species, *Waste and Biomass Valorization* 10 (6), 1655-1667. https://doi.org/10.1007/s12649-017-0164-y
19. Ponce-Jara, M.A., Castro, M., **Pelaez-Samaniego, M.R.**, Espinoza-Abad, J.L., 2018. Electricity sector in Ecuador: an overview of the 2007-2017 decade, *Energy Policy,* 113: 513–522 https://doi.org/10.1016/j.enpol.2017.11.036
20. **Pelaez-Samaniego, M.R.,** Smith, M., Zhao, Q.Z., Garcia-Perez, T., M., Frear, C., Garcia-Perez, M., 2018. Charcoal from anaerobically digested dairy fiber for removal of hydrogen sulfide within biogas, *Waste Management* 76: 374-382 https://doi.org/10.1016/j.wasman.2018.03.011.
21. **Pelaez-Samaniego, M.R.,** Hummel, R.L., Liao, W., Ma, J., Jensen, J., Kruger, C., Frear, C., 2017. Approaches for adding value to anaerobically digested dairy fiber, *Renewable and Sustainable Energy Reviews*, 72: 254-268. https://doi.org/10.1016/j.rser.2017.01.054.
22. Garcia-Nunez J.A., **Pelaez-Samaniego M.R.**, Garcia-Perez M.E., Fonts I., Abrego J., Westerhoof R.J.M., Garcia-Perez M., 2017. Historical Developments of Pyrolysis Reactors: A Review, *Energy and Fuels,* https://doi.org/10.1021/acs.energyfuels.7b00641.
23. Ramos-Carmona, S., Pérez, J.F., **Pelaez-Samaniego, M.R.,** Barrera, R., Garcia-Perez, M., 2017. Effect of torrefaction temperature on properties of Patula Pine, *Maderas: Ciencia y Tecnologia,* http://dx.doi.org/10.4067/S0718-221X2017005000004

24. **Pelaez-Samaniego, M.R.**, Englund, K.R., 2016. Wood waste materials for sugars production via enzymatic hydrolysis, *Waste and Biomass Valorization*, 8(3), 883-892. https://doi.org/10.1007/s12649-016-9652-8.
25. Oasma, A., Fonts, I., **Pelaez-Samaniego, M.R.**, Garcia-Perez, E., Garcia-Perez, M., 2016. Pyrolysis-oil multiphase behavior and phase stability: A review, *Energy and Fuels 30* (8): 6179–6200. https://doi.org/10.1021/acs.energyfuels.6b01287.
26. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Lowell, E., Zhu, R., Englund, K., 2016. Interrelationship between lignin-rich dichloromethane extracts of hot water-treated wood fibers and high-density polyethylene (HDPE) in wood plastic composite (WPC) production, *Holzforschung* 70(1): 31–38, DOI: 10.1515/hf-2014-0309.
27. Ferraz, G. P., Frear, C., **Pelaez-Samaniego, M.R.**, Englund, K., Garcia-Perez, M., 2016. Hot Water Extraction of Anaerobic Digested Dairy Fiber for Wood Plastic Composite Manufacturing, *BioResources*. 11(4): 8139–8154.
28. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Lowell, E., 2015. Abundance and Characteristics of Lignin Liquid Intermediates in Wood (*Pinus ponderosa* Dougl. ex Laws.) during Hot Water Extraction, *Biomass and Bioenergy*, 81: 127–128. https://doi.org/10.1016/j.biombioe.2015.06.012.
29. Hilbers, T., Wang, Z., Pecha, B.M., Westerhof, R.J.M, Kersten, S.R.A., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., 2015. Cellulose-lignin Interactions during slow and fast pyrolysis, *Journal of Analytical and Applied Pyrolysis,* 114: 197–207. https://doi.org/10.1016/j.jaap.2015.05.020.
30. **Pelaez-Samaniego, M.R.**, Riveros-Godoy, G., Torres-Contreras, S., Garcia-Perez, T., Albornoz, E, 2014. Production and use of electrolytic hydrogen in Ecuador towards a low carbon economy, *Energy*, 64: 626–631. https://doi.org/10.1016/j.energy.2013.11.012.
31. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., E. Lowell, McDonald, M., 2014, Effect of temperature during wood torrefaction on the formation of lignin liquid intermediates, *Journal of Analytical and Applied Pyrolysis* 109: 222–233. https://doi.org/10.1016/j.jaap.2014.06.008.
32. Mesa-Pérez, J.M., Cortez, L.A.B., Marín-Mesa, H.R., Rocha, J.D., **Pelaez-Samaniego, M.R.**, Cascarosa, E., 2014. A statistical analysis of the auto thermal fast pyrolysis of elephant grass in fluidized bed reactor based on produced charcoal, *Applied Thermal Engineering* 65(1-2): 322–329. https://doi.org/10.1016/j.applthermaleng.2013.12.072.
33. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, T., Lowell, E., Amidon, T., 2014. Effect of hot water extraction on particleboard produced from hardwood and softwood chips on particleboard properties, *Holzforschung* 68(7): 807–815. https://doi.org/10.1515/hf-2013-0150
34. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell E, Espinoza-Herrera R, 2013. A review of wood thermal pretreatments to improve wood composite properties, *Wood Science and Technology*, 47: 1285–1319. https://doi.org/10.1007/s00226-013-0574-3.
35. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell, E., Amidon, T., Chaffee, T.L., 2013. Hot water extracted wood fiber for production of wood plastic composites (WPCs), *Holzforschung* 67(2): 193–200. https://doi.org/10.1515/hf-2012-0071
36. **Pelaez-Samaniego, M.R.**, Mesa-Perez, J., Rocha, J. D., Cortez, L. A. B., Sanchez, C. G., Mesa, H. M., 2011. Use of blends of gasoline with biomass pyrolysis-oil derived fractions as fuels in an Otto engine, *Energy for Sustainable Development* 15: 376–381. https://doi.org/10.1016/j.esd.2011.06.001
37. **Pelaez-Samaniego, M.R.,** Garcia-Perez, M., Cortez, L.B., Rosillo-Calle, F., Mesa, J., 2008. Improvements of Brazilian Carbonization Industry as Part of the Creation of a Global Biomass Economy. *Renewable and Sustainable Energy Reviews* 12: 1063–1086. https://doi.org/10.1016/j.rser.2006.10.018
38. **Pelaez-Samaniego, M.R.,** Garcia-Perez, M., Cortez, L.A.B., Oscullo, J., Olmedo, G., 2007. Energy Sector in Ecuador: Current Status. *Energy Policy* 35: 4177–4189. https://doi.org/10.1016/j.enpol.2007.02.025
39. **Pelaez-Samaniego, M.R.**, García Pérez, T., Energy Efficiency in Ecuador: Status and alternatives to improve energy efficiency, *Journal of the Faculty of Chemical Sciences*, 7, July 2009, University of Cuenca, Cuenca, Ecuador, ISSN 13901869 (In Spanish).

