

Jacqueline M. Jarvis

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PROFESSIONAL EXPERIENCE

<i>New Mexico State University, Las Cruces, NM</i> Research Assistant Professor Department of Plant and Environmental Sciences College of Agricultural, Consumer, and Environmental Sciences	August 2018- Present
<i>New Mexico State University, Las Cruces, NM</i> Research Assistant Professor Chemical Analysis and Instrumentation Laboratory Center for Animal Health and Food Safety College of Agricultural, Consumer, and Environmental Sciences	January 2015- July 2018
<i>National High Magnetic Field Laboratory, Tallahassee, FL</i> Postdoctoral Research Associate , Dr. Ryan Rodgers Ion Cyclotron Resonance Program	August 2013- January 2015
<i>Florida State University, Tallahassee, FL</i> Graduate Research Assistant , Dr. Alan Marshall	August 2008- August 2013
<i>GlaxoSmithKline, Research Triangle Park, NC</i> Internship , Dr. Jason Hallman	May 2007- August 2007

EDUCATION

<i>Florida State University, Tallahassee, FL</i> Ph.D. in Analytical Chemistry Major Advisor: Alan G. Marshall Dissertation: "Complex Mixture Analysis by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: Applications for the Fuel Industry"	August 2013
<i>Gardner-Webb University, Boiling Springs, NC</i> B.S. in Chemistry & Biology Honors Thesis: "Pharmacology: An Analysis of Novel Glucocorticoid Receptor Ligands"	May 2008

ADDITIONAL TRAINING

Thermo Fisher Scientific On-Site Training (February 2018)

- Participated in on-site training from Thermo Fisher field application scientist which focused on use of Thermo scientific software packages (e.g., FreeStyle, Xcalibur, Proteome Discoverer, LipidSearch, TraceFinder) for proteomics, lipidomics, and other applications

Proteomics (August 2017)

- Our lab hosted Dr. Phil Gafken of the Fred Hutchinson Cancer Research Center which involved lectures and hands-on instruction (i.e., sample preparation, LC-HRMS analysis, and Proteome Discoverer)

Critical Electric Field (September 2014)

- Spent one week at Nalco Champion, Houston, TX to learn how to operate, maintain, and troubleshoot a critical electric field (CEF) instrument
- Learned how CEF can be used to determine emulsion stability and effectiveness of demulsifiers

Two-Dimensional Gas Chromatography (May 2013)

- Spent two weeks at Woods Hole Oceanographic Institute (WHOI), Woods Hole, MA to learn how to operate, maintain, and troubleshoot GCxGC MS and GCxGC FID instruments
- Learned how to process and analyze GCxGC data for petroleum samples

SKILLS

Research

- Expert in ultrahigh resolution mass spectrometers including operation and maintenance of a custom built 9.4 T FT-ICR, Thermo 7 T LTQ FT-ICR, and Orbitrap Fusion mass spectrometers
- Experience with the operation and maintenance of an Agilent 1100 Capillary LC system, a Thermo Ultimate 3000 NanoLC system, Agilent GC-MS systems, an Agilent ICP-MS, and a Thermo Finnigan Elemental Analyzer Flash EA 1112 (CHNS-O)
- Experience with micro- and nano-electrospray ionization (Advion Nanomate) and atmospheric pressure photoionization
- Familiar with time-of-flight, quadrupole, and ion mobility mass spectrometers
- Familiar with GCxGC, HPLC, and preparatory scale separations on complex mixtures (e.g., petroleomics, proteomics, lipidomics)
- Extensive multidisciplinary collaborative experience with users from industry, faculty, staff, and students

Computer

- Work with the developer of PetroOrg software to enhance user functionality for molecular formulae assignment of a variety of complex mixtures such as petroleum, biofuels, and lipids
- Developed in-house Excel macros for database matching for lipids
- Familiar with commercial (e.g., Microsoft Office, SigmaPlot, Xcalibur, TraceFinder, LipidSearch, Proteome Discoverer, FreeStyle, and NIST17) and non-commercial (e.g., Modular ICR Data Acquisition System & Molecular Formula Calculator) software packages for scientific endeavors

Supervisory

- Regularly train students and professionals to perform analytical sample preparation and analysis on state-of-the-art instrumentation
- Obtained Graduate Faculty status at NMSU to help advise graduate students during the pursuit of their degrees
- Help write grants to receive external funding for our laboratory

- Supervised an undergraduate student's (REU) project on the characterization of water-soluble organics from the Deepwater Horizon oil spill by FT-ICR MS
- Regularly trained internal and external users in FT-ICR MS operation and data processing/interpretation as part of the NHMFL's user program
- Assigned instrument usage for two FT-ICR mass spectrometers for the NHMFL's user program

