CURRICULUM VITAE

University of Idaho

NAME: McDonald, Armando Gabriel **DATE:** April 22nd, 2013

RANK OR TITLE: Professor

DEPARTMENT: Renewable Materials Program, Dept. of Forest, Rangeland, and Fire Sciences

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DATE OF FIRST EMPLOYMENT AT UI: December 6, 2001

DATE OF TENURE: tenured, July 2006

DATE OF PRESENT RANK OR TITLE: July, 2006

EDUCATION BEYOND HIGH SCHOOL:

Degrees:

Doctor of Philosophy, York University, Toronto, Ontario, Canada. June 1993, Chemistry. Thesis "Lipopolysaccharides from *Campylobacter*," Supervisor: Dr G.O. Aspinall, Examiner: Dr. J.C. Richards (NRC, Ottawa)

M.S., University of Otago, Dunedin, New Zealand , May 1986, Chemistry, with Distinction. . Thesis "Glucofructan Polysaccharides," Supervisor: Dr. D.J. Brasch

Post Graduate Diploma in Science in Chemistry, University of Otago, Dunedin, New Zealand, May 1984,

B.Sc., University of Otago, Dunedin, New Zealand, May 1983, Chemistry and Applied Chemistry

Certificates and Licenses:

Managerial Excellence Programme. Certificate of Practicing Management, December 1999. New Zealand Institute of Management and University of Waikato,

EXPERIENCE:

Teaching, Extension and Research Appointments:

August 2011- , Professor, Forest, Rangeland and Fire Sciences Dept, University of Idaho

July 2006-August 2011, Professor, Forest Products Department, University of Idaho

December 2001-June 2006, Associate Professor, Forest Products Department, University of Idaho.

June 1998-November 2001, Project/Group Leader, Material Discovery, Forest Research.

September 1993-June 1998, Senior Scientist in Wood Materials Chemistry, New Zealand Forest Research Institute.

December 1985-August 1989, Scientist in Carbohydrate Chemistry, New Zealand Forest Research Institute.

TEACHING ACCOMPLISHMENTS:

Areas of Specialization:

Carbohydrate chemistry & biochemistry
Wood materials chemistry & wood science
Biopolymer and Biomaterials science
Natural products chemistry

Courses Taught:

Wood Composites, FORP436/536 Spring 2002-2007, Fall 2007-2009
Wood Composites, FORP502, Spring 2002
Biocomposites, FORP436/536 Fall 2010, 2011
Wood Chemistry, FORP502, Fall 2002
Wood Chemistry, FORP438/538, Fall 2003-2006, Spring 2007-2010
Lignocellulosic Biomass Chemistry, FORP438/538 Spring 2011, 2013
Biomaterials product and process development FORP491, Spring 2005-2013
Biomass and Biorefinery BAE504, Fall 2006, Spring 2010
Forest Products Issues and Technology FORP100, Fall 2006-2011

Students Advised:

Secondary Student Internships:

Casey Cook, HOIST summer internship, 2004

Undergraduate Students:

Nikki Yates, ENVS senior project, University of Idaho, 2012
Alan Kycek, Directed Studies, FORP, University of Idaho, 2011
Brandon Higgins, Directed Studies, FORP, University of Idaho, 2010
Jon Slette, Directed Studies, FORP, University of Idaho, 2010
Justin Pattison, Directed Studies, FORP, University of Idaho, 2003
Brent Jacobson, Directed studies, FORP, University of Idaho, 2003
Stephanie Weal, 3rd and 4th year project, BscTech University of Waikato, New Zealand, 2001
Cathy Risch, 4th year Bsc project, Ecole Normale Supérieure, France, 2001
Brendan Lee, 3rd and 4th year project, BscTech, University of Waikato, New Zealand, 1997
Greg Findleyson, 3rd year project, BscTech, University of Waikato, New Zealand, 1996
Marc Fernandez, 4th year project, Bsc, Victoria University, Canada, 1995

Graduate Students:

Currently advising-major professor:

Janet Dai, Ph.D., Natural Resources, University of Idaho, 2010-
Hui Li, Ph.D., Natural Resources, University of Idaho, 2010-
Shaobo Liang Ph.D., Environmental Science, University of Idaho, 2010-
Liqing Wei, Ph.D., Natural Resources, University of Idaho, 2011-
Yinglei Han, Ph.D., Natural Resources, University of Idaho, 2013-