40. **Pelaez Samaniego, M.R.**, T. Garcia Perez, Quantification of the energy potential of some biomass resources in Ecuador and potential uses, *Journal of the Faculty of Chemical Sciences*, 6: 45–60, 2008, University of Cuenca, Ecuador, ISSN 13901869 (In Spanish).
41. **Pelaez Samaniego, M.R.**, Uses of biomass for the production of energy, *Journal of the Faculty of Chemical Sciences*, 5: 21–30, 2007, Ecuador, ISSN 13901869 (In Spanish).
42. Guillén Gordín, R., Martínez Reyes, A., Villar Vázquez, I., **Pelaez Samaniego**, R., 2005. Simulation of heat and mass transfer in self-ventilated cooling towers, *Revista Tecnología Química*, 25(1):73–80 (In Spanish).

Papers in preparation and submitted

1. **Pelaez-Samaniego, M.R.**, K. Rhodes, T. Garcia-Perez, Y-C. Chang, J. Zhang, V. Yadama, 2023. Basalt Fiber-Polypropylene 3D printed composites, Basalt fiber reinforced polypropylene to manufacture 3D printed composites, submitted to *Polymer Composites.*
2. **Pelaez-Samaniego, M.R.**, Gachet, D.M., Nassiri, S., Bin Bakri, M.K., Chanda, A., Yadama, V., 2023. Cementitious grout produced with biochar as an admixture partially replacing cellulose ether, to be submitted to *Construction and Building Materials*
3. Adhikari, R., Chanda, A., Bin Bakri, M.K., Akinnuoye, M.M., **Pelaez-Samaniego, M.R.**, Aro, M., Yadama, V., Performance of thermally modified wood strands and thin veneers, to be submitted to *Frontiers*.