AWARDS

ACS Energy & Fuels Student Award

August 2012

PROFESSIONAL AFFILIATIONS

Member, American Chemical Society

2009-Present

Member, American Society of Mass Spectrometry

2010-Present

PUBLICATIONS

Jarvis, J.M.; Albrecht, K.O.; Billing, J.M.; Schmidt, A.J.; Hallen, R.T.; Schaub, T.M. Assessment of Hydrotreatment for Hydrothermal Liquefaction Biocrudes from Sewage Sludge, Microalgae, and Pine Feedstocks. *Energy Fuels* **2018**, DOI: 10.1021/acs.energyfuels.8b01445

Willette, S.; Gill, S.S.; Dungan, B.; Schaub, T.M.; **Jarvis, J.M.**; St. Hilaire, R.; Holguin, F.O. Alterations in lipidome and metabolome profiles of *Nannochloropsis salina* in response to reduced culture temperature during sinusoidal temperature and light. *Algal Res* **2018**, 32, 79-92.

Jarvis, J.M.; Billing, J.M.; Corilo, Y.E.; Schmidt, A.J.; Hallen, R.T.; Schaub, T.M. FT-ICR MS Analysis of Blended Pine-Microalgae Feedstock HTL Biocrudes. *Fuel* **2018**, 216, 341-348.

Cheng, F.; Cui, Z.; Chen, L.; **Jarvis, J.**; Paz, N.; Schaub, T.; Nirmalakhandan, N.; Brewer, C. Hydrothermal Liquefaction of High- and Low-Lipid Algae: Bio-crude Oil Chemistry. *Appl Energy*, **2017**, 206, 278-292.

Jarvis, J.M.; Billing, J.M.; Schmidt, A.J.; Hallen, R.T.; Schaub, T.M. Hydrothermal Liquefaction Biocrude Compositions Compared to Petroleum Crude and Shale Oil. *Energy Fuels* **2017**, 31, 2896-2906.

Lalli, P.M.; **Jarvis, J.M.**; Marshall, A.G.; Rodgers, R.P. Functional Isomers in Petroleum Emulsion Interfacial Material Revealed by Ion Mobility Mass Spectrometry and Collision-Induced Dissociation. *Energy Fuels* **2017**, 31, 311-318.

Jarvis, J.M.; Sudasinghe, N.M.; Albrecht, K.O.; Schmidt, A.J.; Hallen, R.T.; Anderson, D.B.; Billing, J.M.; Schaub, T.M. Impact of Iron Porphyrin Complexes When Hydroprocessing Algal HTL Biocrude. *Fuel* **2016** 182, 411-418.

Faeth, J.L.; **Jarvis, J.M.**; McKenna, A.M.; Savage, P.E. Characterization of Products from Fast and Isothermal Hydrothermal Liquefaction of Microalgae. *AIChE J* **2016**, 62, 815-828.

Jarvis, J.M.; Robbins, W.K.; Rodgers, R.P. Novel Method to Isolate Interfacial Material. *Energy Fuels* **2015**, *29*, 7058-7064.

Manning, T.; Patel, H.; Wylie, G.; Phillips, D.; **Jarvis, J.** Structural Measurements and Cell Line Studies of the Copper-PEG-Amikacin Complex against Mycobacterium Tuberculosis, *Bioorg Med Chem Lett* **2015**, *25*, 5825-5830.

Manning, T.; Mikula, R.; Wylie, G.; Phillips, D.; **Jarvis, J.**; Zhang, F. Structural Measurements and Cell Line Studies of the Copper-PEG-Rifampicin Complex against Mycobacterium Tuberculosis, *Bioorg Med Chem Lett* **2015**, *25*, 451-458.

Jarvis, J.M.; Page-Dumroese, D.S.; Anderson, N.M.; Corilo, Y.E.; Rodgers, R.P. Characterization of Fast Pyrolysis Products Generated from Several Western USA Woody Species, *Energy Fuels* **2014**, *28*, 6438-6446.

Bai, H.; Jiang, W.; Kotchey, G.P.; Saidi, W.A.; Bythell, B.J.; **Jarvis, J.M.**; Marshall, A.G.; Robinson, R.A.S.; Star, A. Insight into the Mechanism of Graphene Oxide Degradation via the Photo-Fenton Reaction, *J. Phys. Chem. C*, **2014**, *118* (19), 10519-10529.

Lewis, A.T.; Tekavec, T.N.; **Jarvis, J.M.**; Juyal, P.; McKenna, A.M.; Yen, A.T.; Rodgers, R.P. Evaluation of the Extraction Method and Characterization of Water-Soluble Organics from Produced Water by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry, *Energy Fuels* **2013**, *27*, 1846-1855.

Jarvis, J.M.; McKenna, A.M.; Hilten, R.N.; Das, K.C.; Rodgers, R.P.; Marshall, A.G. Characterization of Pine Pellet and Peanut Hull Pyrolysis Bio-Oils by Negative-Ion Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry, *Energy Fuels* **2012**, *26*, 3810-3811.