Advised to completion of degree-major professor:

Sang Yeob Lee, M.S., Forest Products, University of Idaho, December 2002
Anand Mangalam, M.S., Forest Products, University of Idaho, 2002-05
Smith Sundar, M.S., Forest Products, University of Idaho, 2003-05
Andres Soria, Ph.D., Forest products, University of Idaho, 2002-05
Carter Fox, M.S., Forest Products, University of Idaho, 2004-06
Lance Gallagher, M.S., Forest Products, University of Idaho, 2003-06
Karthik Pillai, M.S., Forest Products, University of Idaho, 2004-07
James Fabiyi, Ph.D., Forest Products, University of Idaho, 2004-07
Ayiguli Keyoumu, M.S., Forest Products, University of Idaho, 2005-07
Lina Ma, M.S., Forest Products, University of Idaho, 2005-07
Clay Dodson., M.S. Environmental Science, University of Idaho, 2006-08
Shengjun Hu, M.S., Forest Products, University of Idaho, 2008-2010
Janet Dai, M.S., Forest Products, University of Idaho, 2008-2010
Noridah Osman, Ph.D., Forest Products, University of Idaho, 2005-2010
Liqing Wei, M.S., Forest Products, University of Idaho, 2009-2011
Guanqun Luo, M.S., Natural Resources, University of Idaho, 2010-12
Jowita Laniak, Ph.D., Environmental Science, University of Idaho, 2007-2012

Served on graduate committee:

Daniel Howe, Ph.D., Civil Eng, WSU, 2007-
Chao-Feng Hsieh, Ph.D., Food Science, University of Idaho, 2009-

Students Advised (cont.):

Graduate Students (cont):

Served on graduate committee (cont.):

Brian Harris, Ph.D., Chemistry, University of Idaho, 2005-
Carl Morrow, Ph.D., Forest Products, University of Idaho, 2009-
Nicholas Guho, Ph.D.., Civil Engineering, University of Idaho, 2010-
Shaui Zhou, Ph.D., Biosystems Eng, WSU, 2010-
Zhouhong Wang, Ph.D., Biosystems Eng, WSU, 2010-
Tushar Jain., Ph.D., Biological & Agricultural Eng., UI, 2009-2012 (completed)
Tova Sardot, Ph.D., Chemistry, University of Montana 2008-2012 (completed)
Christoph Shauwecker, PhD., Wood Sci. Eng, OSU, 2007-2011 (completed)
Keegan Duff., M.S., Biological & Agricultural Eng., UI, 2009-2011 (completed)
Wei Chen Yu, M.S., Food Science, University of Idaho, 2005-2010 (completed)
Robert Johnson, M.S., Biosystems Eng, WSU, 2007-2009 (completed)
Mackenzie Ellison, M.S., PSES, University of Idaho, 2008-2010 (completed)
Nicholas Guho, M.E.., Civil Engineering, University of Idaho, 2009-2010 (completed)
Zachary Dobroth, M.E.., Civil Engineering, University of Idaho, 2009-2010 (completed)
Isabela Reiniati, M.S., Material Science, WSU, 2007-2009 (completed)
Carl Morrow, M.S., Forest Products, University of Idaho, 2007-2009 (completed)
Joey Charboneau, M.S., Chemistry University of Idaho, 2007-2009 (completed)
Hyun-Seok Kim, Ph.D., Food Science, University of Idaho, 2005-2009 (completed)
Przemysław Brejna, Ph.D., Chemistry, University of Idaho, 2007-2010 (completed)
Naresh Pachauri, M.S., Bio & Agric. Eng., University of Idaho, 2005-2008 (completed)
Erica Rude, M.S., Materials Science, WSU, 2005-2007(completed)
Sudip Chowdury, M.S., Civil Engineering, WSU, 2004-2006 (completed)
Ben LaFrentz, Ph.D. Fish & Wildlife, University of Idaho, 2004-2007 (completed)
Wei Lao, Ph.D. Biosystems Engineering, WSU 2004-2007 (completed)
Jinwu Wang, Ph.D., Civil Engineering, WSU, 2004-2007 (completed)
Carla Blengeri-Oyarce, M.S., Forest Products, UI, 2004-2006 (completed)
Jeremy Higley, M.S., Food Science, University of Idaho, 2003-05 (completed)
Cathy Hunt, M.S., Chemistry, University of Idaho, 2003-2005 (completed)
Holton Quinn, M.S, Chemical Engineering, University of Idaho, 2003-2007(completed)
Leslie Ganus, M.S., Forest Products, University of Idaho, 2001-
Sharlene Peterson, Ph.D., Engineering, University of Auckland, 1998-2007 (completed)
Stephanie Weal, M.S., Engineering, Waikato University 2003-2006 (completed)
Erik Coats, Ph.D., Civil Engineering, WSU, 2002--05 (completed)
Ben Harlow, M.S., Forest Resource Management, UI, 2003-05 (completed)
Catherine Riddle, M.S., Chemistry, University of Idaho, 2002-04 (completed)
Kirk Kludt, M.E., Civil Engineering, WSU, 2001-03 (completed)
Jonathon Songster, M.S., Forest Products, University of Idaho, 2002-04 (completed)
Ralf Moeller, Ph.D., Biology, University of Auckland, 1998-2003 (completed)
Xiaowen Yuan, Ph.D., Engineering, University of Auckland, 1999-2003 (completed)
Brendan Lee, M.Sc., Chemistry, University of Waikato, 2000-03 (completed)
Ali Abdallah, M.Sc., Technology, University of Waikato, 2000-03 (completed)
Brian Harris, M.S., Chemistry, University of Idaho, Feb 2003 (completed)
Jason Brandt, M.S., Forest Products, University of Idaho, 2001-03 (completed)
Suzie Carnachan, Ph.D., Biology, University of Auckland, 1996-2000 (completed)