Peer reviewed book chapters

1. S. Haghighi Mood, K. Mainalis, **M. R. Pelaez-Samaniego**, M. Garcia-Perez, 2023. *Characteristics of Biochar – Micro and Nano-Chemical Properties and Interactions*, Ch. 6, In: "Biochar for environmental management", Lehmann, J., Joseph, S., Editors, Earthscan, London (revision submitted).
2. **M.R. Pelaez-Samaniego**, F. Chejne, M. Garcia-Perez, 2023. *Introduction to Biomass Thermochemical Conversion Technologies*, Chapter 1, In: "Thermochemical Conversion of Lignocellulosic Materials: Theory, Design and Applications for the Future", Editors M. Garcia-Perez and F. Chejne, Elsevier (in preparation).
3. Garcia-Perez, T., **Pelaez-Samaniego, M.R.**, Bin Bakri, M.K., Chanda, A., Ciesielski, P., Falcon-Hernandez, J., Yadama, V., Chejne, F., Garcia-Perez, M., 2023. *Biomass Multiscale Structure and Fundamentals of Particle Size Reduction*, Chapter 5. In: "Thermochemical Conversion of Lignocellulosic Materials: Theory, Design and Applications for the Future", Editors M. Garcia-Perez and F. Chejne, Elsevier (in preparation).
4. **M.R. Pelaez-Samaniego**, S. Haghighi Mood, J. Garcia-Nunez, T. Garcia-Perez, V. Yadama, M. Garcia-Perez, 2022. *Biomass carbonization technologies*, In Sustainable Biochar for Water and Wastewater Treatment, Editors: Mohan, D., Mlsna, T.E., Pittman Jr., C.U., Elsevier. ISBN: 9780128222256, https://doi.org/10.1016/B978-0-12-822225-6.00017-8.
5. M. Ponce-Jara, **M.R.Pelaez-Samaniego**, M.Moreano-Alvarado, C.Velasquez-Figueroa, M. Castro, 2021. *An assessment on energy policies and challenges to promote solar PV in South America: The Ecuadorian case*, In Ecuador perspectives of the past, present and future. A multi-criteria approach to social evolution, M. Avila Calle and G. Casado Lopez editors, Nova Science Publishers, New York. ISBN 978-1-53619-533-0
6. Suarez, L., De La Hoz, K., **Pelaez-Samaniego, M.R.**, Perez, J.F., 2018. Torrefacción de madera: un método de mejora de la biomasa para aplicaciones energéticas, In: *Aplicaciones agro-energéticas con maderas de rápido crecimiento y oportunidades preliminares de mercado*, Perez, J.F., Ramirez, G.L., Compiladores, U. de Antioquia (UdeA), Medellin.
7. Garcia-Perez, M., Garcia-Nunez, J.A., **Pelaez-Samaniego, M.R.**, Kruger, C.E., Fuchs, M.R., Flora, G., 2015. *Sustainability, Business Models and Techno-economic Analysis of Biomass Pyrolysis Technologies*. Chap. 10, In: Innovative Solutions in Fluid-Particle Systems and Renewable Energy Management, Ed. K.Tannous. Hershey, PA: IGI Global. doi:10.4018/978-1-4666-8711-0

(http://www.igi-global.com/chapter/sustainability-business-models-and-techno-economic-analysis-of-biomass-pyrolysis-technologies/132889).

8. **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., Barriga, A., Martí Herrero, J., Montero, A., Mayer, F.D., García-Nuñez, J., 2015. *Estado de uso de la biomasa lignocelulósica para la producción de bioenergía, biocombustibles y bioproductos en Ecuador*, In: Renewable Energies in Ecuador: Current status, tendencies and perspectives, M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 2, 29-115.
9. **Pelaez-Samaniego, M.R.,** Riveros Godoy, G., Torres-Contreras, S., García-Pérez, T., García-Renté, M., Albornoz-Vintimilla, E., 2015. *Hidrógeno electrolítico: perspectivas de producción y uso en Ecuador*, In: Renewable Energies in Ecuador: Current status, tendencies and perspectives, M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 4, p. 159-211.
10. Aguilera-Ortiz, E., **Pelaez-Samaniego, M.R.**, 2015. *Estado de la energía geotérmica en Ecuador*, In: Renewable Energy in Ecuador: Current status, tendencies and perspectives. M.R.Pelaez-Samaniego and J.L.Espinoza Abad, Editors. U. de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9, Ch. 8, p. 384-406.
11. Rocha, J.D., Mesa-Pérez, J.M., Cortez, L.A.B., de Brito, O., Marin-Mesa, H., **Pelaez-Samaniego, M.R.**, "*Alternative uses for residual trash in seed pastures production*", Editors: F.H.D. de Souza, E.B. Pott, O. Primavesi, A.C.C. Bernardi e A.A. Rodrigues, ISBN 85-86764-09-4 EMBRAPA, São Carlos-SP, 241p. 2006, Chap. 7: Potential for using residual trash of elephant grass pasture to produce energy, p. 121-142 (In Portuguese).

Books

Pelaez-Samaniego, M.R., Espinoza-Abad, J.L., 2015. Editors of the book: Energías renovables en el Ecuador: Situación actual, tendencias y perspectivas (Renewable Energies in Ecuador: Current status, tendencies and perspectives), Universidad de Cuenca, Gráficas Hernández, Cuenca-Ecuador (In Spanish). ISBN 978-9978-14-317-9.

Conference presentations (O-oral presentation, P-poster)

