

**Joelle S. Underwood**  
**Curriculum Vita**

Department of Chemistry  
Loyola University  
6363 St. Charles Ave., Campus Box 5  
New Orleans, LA 70118

jsunderw@loyno.edu  
Office: Monroe 202  
Phone: 504-865-3275

**Employment**

---

Augustus Elmer, Jr., Distinguished Professor of Chemistry, Loyola University, New Orleans, LA, 2015-

Associate Professor of Chemistry, Loyola University, New Orleans, LA, 2013-

Assistant Professor of Chemistry, Loyola University, New Orleans, LA, 2007-2013

**Education**

---

**University of California** Irvine, CA  
Postdoctoral Scholar, Department of Chemistry, 2005-2007  
Advisor: Sergey Nizkorodov  
Studied water uptake properties of ultrafine aerosol and photochemistry of secondary organic aerosol

**University of Southern California** Los Angeles, CA  
Advisor: Professor Curt Wittig  
Ph.D., Physical Chemistry–Chemical Physics, 2005  
Dissertation: The role of curve crossings in the photodissociation dynamics of small hydride systems

**Tulane University, Newcomb College** New Orleans, LA  
B.A., German, 1995

**Refereed Publications (Published)**

---

At the edge of the BP oil spill: Teaching inside disaster in New Orleans, LA, J.A. Schwartz and J.S. Underwood, *Arkansas Review: A Journal of Delta Studies* 42 (3), 205-214 (2011).

Hygroscopic growth and deliquescence of NaCl nanoparticles mixed with surfactant SDS, C. Harmon, R. Grim, T. McIntire, M. Peterson, B. Mjelogic, V. Angel, A. Alshawa, J.S. Underwood, D. Tobias, R. Gerber, M. Gordon, J. Hemminger, and S. Nizkorodov, *J. Phys. Chem. B* 114, 2435-2449 (2010).

Hygroscopic growth and deliquescence of NaCl nanoparticles coated with surfactant AOT, A. Alshawa, O. Dopfer, C. Harmon, S. Nizkorodov, and J.S. Underwood, *J. Phys. Chem. A* 113, 7678-7686 (2009).

Photodegradation of secondary organic aerosol generated from limonene oxidation by ozone studied with chemical ionization mass spectrometry, X. Pan, J.S. Underwood, J.-H. Xing, S. Mang, and S. Nizkorodov, *Atmos. Chem. Phys.* 9, 3851-3865 (2009).

Photochemistry of secondary organic aerosol formed from oxidation of monoterpenes, S. Mang, M. Walser, X. Pan, J.-H. Xing, A. Bateman, J.S. Underwood, A. Gomez, J. Park, and S. Nizkorodov, in *Atmospheric Aerosols: Characterization, Chemistry, Modeling and Climate*, K. Valsaraj and R. Kommalapati, Eds., Oxford University Press (2009). ISBN13: 9780841269736.

Heavy hydrides: H<sub>2</sub>Te ultraviolet photochemistry, J.S. Underwood, D. Chastaing, S. Lee, and C. Wittig, *J. Chem. Phys.* 123, 084312 (2005).

Two-photon photodissociation of H<sub>2</sub>O via the *B* state, J.S. Underwood and C. Wittig, *Chem. Phys. Lett.* 386, 190-195 (2004).

Intraclustersuperelastic scattering via sequential photodissociation in small HI clusters, D. Chastaing, J.S. Underwood, and C. Wittig, *J. Chem. Phys.* 119, 928-938 (2003).

The intriguing near-ultraviolet photochemistry of H<sub>2</sub>Te, J.S. Underwood, D. Chastaing, S. Lee, P. Boothe, T.C. Flood, and C. Wittig, *Chem. Phys. Lett.* 362, 483-490 (2002).

### **Refereed Publications in Preparation**

---

Studies of monoterpene-ozone derived secondary organic aerosol for undergraduate chemistry laboratories, S.-J. Celestín,<sup>\*</sup> B. Hays,<sup>\*</sup> E. Gosciniaik,<sup>\*</sup> and J.S. Underwood, in revision.

New techniques for determining chemical content of biogenic mixed-component aerosol, B. Hays,<sup>\*</sup> E. Gosciniaik,<sup>\*</sup> S.-J.Celestín, J.S. Underwood, in revision.