Courses Developed:

Wood composites / Biocomposites Forp436/536
Wood chemistry / Lignocellulosic biomass chemistry Forp438/538
Biomaterials product and process development Forp491
Biomass and Biorefinery BAE504
Forest Products Issues and Technology “Design Project” FORP100, Fall2006

SCHOLARSHIP ACCOMPLISHMENTS:

Publications, Exhibitions, Performances, Recitals:

Refereed/Adjudicated (85):

Wei, L. McDonald, A.G., Freitag, C., Morrell, J.J. (2013) Effects of wood fiber esterification on properties, weatherability and biodurability of wood plastic composites. *Polymer Degradation and Stability. 10.1016/j.polymdegradstab.2013.03.027.*

Coats, E.R., Searcy, E., Feris, K., Shrestha, D., McDonald, A.G., Briones, A., Magnuson, T., Prior, M. (2013) An integrated two-stage anaerobic digestion and biofuel production process to reduce life cycle GHG emissions from U.S. dairies. *Biofuel Bioproducts & Biorefining*. *DOI: 10.1002/bbb/1408.*

Titiladunayo, I.F., Fapetu, O.P., and McDonald, A.G. (2013) Development of a fixed-bed pyrolysis reactor from local materials for themochemical conversion of lignocellulosic biomass. *Journal of Biobased Materials and Bioenergy. doi:10.1166/jbmb.2013.1360*.

Osman, N.B., McDonald, A.G., Laborie, M-P.G. (2013) Characterization of water-soluble extracts from hot-pressed poplar. *European Journal of Wood and Wood Products.* 71(3): 343-351.

Sahaf, A., Laborie, M-P.G, Englund, K., Garcia-Perez, M., McDonald, A.G., (2013) Rheological properties and tunable thermoplasticity of phenolic rich fraction of pyrolysis bio-oil. *Biomacromolecules*. *DOI: 10.1021/bm4000184*.

Hu, S., McDonald, A.G., Coats, E.R. (2013) Characterization of polyhydroxybutyrate (PHB) biosynthesized from crude glycerol waste using mixed microbial consortia. *Journal of Applied Polymer Science. DOI: 10.1002/app.38820.*

Zhou, S., Garcia-Perez, M., Pecha, B., McDonald, A.G., Kersten, S., Westerhof, R. (2013) Secondary vapor phase reactions of lignin derived oligomers obtained by the fast pyrolysis of pine wood. *Energy & Fuels.* 27(3): 1428-1438.

Sardot, T., McDonald, A.G. and Smith, G. (2013) Characterization of a Cardboard Recycling Facility's Mixed Plastic Waste for Beneficial Use. *Waste and Biomass Valorization.* 4(1):161-171.