1. UI Hoke, M.M., Bakrim M.K., Chanda, A., Yadama, V., Garcia-Perez, M., **M.R. Pelaez-Samaniego**, 2022. *An Infrared Analysis of Hemp Hurd Biochar for Use in Composite Materials for Automotive Applications*, Plastics in Electric & Autonomous Vehicles – SPE, Detroit, MI, USA **(O)**.
2. Jerves, R., V. Yadama, M. Aro, **R. Pelaez-Samaniego**. 2021. Thermally modified composite wood-strand panels for building construction. Forest Products Society International Conference, Virtual Event, June 15-17.
3. Rhodes, K.D., Nagaraja, B., **Pelaez-Samaniego, R.**, and Yadama, V. 2021. *Optimizing mechanical behavior of basalt-natural fiber hybrid injection molded composites*. Virtual presentation, SPE ANTEC 2021, May 5-7.
4. Rhodes, K.D., **Pelaez-Samaniego, R.**, and V. Yadama. 2021. *Viscoelastic properties of basalt-hemp hybrid reinforced polypropylene*. SPE TPO 2021 Virtual Conference, Oct. 4-6.
5. T.Garcia-Perez, J.F.Perez, M.Ayiania, J.Ortiz-Ulloa, L.Jara-Cobos, S.Zalamea-Piedra, **M.R.Pelaez-Samaniego**, 2020. *Chars from biomass combustion and gasification for biogas treatment*, 2020 Thermal & Catalytic Sci. Virtual Symposium TCS 2020, Richland, WA, USA **(O)**.
6. Ortiz-Ulloa, J.A., Abril-González, A., **Pelaez-Samaniego, M.R.**, Zalamea-Piedra, S., 2019. *Quantification of the yearly residual biomass generation and carbon abatement potential of banana crops in Ecuador*. 5th International Congress on Water, Waste and Energy Management (WWEM19) Paris, France **(O)**.
7. **Pelaez-Samaniego, M.R.**, Sustainability, *Business Models and Techno-economic Analysis of Biomass Pyrolysis Technologies*, I Workshop on Development of Theoretical and Experimental Advances on Thermochemical Processes, U. Nacional Colombia, Medellin, 6-10 March 2017 **(O)**.

8. Ramos Carmona, S., **Pelaez-Samaniego, M.R.**, Perez, J.F., *C*haracterization of pyrolysis products of torrefied biomass with dendroenergy potential in Colombia, 6th Int. Symposium on Energy from Biomass and Waste Venice 2016. 14-17 Nov., Venice-Italy. ISBN 978-88-6265-009-0 **(O).**
9. **Pelaez-Samaniego, M.R**., Englund, K., Schneider, G., *Wood waste from MSW/C&D as a biofuel feedstock*, 2nd Northwest Wood-Based Biofuels+Co-Products Conference, Seattle, May 3-4, 2016 **(O)**.
10. **Pelaez-Samaniego, M.R.**, Yadama, V., Lowell, E., Amidon, T., Perez-Bayer, J., Garcia-Perez, T., *Adoption of biorefinery concepts in wood composite facilities by means of wood thermochemical pretreatment operations*, Proceedings of the VIII CIADICYP, The VIII IberoAmerican Congress on Pulp and Paper Research, Nov. 26-28, 2014, Medellín, Colombia (ISSN 978-958-764-211-7) (http://www.riadicyp.org) **(P)**.
11. Zhou, S., Westerhof, R., **Pelaez-Samaniego, M.R.**, Pecha, B., Garcia-Perez, M., 2014. *Understanding the Role of Primary and Secondary Pyrolysis Reactions on the Formation of Mono-Phenols and Lignin Derived Oligomers from Lignocellulosic Materials*, *XXIV Congreso Iberoamericano de Catalisis*, CICat 2014. ISBN: 978-958-8848-98-3, 15-19 September 2014, Medellin-Colombia, Proceedings **(O)**.
12. Garibay-Garcia, G.A., **Pelaez-Samaniego, M.R.**, Garcia-Perez, M., Espinoza-Herrera, R., *Torrefacción de la biomasa del Eucalyptus nitens utilizando Nitrógeno*, 3ra Reunión Anual de la División de Materia Condensada, Universidad Autónoma de México, Morelia, 24-26 Sep. 2014 **(O)**.
13. **Pelaez-Samaniego, M.R**., Englund, K., 2014, Characterization of waste wood materials for the production of biofuels, NARA Renewables Annual Meeting, Seattle, Sept. 15-15, 2014. **(P).**
14. **Pelaez-Samaniego, M.R**., Yadama, V., Zhu, R., Garcia-Perez, M., Englund, K., 2014, *Contribution of lignin to the rheology of wood plastic composites produced with hot water extracted wood*, 68th International Forest Product Society (FPS) 2014 Convention, Quebec, Canada, Aug.10-13, 2014. **(O).**
15. **Pelaez-Samaniego, M.R.**, Yadama, V., Garcia-Perez, M., Zhu, R., Lowell, E., Amidon, T.E., *Abundance and properties of lignin on hot water extracted wood surface and impact on the production of bioproducts and biofuel*, Northwest wood-based biofuels + coproducts conference, Seattle, WA, Apr. 28–30 2014 **(P)**.
16. Lowell E., **Pelaez-Samaniego M.R.**, V.Yadama, T.E.Amidon, T.L.Chaffee, *Advantages of hot-water extraction pre-treatment in the manufacture of wood composites*, 67th Convention co-organized by the Forest Products Society and the Society of Wood Science and Technology, June 11–13th, 2013, Austin, TX **(O)**.
17. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Adding value to wood residues through thermochemical processes*, National Convention of the Society of American Foresters, October 24–28, 2012, Spokane, WA **(P)**.
18. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, *Integration of hot-water extraction into wood composite manufacturing process for value added products*, International Conference on "Future of Panel Industry-Challenges and Key Issues", 26–28th September 2012, IPIRTI, Bangalore, India **(O)**.
19. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Effect of Hot-Water Extraction on Wood-Plastic Composites Properties*, Forest Products Society's 66th International Convention, June 3–5, 2012, Washington, DC, USA **(O)**.
20. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Wood-based composites from hot-water extracted biomass*, Forest Products Society's 66th International Convention, June 3–5, 2012, Washington, DC, USA **(P)**.
21. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Integration of hot water extraction in particleboard production***,** Technical presentation, International Wood Composites Symposium, April 11–13th, 2012, Seattle, WA, USA **(P)**.
22. **Pelaez-Samaniego, M.R.**, V.Yadama, E.Lowell, T.E.Amidon, T.L.Chaffee, *Wood plastic composites produced from hot-water extracted pine,* Technical presentation, International Wood Composites Symposium, April 11–13th, 2012, Seattle, WA, USA **(P)**.
23. Cortez, L.A.B.; Mesa Pérez, J.M.; Rocha, J. D.; **Pelaez-Samaniego, M.R**.; Mesa, H. R. M.; Jordan, R. A.; *Obtenção de biocombustível pela esterificação de ácidos carboxílicos gerados na pirólise de*