Water uptake processes of model sea-salt/aged-organic mixed aerosol, A. Girau,<sup>\*</sup> H. Fontenot,<sup>\*</sup> K.-J.Celestín,<sup>\*</sup> S. Koplitz,<sup>\*</sup> and J.S. Underwood, in preparation.

### **Other Publications and Projects**

---

Spilling the story, J. S. Underwood and J.A. Schwartz, *In Media Res*, July 21, 2010, <http://mediacommons.futureofthebook.org/imr/2010/07/20/spilling-story>.

Lessons from a dirty coast, J. A. Schwartz and J. S. Underwood, *The Chronicle of Higher Education*, June 29, 2010, <http://chronicle.com/article/Lessons-From-a-Dirty-Coast/66062>.

### **Courses Taught**

---

Chemistry Prep<sup>‡</sup>

General Chemistry Lecture and Lab I, II

Physical Chemistry I, II

Integrated Lab I, II

Instrumental Analysis (formerly called Modern Analytical Chemistry)<sup>†</sup>

Forensic Instrumental Analysis<sup>‡</sup>

Foundations in Environmental Studies & Sciences<sup>‡</sup>

Math and the Natural World<sup>‡</sup>

### **External Funding (Funded)**

---

J.S. Underwood, PI. BORSF Research Competitiveness Subprogram. Probing the role of structure and chemical content on the water uptake processes of chemically mixed, atmospherically relevant aerosolized nanoparticles, LEQSF(2009-12)-RD-A-15, \$114,758, 6/1/09-6/30/12.

J.S. Underwood, PI. BORSF Undergraduate Enhancement Program, Atomic absorption spectrometer for the upgrade of physical and analytical laboratories, LEQSF(2009-09)-ENH-UG-20, \$72,388, 6/1/08-6/30/09.

T. Spence, PI, K. Birdwhistell, W. Walkenhorst, and J.S. Underwood, co-PIs. BORSF Traditional Enhancement Program. A suite of instruments to enhance forensics science at Loyola, \$192,085, 6/1/08-6/30/09.

---

\* Loyola University undergraduate co-author

† Significantly revised course

‡ New course

### **Internal Loyola University Funding (Funded)**

---

J.S. Underwood, Theory and model development to elucidate experimental measurements of atmospheric cloud formation processes, College of Humanities and Natural Sciences Bobet Fellowship to support undergraduate research stipend, summer 2014.

J.S. Underwood, College of Humanities and Natural Sciences Travel Grant to attend the Association of Environmental Studies and Sciences, \$1500, 6/12.

J.S. Underwood and J.A. Schwartz, co-PIs. College of Humanities and Natural Sciences Course Development Grant. Foundations in Environmental Studies and Sciences Course, \$2000, 7/1/09-7/31/09.

J.S. Underwood, PI. University Committee on Grants and Leaves. Atmospheric aerosol hygroscopicity experiments (summer RA support for A. Girau), \$2500, 2/1/09-8/28/09.

J.S. Underwood, PI. College of Humanities and Natural Sciences Bobet Fellowship. Generating and characterizing aged ultrafine atmospherically relevant mixed-content aerosol, \$6500, 6/1/07-8/30/07.

### **National Conference Presentations**

---

Probing physical and chemical properties of atmospheric aerosol, S.-J. Celestín,\* K.-J. Celestín,\* E. Gosciniak,\* H. Harb,\* K. Lambeth,\* H. Fontenot,\* B. Hays,\* A. Girau,\* and J.S. Underwood, NSF CAREER Award Forum, Louisiana State University, Baton Rouge, LA, 11/7/11-11/9/11.

Confronting complexity: Foundations in environmental studies/science, J.A. Schwartz and J.S. Underwood. Talk presented at the 2011 Association of Environmental Studies and Sciences, Burlington, VT, 6/12/11-6/26/11.

Atmospheric aerosols: Investigating and characterizing the hygroscopicity of nanoparticles, A. Girau,\* H. Fontenot,\* E. Gosciniak,\* B. Hays,\* and J.S. Underwood. Poster presented at the 61<sup>st</sup> Southeast Regional Meeting of the American Chemical Society, San Juan, Puerto Rico, 10/1/09-10/24/09.