Fabiyi, J.S., McDonald, A.G. (2013) Weathering performance of delignified pine-based polyvinyl-chloride composites. *Journal of Reinforced Plastics and Composites.* 32(8):44-60.

Schauwecker, C., McDonald, A.G., Morrell, J.J. (2013) Performance of wood treated with prospective surface protestants on outdoor exposure: FTIR spectroscopic analysis of weathered surfaces. *Holzforschung*. 67(2): 227-235.

Wang, Z., McDonald, A.G., Westerhof, R.J.M., Kersten, S.R.A., Cuba-Torres, C.M., Ha, S., Pecha, B Garcia-Pereza, M. (2013) Effect of cellulose crystallinity on the formation of a liquid intermediate and on product distribution during pyrolysis. *Journal of Analytical and Applied Pyrolysis*. 100: 56-66.

Zhou, S., Osman, N.B., Li, H., McDonald, A.G., Mourant, D., Li, C-Z., Garcia-Perez, M. (2013) Effect of sulfuric acid addition on the yield and composition of lignin derived oligomers obtained by the Auger and fast pyrolysis of Douglas-fir wood. *Fuel*. 103: 512-523.

Dai, J., McDonald, A.G. (2012) Response surface optimization of hot water pretreatment for enzymatic hydrolysis of hybrid poplar – first step of bioconversion of woody biomass to value added bioplastics. *In:* Pretreatment techniques for biofuels and biorefineries, Editor - Zhen Fang, Springer-Verlag, Springer Asia Limited Beijing. pp 183-195, ISBN 978-3-642-32734-6.

Osman, N.B., McDonald, A.G., Laborie, M-P.G. (2012) Analysis of DCM extractable components from hot-pressed hybrid poplar. *Holzforschung.* 66(8):927–934.

Sivasankarapillai, G., McDonald, A.G., and Li, H. (2012) Lignin valorization by forming toughened lignin-co-polymers: Development of hyperbranched prepolymers for cross-linking. *Biomass & Bioenergy*.47: 99-108.

Sardot, T., McDonald, A.G. and Smith, G. (2012). Valorizing Mixed Plastic Waste from Cardboard Recycling by Amendment with MAPE, Wood, Cement and Ash. *Journal of Reinforced Plastics and Composites*. 31(21): 1488–1497.

Soria, A.J. and McDonald, A.G. (2012) Liquefaction of softwoods and hardwoods in supercritical methanol: a novel approach to bio-oil production. *In:* "Biomass Conversion: The interface of biotechnology, chemistry and materials science". Eds. Baskar, C., Baskar, S., and Dhillon, R.S. Springer-Verlag, Berlin. Pp 421-433. *DOI: 10.1007/978-3-642-28418-2_13*

Titiladunayo, I.F., McDonald, A.G., and Fapetu, O.P. (2012) Effect of temperature on biochar product yield from selected lignocellulosic biomass in a pyrolysis process. *Waste and Biomass Valorization. 3(2)311-318.*

Dziedzic, J.A. and McDonald, A.G. (2012) A comparative survey of proteins from recalcitrant tissues of a non-model gymnosperm, Douglas-fir. *Electrophoresis.* 33(7):1102-1112.

Chakraborty, M., Miao, C., McDonald, A., and Chen, S. (2012) Concomitant extraction of bio-oil and value added polysaccharides from *Chlorella sorokiniana* using a unique sequential hydrothermal extraction technology. *Fuel*. 95:63-70.

Adefisan, O.O., Fabiyi, J.S. and McDonald, A.G. (2012) Hydration behaviour and infrared spectroscopy of pre-treatments effect on Portland cement-*Eremospatha macrocarpa* and *Laccosperma secundiflorum* systems. *Journal of Applied Science.* 12(3):254-262.

McDonald, A.G. and Ma, L. (2012) Plastic moldable lignin. *In:* "Lignin: Properties and Applications in Biotechnology and Bioenergy". Ed. Paterson R.J., Nova Science Publishers, Inc. Chapter 19. pp. 489-498.

Pillai, K.V., McDonald, A.G., and Wagner, F.G. (2011) Developing a model system in vitro to understand tracheary element development in Douglas-fir (pseudotuga mensziesii). *Maderas. Ciencia y tecnología* 13(1): 3-18.

Fabiyi, J.S., McDonald, A.G., Morrell, J.J., and Freitag, C. (2011) Structural Characterization of Wood Species on Biodegradation of Wood Plastic Composites. *Composites part A.* 42:501–510.