palha de cana e capim elefante, 11/2009*,* III Congresso da Rede Brasilieira de Tecnologia de Biodiesel, 3: 765–767, Brasilia, DF, Brasil, 2009 **(O)**.

24. Riveros-Godoy, G., **Pelaez-Samaniego M.R.**, Cavaliero K.C., *Reduction of emissions by the substitution of Diesel vehicles by Fuel-cells in the public transport*, First International Congress in Environment, 27-30 Nov. 2007, University of Cuenca, Cuenca–Ecuador **(O)**.
25. Mesa Pérez, J., R. Viltre Rodríguez, J. Marin Mesa, J D Rocha, **M.R. Peláez-Samaniego**, L.A.B. Cortez, *Bio-flex obtained from the biomass pyrolisis as fuel use*, AGRENER 2006, Unicamp, June 2006 **(O)** (http://www.proceedings.scielo.br/pdf/agrener/n6v1/029.pdf)
26. Martínez A., Brito A., **Peláez Samaniego M.R**., *Exergetic balance of the RETO CV 25-18 boiler with horizontal whirlwind oven*, Third Iberoamerican Congress of Mechanical Engineering CICIM 97 (23–26 of September of 1997), Havana, Cuba **(O).**
27. Martínez A., **Peláez Samaniego, M.R,** Brito A., *Calculation of the irreversibilities of the RETO CV 25-18 boiler*, Third International Conference of Sugar Mill Thermoenergetics (18–20 of November of 1996), Villa Clara, Cuba **(O)**.
28. **Peláez Samaniego M.R.**, *Mathematical Modeling of Self-ventilated Cooling Towers*, 8th National Forum of University Students and Technical Sciences, Villa Clara, Cuba (26–29 June 1996) **(O).**

Technical reports

1. Espinoza, J.L., **Pelaez-Samaniego, M.R**., 2017. Study of the potential of cogeneration and trigeneration in Ecuador, CELEC EP (Ecuadorian Electricity Corporation), Quito-Ecuador (https://www.researchgate.net/publication/323700758_Study_of_the_potential_of_cogeneration_and_trigeneration_in_Ecuador).
2. Englund, K., Azadfar, M., Schneider, G., Chetan, L., **Pelaez-Samaniego, M.R**., 2017. Feedstock Supply Chain Analysis–MSW, NARA, https://nararenewables.org/documents/2017/03/feedstock-supply-chain-analysis-msw.pdf/
3. Chen, S., Kruger, C., Yorgey, G., García-Pérez, M., Ai, P., Ayiania, M., Dunsmoor, A., Englund, K., Ewing, T., Frear, C., Gao, A.H., Ghogare, R.J., Hall, S.A., Jensen, J., Ma, J., Manoharan, G., Martinez, J., Nasir, A., Parlina, I., **Pelaez-Samaniego, M.R.**, Pereira-Ferraz, G., Rajagopalan, K., Smith, M., Suliman, W., Wang, D., Yao, Y., Yu, L., 2017. Technology Research and Extension Related to Anaerobic Digestion of Dairy Manure, A Project Report for the Washington State University, Agricultural Research Center and the Washington State Department of Agriculture.
4. Chen, S., Frear, C., García-Pérez, M., Jensen, J., Sjoding, D., Kruger, C., Abu-Lail, N., …, Garcia-Nunez, J., Hall, S., Harsh, J., Iqbal, H., Kennedy, N., Ma, J., Mitchell, S., Pecha, B., **Pelaez-Samaniego, R.**, Seker, A., Smith, M., Suliman, W., Yorgey, G., Yu, L., Zhao, Q., 2016. Advancing Organics Management in Washington State: The Waste to Fuels Technology Partnership (Publication No. 16-07-008), Department of Ecology, State of Washington (https://apps.ecology.wa.gov/publications/SummaryPages/1607008.html).
5. **Pelaez-Samaniego, M.R**., 2009. Study of the feasibility of producing electrolytic hydrogen in the Hidropaute Unit of Business, a report for CELEC EP (Ecuador).
6. **Pelaez-Samaniego, M.R.,** 2008. Combustion of rice-husk to produce energy in Ecuador, a report for the Ministry of Electricity and Renewable Energies, Ecuador.