The Loyola University New Orleans biodiesel project: Batch production of biodiesel from campus waste, H. Fontenot,\* M. Chatelain,\* B. Hays,\* A. Girau,\* A. Scott,\* J.S. Underwood and L.V. Koplitz. Poster presented at the 61<sup>st</sup> Southeast Regional Meeting of the American Chemical Society, San Juan, Puerto Rico, 10/1/09-10/24/09.

Hygroscopic growth of nanoparticles containing surface active molecules prepared by an electrospray aerosol source, S.A. Nizkorodov, C. Harmon, A. Alshawa, J.S. Underwood, and D. Tobias. Talk presented at the 27<sup>th</sup> Annual Conference of the American Association of Aerosol Research, Orlando, FL, 10/08.

Role of chemical content in water uptake processes of tropospherically relevant aerosol with diameters < 100 nm, H. Fontenot\* and J. S. Underwood. Poster presented at the 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, 4/6/08-4/10/08.

The role of size and composition for potential cloud condensation nuclei, C. W. Harmon, A. Alshawa, J. S. Underwood, S. A. Nizkorodov, V. M. Bergstedt, J. L. Thomas, and D. J. Tobias. Talk presented at the 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, 4/6/08-4/10/08.

Photodissociation processes in secondary organic aerosol particles, S. Nizkorodov, A. Bateman, S. Mang, X. Pan, J. S. Underwood, M. Walser, J.-H. Xing, M. P. Sulbaek Anerson, and D. R. Blake. Talk presented at the 235<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, 4/6/08-4/10/08.

---

\* Loyola University undergraduate co-author

Probing the photochemistry of monoterpene-derived secondary organic aerosols with chemical ionization mass spectrometry, X. Pan, J. S. Underwood, and S. Nizkorodov. Poster presented at the 26th Annual Conference of the American Association of Aerosol Research, Reno, NV, 9/24/07-9/28/07.

Aerosolized inverted micelles as model systems for probing atmospheric reactions of ultrafine organic particles, J. S. Underwood, Ahmad Alshawa, Steven Ng, and Sergey Nizkorodov. Talk presented at the 231<sup>st</sup> American Chemical Society National Meeting, Atlanta, GA, 4/06.

Relativistic effects in chemistry: The long wavelength photodissociation dynamics of H<sub>2</sub>Te, J. S. Underwood, L. Smith-Freeman, D. Chastaing, S. Lee, and C. Wittig. Poster presented at the Gordon Conference on Molecular Energy Transfer, Buellton, CA, 1/05.

Group VI hydrides: From the lightest to the heaviest, J. S. Underwood, S. Lee, L. Smith, D. Chastaing, and C. Wittig. Poster presented at the 225<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, 4/03.

Vibrationally mediated photodissociation of H<sub>2</sub>O: Probing the H-atom products via high-n Rydberg time-of-flight spectroscopy, J. S. Underwood, D. Chastaing, S. Lee, and C. Wittig. Poster presented at the Dynamics of Molecular Collisions Conference, Copper Mountain, CO, 7/01.

Vibrationally mediated photodissociation of H<sub>2</sub>O, J. S. Underwood, D. Chastaing, J. Partin, and C. Wittig. Poster presented at the Gordon Conference on Molecular Energy Transfer, Ventura, CA, 01/01.

### **Local Conference Presentations**

---

Monoterpene-derived secondary organic aerosol in gas and condensed phases, C Gallop,\* K. Borgognoni,\* A. Barkley,\* and J.S. Underwood. Poster presented at Louisiana ACS Poster Session, Xavier University, New Orleans, LA, 10/2/13.

Water uptake processes of mixed-content atmospherically-relevant nanoparticles, S.-J. Celestin,\* K.-J. Celestin,\* E. Gosciniak,\* H. Harb,\* K. Lambeth,\* and J.S. Underwood. Poster presented at Louisiana ACS Poster Session, Xavier University, New Orleans, LA, 10/27/11.