Dobroth, Z.T., Hu, S., Coats, E.R., McDonald, A.G. (2011) Polyhydroxybutyrate synthesis on biodiesel wastewater using mixed microbial consortia. *Bioresource Technology,* 102:3352–3359.

Sivasankarapillai, G., McDonald, A.G. (2011) Synthesis and properties of lignin-highly branched poly(ester-amine) polymeric systems, *Biomass and Bioenergy,* 35:919-931.

McDonald, A.G., and Ma, L. (2010) Plastic moldable pine fiber by benzylation. In: Wood: Types, Properties, and Uses. *Ed*. Botannini, L.F., Nova Science Publishers, Inc. pp181-192.

Jain, T., Van Gerpen, J., McDonald, A.G. (2010) Production of fuel ethanol from woody biomass. Journal of Biofuels.1(1):109-114.

Fabiyi, J.S., McDonald, A.G., (2010) Effect of wood species on property and weathering performance of wood plastic composites. *Composites Part A.* 41:1434–1440.

Fabiyi, J.S., McDonald, A.G., (2010) Physical morphology and quantitative characterization of chemical changes of weathered PVC/pine composites. *J Polym Environ*. 18:57–64.

Fox, S.C., McDonald, A.G. (2010) Chemical and Thermal Characterizaion of three Industrial Lignins and their Corresponding Lignin Esters. *BioResources J*. 5(2):990-1009.

Candan, Z., Hiziroglu, S., McDonald,A.G., (2010) Surface quality of thermally compressed Douglas fir veneer. *Materials and Design.* (31)7: 3574-3577.

Johnson R.L., Liaw, S-S, Garcia-Perez, M., Ha, S.,. Lin, S.S-Y, McDonald, A.G., Chen, S. (2009) Pyrolysis-GC/MS studies to evaluate high temperature aqueous pretreatment as a way to enhance the quality of bio-oil from fast pyrolysis of wheat straw. *Energy & Fuels*. 23(12):6242–6252.

Fabiyi, J.S., McDonald, A.G., (2009) Pyrolysis gas chromatography-mass spectrometry study of weathered wood plastic composites. In: Handbook on Mass Spectrometry Instrumentation, Ed. J. K. Lang, Nova Science Publishers, Inc. Chp 19.pp 447-458.

Jain, T., Van Gerpen, J., McDonald, A.G. (2009) Production of Fuel Ethanol from Woody Biomass. In: New Frontiers in Biofuels, Eds. P.B. Sharma and N. Kumar. Scitech Publications, PVT Ltd. Chennai, pp 343-349.

Fabiyi, J.S., McDonald, A.G., McIlroy, D. (2009) Wood Modification Effects on Weathering of HDPE-Based WoodPlastic Composites. *J Polym Environ*. 17:34–48.

Wagner, F.G., Smith, N.R., McDonald A.G., (2008) Initial high-temperature schedule to reduce drying time and control kiln brown stain in ponderosa pine shop lumber. *Forest Products J.* 58(12):29-32.

Soria, A.J., McDonald, A.G., Shook, S.J. (2008) Wood solubilization and depolymerization using supercritical methanol. Part 1: Process optimization and analysis of methanol insoluble components (bio-char) *Holzforschung*. 62: 402–408.

Soria, A.J., McDonald, A.G., He, B.B. (2008) Wood solubilization and depolymerization by supercritical methanol. Part 2: Analysis of methanol soluble compounds. *Holzforschung*. 62: 409–416.

Fabiyi, J.S., McDonald, A.G., Wolcott, M.P., Griffith, P.R. (2008) Wood Plastic Composites Weathering: Visual Appearance and Chemical Change. *Polymer Degradation and Stability*. 93:1405-1414.

Coats, E.R., Loge, F.J., Wolcott, M.P., Englund, K., McDonald, A.G. (2008) Production of natural fiber reinforced thermoplastic composites through the use of PHB-rich biomass. *Bioresource Technology*., 99:2680–2686.

Fabiyi J.S., McDonald A.G. (2007) Accelerated Weathering of Modified Wood Flour Plastic Composites. *Advanced Materials Research*. 29-30:315-318.

Coats, E.R., Loge, F.J., Wolcott, M.P., Englund, K., McDonald, A.G. (2007) Synthesis of polyhydroxyalkanoates in municipal wastewater treatment. *Water Environment Research*., 79(12):2396-2403.