Research/Funded projects

2024: Co-PI of C3 project *"Natural fiber reinforced nylon-based composites for under-the-hood applications - Sustainability Analysis"*, funded by CB^2 (NSF IUCRC) (USD 59,947) (Co-PIs Dr. V. Yadama, Dr. M. Garcia-Perez)

2023: Co-PI of the project *"Natural fiber reinforced nylon-6 composites for under-the-hood applications – basalt fiber sizing & rheology"*, funded by CB^2 (NSF IUCRC) (USD 59,268) (PI Dr. V. Yadama).

06/2022-12/2023: Co-PI of the project *"SHIP - Solar heat for industrial processes"*, funded by REPIC (Switzerland), NUTRI (Cuenca-Ecuador), and University of Cuenca (Ecuador) (USD 258,802) (PIs: Dr. A. Montero and Dr. A. Haberle).

2022: Co-PI of the project *"Natural fiber reinforced nylon-based composites for under the hood applications"*, funded by CB^2 (USD 59,716) (PI Dr. V. Yadama)

03/2020-12/2023: PI of the project *"Use of lignocellulosic residues from the agroindustry and recycled plastics to produce composite materials and ethanol in biorefinery concepts"*, funded by University of Cuenca and Polytechnic Salesian University (USD 250,000).

11/2019-11/2020: Co-PI of the project *"Calibration and validation of F-Chart model for solar thermal energy collectors considering typical orientations of roofs in the Ecuadorian Andes"*, funded by University of Cuenca and Polytechnic Salesian University (USD 76,387.71) (PI Dr. E. Zalamea).

03/2018-03/2020: Co-PI of the project "*Study of the physical and chemical changes in organic solids produced through irradiation of heavy ions*", funded by University of Cuenca (DIUC, 2018) (USD 36,000.00) (PI Dr. C. Mejia).

06/2017-03/2019: PI of the project: *"Sewage sludge to produce charcoal with properties for biogas cleaning"*, sponsored by University of Cuenca (DIUC, 2017) (USD 39,870.00).

06/2017-03/2019: Co-PI of the project: "*Production of biochar for soil amendment in the Ecuadorian Southern Andes*", funded by University of Cuenca (DIUC, 2017) (USD 40,000.00).

05/2016-05/2018: Researcher for the project "*Upflow anaerobic sludge blanket (UASB) reactors engineering at laboratory scale*", funded by University of Cuenca (USD 40,000.00).

08/2014-07/2015: Researcher for the Northwest Advanced Renewables Alliance (NARA) (https://nararenewables.org/) project. Funded by the USDA National Institute of Food and Agriculture (I oversaw the feasibility of producing sugars for bio-isobutanol using waste wood materials via acid pretreatment followed by enzymatic hydrolysis), PI Dr. K. Englund.

01/2013-12/2017: Researcher in the project *"Selective pyrolysis of lignocellulosic materials and novel refining concepts to produce second generation bio-fuels, bio-chemicals and engineered bio-chars"*, funded by NIFA – National Institute of Food and Agriculture (NIFA-Hatch-WNP00701), PI Dr. M. Garcia-Perez.

09/2011-07/2014: Researcher in the project "*Converting low value forest biomass to higher value by-products including biofuels, biopolymers, and specialty composites using hot water based biorefinery*", funded by the USDA Forest Service Research and Development Woody Biomass, Bioenergy, and Bioproducts 2009 Grant (USD 190,000.00), PIs Dr. Vikram Yadama and Dr. Thomas Amidon.

2009: PI of the project "*Biochar production in the Southern Ecuadorian Highlands*", funded by University of Cuenca (USD 25,000.00).

2006/2007: Researcher in the project Feasibility of using sugar-cane trash to produce pyrolysis bio-oil, UNICAMP, Brazil, funded by The State of São Paulo Research Foundation (FAPESP) (~USD 35,000.00), PI Dr. Luis A. B. Cortez.

Consultancy activities

2009: "*Study of the feasibility of producing electrolytic hydrogen in the Hidropaute Unit of Business*", funded by CELEC E.P. (USD 36,000.00).