Schauwecker, C., Morrell, J.J., McDonald, A.G., Fabiyi, J.S., (2006) Degradation of a Wood Plastic Composite Exposed Under Tropical Conditions. *Forest Products. J*., 56 (11/12):123-129.

Sun, X., Andrew, I.G, Joblin K.N., Harris, P.J., McDonald, A.G., and Hoskin, S.O. (2006) Polysaccharide compositions of leaf cell walls of forage chicory (Cichorium intybus L.). *Plant Science*. 170: 18–27.

Morrell, J.J., Stark, N.M., Pendleton, D.E., and McDonald A.G. (2006) Durability of Wood-Plastic Composites. *Wood Design Focus*. 16(3): 7-10.

McDonald, A.G., A. Clare and R. Meder. (2006) Characterization of water-soluble components from MDF fibers. Chapter 16, *In* Characterization of Cellulosic Cell Wall, *Eds.* Stokke, D. and Groom, L.. Blackwell Pub Professional. pp 213-226.

Moller, R., McDonald, A.G., Walter, C., and Harris, P.J. (2006) Tracheid and sclereid differentiation in callus cultures of Pinus radiate D. Don: Toward an in-vitro system for analyzing gene function. Chapter 1, *In* Characterization of Cellulosic Cell Wall, *Eds.* Stokke, D. and Groom, L.. Blackwell Pub Professional. pp 3-19.

Huber, K. and A.G. McDonald. (2006) Food Carbohydrates. *In* Handbook of Food Science, Technology, and Engineering, *Ed* Hui,Y.H.. Francis Taylor/CRC Press. pp 1-24.

Gallagher L.W., Sundar S.T., McDonald A.G., and Wolcott M.P. (2005) The Effect of Particle Size and Wood Surface Modification on Wood Plastic Composite Performance. In *refereed Proceeding of the Pre-symposium of the 13th International Symposium of Woodfiber and Pulping Chemistry*, 12-13 May, pp 11-17.

Grigsby W., A.G. McDonald, A. Thumm and C. Loxton (2004) X-ray photoelectron spectroscopy determination of UF resin coverage on MDF fibre. *Holz als Roh- und Wekstoff*, 62: 358-364.

McDonald, A.G., P.H. Dare, J.S. Gifford, D. Steward, S. Riley, and I. Simpson. (2004) Air emissions from timber drying: high temperature drying and re-dry of CCA treated timber. *Holz als Roh- und Werkstoff*., 62: 291-302.

Walter, C., J. Charity, L. Donaldson, L. Grace, A.G. McDonald, R. Möller and A. Wagner. (2003) Genetic modification in conifer forestry: State of the art and future potential, a case study with Pinus radiata. *In* Molecular Genetics and Breeding of Forest Trees, S. Kumar and M. Fladung (Eds.), Haworth Press, Inc., New York, USA. Chapter 9, pp 215-242.

Pickering K.L., A. Abdallaa, C. Jia, A.G. McDonald, R.A. Franich. (2003) The effect of silane coupling agents on radiata pine fibre for use in thermoplastic matrix composites. *Composites Part A*., 34: 915-926.

Möller R., A.G. McDonald, C. Walter and P.J. Harris. (2003) Cell differentiation, secondary cell-wall formation and transformation of callus tissue of Pinus radiata D. Don. *Planta*., 217 (5): 736-747.

Clare, A.B., R.A. Franich, T.D. Lomax, A.G. McDonald, and A.R. Meder. (2002) Characterization and performance of cross-linkable maltodextrin-based packaging adhesives. *J. Adhesion Sci. and Technol.* 16(3): 317-329.

McDonald, A.G., P.H. Dare, J.S. Gifford, D. Steward and S. Riley. (2002) Assessment of air emissions from industrial kiln drying of radiata pine wood. *Holz als Roh- und Werkstoff*., 60: 181-190.

Abdalla, A., K.L. Pickering and A.G. McDonald (2002) Mechanical properties of thermoplastic matrix composites with silane-treated wood fibre. *Refereed proceedings* of the 6th International Conference on Flow Processes in Composite Materials (FPCM-6), Auckland, New Zealand, July, pp 111-117.