2007/08: "*Combustion of rice-husk to produce energy in Ecuador*", funded by the Ministry of Electricity and Renewable Energy of Ecuador (USD 48,000.00)

12/2016-08/2017: "*Study of the potential of cogeneration and trigeneration in Ecuador*", funded by CELEC E.P. (USD 263,000.00)

Courses taught

Graduate level

- Renewable Energies (University of de Cuenca) (2 terms)
- Energy Efficiency and Management (Polytechnic School of the Army - ESPE, Quito) (1 term)

- Energy Management and Auditing (University of Cuenca) (2 terms)
- Energy Efficiency and Sustainability (University of Cuenca) (3 terms)
- Environment, Climate change, and Sustainability (Universidad Laica Eloy Alfaro de Manabi, Manta) (1 term)
- Oxygenated and High-Performance Fuels (U. of Cuenca) (1 term)

Undergraduate level

- Thermodynamics (2 terms)
- Heat Transfer (4 terms)
- Energy Management (1 term)
- Thermal Machines (2 terms)
- Heat Exchangers (2 terms)
- Mechanics of Fluids (1 term)
- Dynamics of Automobiles (4 terms)
- Industrial Equipment (17 terms)
- Design of Machine Elements (22 terms)
- Machine Tools (26 terms)
- Mechanics of Materials (2 terms)
- Calculus & Differential Equations (7 terms)

Courses taught on Professional updating:

- Combustion and Thermal energy
- Energy efficiency in industrial plants
- Energy auditing in industrial facilities
- Cogeneration and trigeneration systems

MS thesis and diploma works supervised

- Five MS thesis supervised (Universidad Laica Eloy Alfaro de Manabi and Universidad de Cuenca)
- More than twelve diploma works supervised (Universidad de Cuenca)

PhD dissertations, MS thesis, and diploma works committee membership

- PhD. Dissertation Cristihian J. Bayona Rodríguez (Universidad Nacional de Colombia, Bogota, Colombia)
- PhD. Dissertation Jorge I. Montoya Arbelaez (Universidad Nacional de Colombia, Medellin, Colombia)
- PhD. Dissertation Fran Z. Reinoso Avecillas (Pontificia Universidad Javeriana, Medellin, Colombia)
- PhD. Dissertation Mohammad Mezbah Ul Hoque (Department of Biological Systems Engineering, Washington State University, Pullman, WA, USA) (Ongoing)
- Six MS thesis (Universidad de Cuenca)
- More than thirty diploma works evaluated

Academic honors, scholarships, and prizes

2021/11: Invited speaker for the V International Conference I=D=I in Energy Sustainability (V Congreso International I+D+I en Sostenibilidad Energetica), Instituto de Investigación Geológico y Energético, Quito (Ecuador).

2020/09: Visiting Professor, Composite Materials and Engineering Center (CMEC), Washington State University, Pullman, WA, USA.

2017/09: Invited international member of the jury for the evaluation of research programs and research projects funded by COLCIENCIAS (Colombian Research Center).

2013: Alfred & Genevieve Gallucci Scholarship for Graduate Studies Achievement Award in Biological Systems Engineering, Washington State University, Pullman, WA, USA.

2012: Scholar from Washington State University, PhD. Program in Biological and Agricultural Engineering.
2010: Fulbright (Faculty Development)–USDOS Scholarship holder to study a PhD in Biological and Agricultural Engineering at Washington State University (Pullman, WA, USA).
2004: First Ecuadorian citizen that received a Global Sustainable Energy Partnership Scholarship (http://www.globalelectricity.org/en/) (former e8 Group) for studying Renewable Energies, under the program Education for Sustainable Energy Development (ESED), used for conducting an MS program at UNICAMP, Brazil.
2004: Beneficiary of a scholarship (not used) from the Quebec Government (Canada) for studying an MS program in Chemical Engineering at Laval University.
2004: Beneficiary of a scholarship (not used) from the IECE (Ecuadorian Institute of Educational Loans and Scholarships) (www.iece.fin.ec) for studying an MS program in Chemical Engineering at Laval University.
1996: Beneficiary of a scholarship (not used) from the Universidad de Oriente, Santiago de Cuba, for pursuing an MS program in Energy (Mechanical Engineering) at the same university.
1996: First Prize and Special Mention in the Mechanical Engineering Committee of the XII National Forum of University Students in the Technical Sciences, Central University of Las Villas, Cuba, with the work entitled "Mathematical modeling of self-ventilated cooling towers".
1996: Gold Degree and *Summa cum laude*, Faculty of Mechanical Engineering, University of Orient, Santiago de Cuba (GPA 4.89/5, Rank 1/144) (I was the only graduated in Mechanical Engineering that year that received a Gold Degree).
1991/96: Scholar from the IECE (Ecuadorian Institute of Educational Loans and Scholarships) (www.iece.fin.ec) for studying Mechanical Engineering at the University of Orient, Cuba.
1990: Flag bearer and best graduating class (GPA 20/20), Franciscan Private High-School. Ecuador.

Other professional and academic experience

2024: Member of the Scientific Advisory Board of the LA SDEWES2024 Conference, Vina del Mar, Chile (https://www.vinadelmar2024.sdewes.org/scientific-advisory-board)
2023/05: Member of the Scientific Committee of the PYROLIQ II Conference, Vienna, Austria.
2022: Invited instructor, Master's Program in Electricity, ULEAM-U Laica Eloy Alfaro, Manabi, Ecuador.
2021-present: Instructor, PhD. Program in Renewable Natural Resources, Universidad de Cuenca, Cuenca, Ecuador.
2021: Instructor, Master's Program II in Electricity, Universidad de Cuenca, Cuenca, Ecuador.
2019/10: Member of the Scientific Board of the First Ecuadorian Congress of Renewable Energies and Energy Efficiency, U. of Azuay, U. of Cuenca, and Polytechnic Salesian Univ., Cuenca-Ecuador.
2019: Instructor, Master's Program I in Electricity, Universidad de Cuenca, Cuenca, Ecuador.
2018/11-2022/04: Chair of the Department of Applied Chemistry and Systems of Production, University of Cuenca.
2017/09: Invited member of the jury for evaluation of research programs funded by COLCIENCIAS (Colombian Research Center).
2016/05-2016/09: Director of the School of Industrial Engineering, U. de Cuenca, Cuenca-Ecuador.
2016: Instructor, Master's Program in Planning and Management of Energy Systems, University of Cuenca, Ecuador.
2015/08-2016-07: Member of the Board of Directors of the School of Industrial Engineering, U. de Cuenca.
2013/06: Short stage at the EMSL/PNNL (Environmental Molecular Science Laboratory, Pacific Northwest National Laboratory), Richland, WA, USA. Topic: Characterization of torrefied wood using TOF/SIMS (Time of Flight/Secondary Ion Mass Spectrometry).
2012/08-2014/07: Graduate Research Associate, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA, USA.

2012: Member of the Scientific Board of the First Ecuadorian Congress of Sustainable Energy, 26-28 September, University of Cuenca, Cuenca-Ecuador.
2011: Instructor, Master's Program in Planning and Management of Energy Systems, University of Cuenca, Ecuador.
2010: Organizer of the Master's program in Planning and Management of Energy Systems, University of Cuenca, Ecuador.
2009: Invited lecturer, Polytechnic School of the Army, Quito-Ecuador.
2008-2020: Invited speaker at various academic and scientific events in Cuenca (Ecuador), Medellin (Colombia), Bogota (Colombia), and Quito (Ecuador) on topics related with Energy, Sustainability, Environment, and Biomaterials.
1997: Member of the Committee to plan/revise the curricula for the Mechanical Engineering program at Salesian Polytechnic University (Cuenca, Ecuador)

Former or current affiliations and involvement in professional organizations

- Society of American Foresters (SAF).
- Member of the International Biochar Initiative.
- State Alumni Member: Bureau of Educational and Cultural Affairs International Exchange Alumni (Fulbright Scholarship).
- WSU Alumni Association.
- Society of Mechanical Engineers of Ecuador (Azuay), member since 2007.

Reviewer of journals (more than 150 papers reviewed so far)

Renewable and Sustainable Energy Reviews; Science of the Total Environment; Energy Conversion and Management; Waste Management; Biochar; Energy; Industrial Crops and Products; International Journal of Hydrogen Energy; International Journal of Energy Research; Journal of Industrial and Engineering Chemistry; Biomass and Bioenergy; Energy and Fuels; Waste and Biomass Valorization; PLOS One; Journal of Polymers and the Environment; Holzforschung; BioResources; Maderas: Ciencia y Tecnología; Wood Material Science and Engineering; Revista DYNA Industria e Ingeniería; International Journal of Sustainable Energy; International Journal of Renewable Energy Technology; Journal of Environmental Science and Renewable Resources; Energy Nexus; AIMS Energy; International Journal of Polymer Science; Ingenieria y Universidad: Engineering for Development (Colombia); CIT Información Tecnológica (Chile); Tribology in Industry (Serbia); Revista Internacional de Contaminación Ambiental (UNAM, México); Revista Energética (Universidad Nacional de Colombia, Manizales); Revista Tecnológica ESPOL (Ecuador); Revista INGENIUS (Universidad Politécnica Salesiana, Ecuador); Revista Colombia Forestal (Univ. F.J. de Caldas, Bogota); Revista de la Facultad de Ciencias Quimicas (Ecuador).

Reviewer of book chapters

- Reviewer of a chapter in the book "Production of Biofuels and Chemicals from Lignin" (2016), edited by Prof. Smith and Prof. Fang, Springer-Verlag book series "Biofuels and Biorefineries" (http://www.springer.com/us/book/9789401796118).

Editor of journals

- Revista Energetica, U. Nacional de Colombia, Manizales
- La Granja, UPS, Cuenca, Ecuador
- Ingenius, UPS, Cuenca, Ecuador
- Former Revista de la Facultad de Ciencias Químicas, U. de Cuenca, Ecuador

Languages skills & Level of proficiency (B–Basic; I–Intermediate; P–Proficient)

English:	Speaking P	Reading P	Writing P

Portuguese:	Speaking P	Reading P	Writing P
French:	Speaking B	Reading I	Writing B
Spanish:	Mother Tongue		