McDonald, A.G. and L.A. Donaldson. (2001) Constituents of wood. *The Encyclopedia of Materials: Science and Technology. Elsevier Science.*

Lee, B., A.G. McDonald, and B. James. (2001) Influence of fiber length on the mechanical properties of wood-fiber/polypropylene prepreg sheets. *Materials Research Innovations* 4: 97-103.

Suckling, I.D., R.W. Allison, S.H. Campion, K.G. McGrouther and A.G. McDonald. (2001) Cellulose degradation during conventional and modified kraft pulping. *J. Pulp. Paper. Sci*. 27(11): 336-341.

Thumm, A., A.G. McDonald, and L.A. Donaldson. (2001) Visualisation of UF resin in MDF by cathodoluminescence/scanning electron microscopy. *Holz als Roh- und Werkstoff*., 59: 215-216.

McDonald, A.G., M. Fernandez, B. Kreber, and F. Laytner. (2000) The chemical nature of kiln brown stain in radiata pine. *Holzforschung*. 54 (1): 12-22.

Kreber, B., A.N. Haslett, and A.G. McDonald. (1999) Kiln brown stain in radiata pine: A short review on cause and methods for prevention. *Forest Products Journal*. 49(4): 66-70.

McDonald, A.G., J.S. Gifford, P.H. Dare, and D. Steward. (1999) Characterization of the condensate generated from vacuum-drying of radiata pine wood. *Holz als Roh- und Werkstoff*. 57: 251-258.

McDonald, A.G., D. Steward, and R.A. Franich. (1999) Monoterpene composition of radiata pine (Pinus radiata D. Don) sapwood from a 13 year old progeny trial. *Holz als Roh- und Werkstoff*. 57: 301-302.

Kreber, B., A.G. McDonald and A.N. Haslett. (1999) The use of sodium dithionite for controlling kiln brown stain development in radiata pine sapwood. *Forest Products Journal*. 49(1): 57-62.

Franich, R.A., A. McDonald, and D. Steward. (1998) Essential oil of the wood of *Araucaria cunninghamii* Aiton ex D. Don. *J. Essential Oil Research*, 11: 38-40.

McDonald, A.G., D. Steward, and A.B. Clare. (1998) Characterization of volatile constituents in radiata pine HTMP screw press effluent. *Appita J*., 51(2): 132-137.

Kreber, B., M. Fernandez, and A.G. McDonald. (1998) Migration of kiln brown stain precursors during the drying of radiata pine sapwood. *Holzforschung*, 52: 441-446.

Kreber, B., and A.G. McDonald. (1997) Causes of kiln brown stain. Wood Processing Newsletter No. 21.

Aspinall, G.O., A.G. McDonald, H. Pang, L.A. Kurjanczyke and J.L. Penner. (1994) Lipopolysaccharides from *Campylobacter jejuni* serotype 0:19; structures of core oligosaccharide regions from the serostrain and two bacterial isolates from patients with Guillain-Barré Syndrome. *Biochemistry*, 33: 241-249.

Aspinall, G.O., A.G. McDonald and H. Pang. (1994) Lipopolysaccharides of *Campylobacter jejuni* serotype 0:19: Structures of O-antigen chains from the serostrain and two bacterial isolates from patients with the Guillan-Barré Syndrome. *Biochemistry*, 33: 250-255.

Aspinall, G.O., A.G. McDonald and R.K. Sood. (1994) Syntheses of methyl glycosides of 6 deoxyheptoses. *Canadian Journal of Chemistry*, 72: 247-251.

Aspinall, G.O., S. Fujimoto, A.G. McDonald, H. Pang, L.A. Kurjanczyk and J.L. Penner. (1994) Lipopolysaccharides from *Campylobacter jejuni* associated with Guillain-Barré Syndrome patients mimic human gangliosides in structure. *Infection and Immunity*, 62: 2122-2125.

Aspinall, G.O., A.G. McDonald, H. Pang, L.A. Kurjanczyk and J.L. Penner. (1993) Lipopolysaccharide of *Campylobacter coli* serotype 0:30. Fractionation and structure of liberated core oligosaccharide. *Journal of Biological Chemistry*, 268: 6263-6368.

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McDonald, A.G. and E. Aston. EPSCOR Instrument Grant, University of Idaho, Research Office, February 2004, $10,000.

McDonald, A.G., F. Wagner, D. Winney, and C. Anderson. Understanding Xylem Development in Conifers by In-vitro Studies. USDA-McIntire-Stennis, $62,360, March 2004-March 2006.

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McDonald, A.G. Small Travel Grant, Research Office, University of Idaho, April 2003, $900

Huber, K., A.G. McDonald and P. Singh. Simultaneous microstructural and calorimetric characterization of foods and biomaterials using thermal microscopy. USDA-CREES-NRI equipment grant program (2003-35503-13697), October 2002, $25,000.

McDonald, A.G. Micro-woodfiber composites. USDA-CREES-NRI program: Improved Utilization of Wood and Woodfiber, 73.0, December 2002-November 2004, $170,000.

Huber, K., A.G. McDonald, and R. vonWandruska. EPSCOR instrument grant, University of Idaho, Research office, August 2002, $15,500.

McDonald, A.G., T.M. Gorman, and M.P. Wolcott. Property enhancements of wood and wood based products from small diameter logs by an electro-heating treatment. Inland Northwest Forest Products Consortium USDA-CSREES, July 2002-June 2003, $64,519.

McDonald, A.G. Small Travel Grant, Research Office, University of Idaho, April 2002, $900.

McDonald, A.G. EPSCOR equipment grant, University of Idaho, Research office, January 2002, $30,000.

Grants and Contracts Pending:

McDonald, A.G., and Coats, E.R. Toward commercial production of lactic acid from potato peel waste. USDA-NIFA-Foundation, 01/2014-12/2016, $499,980

McIlroy, D., McDonald, A.G., Ytreberg, F.M. DMREF: Fischer-Tropsch Catalysis utilizing 1-Dimensional Nanospring Networks. NSF, 07/2013-6/2016, $ 739,854.

Briones, A., McDonald, A.G., Coats, E.R., He, B., Morra, M., Strawn, D. Evaluation of chars derived from wet carbonization and dry pyrolysis of raw and anaerobically digested dairy manure. USDA-NIFA, 07/2013-6/2016, $999,000.

McDonald, A.G. Biocomposites and biofuels from Guayule bagasse NineSigma, 07/2013-06/2014, $99,984.

McIlroy, D., McDonald, A.G. Optimization of Nanoscaffolding Coating for Prosthetics. IGEM, 07/2013-01/2014, $147,825.

Coats, E.R., McDonald, A.G. LOI-Establishing optimal bioreactor operating criteria to produce commercial-grade quantities of polyhydroxyalkanoates. SGW-USDA-RFP. $200,000.

McDonald, A.G., Coats, E.R. LOI-Toward commercial production of lactic acid and polylactic acid from potato peel waste. SGW-USDOT-RFP, $200,000.

Garcia-Perez, M., McDonald, A.G. LOI-Characterization and use of cross-linked sugars for the development of levoglucosan based biopolymers. SGW-USDOT-RFP, $250,000.

McDonald, A.G. and McIlroy, D. Upgrading biomass pyrolysis bio-oil to renewable fuels. NIATT-DOT-PacTrans, 9/13-8/14, $ $45,946.

Honors and Awards:

NZ-FRI Achievement in Science Award for Inter-disciplinary Science, April 1997

SERVICE:

Major Committee Assignments:

Served on the search committee for the Polymer Scientist position in the Material Science and Chemical Engineering Department, UI, 2011

Served on the search committee for the Polymer Scientist position in the Material Science and Engineering Department, UI, 2007

Served on the search committee for the Polymer Scientist position in the Material Science and Engineering Department, UI, 2003

Served on the two search committees for the Biomaterials position in the Wood Materials and engineering Laboratory, WSU, 2002, 2003

Chair for the CNR committee of committees, 2002-04

Committee member for the UI Safety and Loss committee, 2003-2009

Committee member for the CNR Safety committee, 2005-present

Committee member for the CNR Space committee, 2008-present

Committee member for the CNR Graduate student scholarship committee, 2009-present

Professional and Scholarly Organizations:

Australian Pulp and Paper Institute Technical Association (APPITA), member, 1993-2010.
Forest Products Society, Member, 2002-present
Society of Wood Science and Technology, Member, 2002-present
American Chemical Society, Member, 2010-present
International Association of Wood Scientists (IAWS), Fellow, 2013-present

Honors and Awards:

Carter Holt Harvey-New Ventures Ideas to Business Entrepreneur Awards 2001: Oct 2001.