Role of chemical content in water uptake processes of tropospherically relevant aerosol with diameters <100 nm, H. Fontenot,\* B. Hays,\* A. Girau,\* and J. S. Underwood. Poster presented at the Louisiana ACS Poster Session, Xavier University, New Orleans, LA, 10/15/08.

Electrospray generation of atmospherically relevant ultrafine aerosol particles for water uptake studies, H. Fontenot\* and J. S. Underwood. Poster presented at the Meeting of the Louisiana Local Section of the American Chemical Society, New Orleans, LA, 10/3/07.

### **Invited Seminars, Class Lectures, and Panel Discussions**

---

Predicting the Weather Demonstrations and Experiments, Girl Scouts Louisiana East STEM GSLEtravaganza, Dillard University, New Orleans, LA, 6/21/14.

Women in STEM Presentation, Louise S. McGehee Fourth Graders, New Orleans, LA, 5/23/14.

Chemistry and the Atmosphere, Talk for the New Orleans Community, hosted by the Louisiana ACS group, Fair Grinds Coffee Shop, New Orleans, LA, 5/17/14.

Charged Particles in the Atmosphere, Seminar for the Loyola NASA Balloon Group, Host: P. Garrity, New Orleans, LA, 3/17/14.

---

\* Loyola University undergraduate co-author

Teaching our Students, Panel Discussion at Teaching in the New Common Curriculum: A Faculty Development Workshop, Loyola University New Orleans, 8/19/13.

Keynote Speaker, Louise S. McGehee Lower School Science Day, New Orleans, LA, 12/17/12.

Women in STEM Panel Discussion with L.V. Koplitz, 11/7/12. Host: Student Advocates for Gender Equality, Loyola University New Orleans.

An Atmospheric Chemistry Primer: Adventures in Multidisciplinary Studies, 10/8/12. Host: Department of Chemistry, Loyola University New Orleans.

Team Teaching Seminar, with J. A. Schwartz, M. Calzada, T. Spence, C. Wessinger, and B. Moazami, 11/5/10. Host: Loyola Center for Faculty Innovation.

Spilling the Story, with J. Schwartz, University of Richmond, 10/11/10. Host: Prof. Melissa Ooton. (Seminar located in New Orleans for students visiting from University of Richmond).

Guest Lecture for the Chemistry and Global Climate Change Honors Seminar, 4/15/09. Host: Prof. Lynn Vogel Koplitz, Loyola University, New Orleans, LA.

*How sustainable are we? An atmospheric chemist's perspective*, J. S. Underwood. Presentation and panel discussion at the Green Salon 2008 sponsored by AIGA New Orleans, Loyola University Graphic Design Department and the AIGA Center for Sustainable Design, New Orleans, LA, March 13, 2008.

Guest Lecture for the Chemistry and Global Climate Change Honors Seminar, 2/27/08. Host: Prof. Lynn Vogel Koplitz, Loyola University, New Orleans, LA.

Curve crossings in heavy systems:  $H_2Te$  and  $(HI)_n$ , University of California, Berkeley, 2/25/05. Host: Prof. Kristie Boering.

Relativistic effects in chemistry: The long wavelength photodissociation dynamics of  $H_2Te$ , University of California, Irvine, 2/9/05. Hosts: Profs. Sergey Nizkorodov and Barbara Finlayson-Pitts.

Bond specific photodissociation dynamics of  $(HCl)_2$ , École Polytechnique Fédérale de Lausanne, 7/3/00. Host: Prof. Tom Rizzo.

### **Loyola Undergraduate Research Students Supervised**

---

Anne Barkley, 2013-2015

Kanda Borgognoni, 2013-2014

Kris-Jennyma Celestín, 2010-2013, enrolled in medical school

Sue-Jonnathane Celestín, 2010-2012, enrolled in Northeastern Chemical Engineering Ph.D. program

Julia Falco, 2014

Hunter Fontenot, 2007-2009, enrolled in LSU Petroleum Engineering graduate program

Caleb Gallops, 2013-2014

Alex Girau, 2008-2010, enrolled in Tulane Chemical Engineering Ph.D. program

Elizabeth Gosciniak, 2008-2012, enrolled in LSU-Shreveport Medical School

Helaina Harb, 2011-2013

Brian Hays, 2008-2010, enrolled in Emory Ph.D. program in Chemistry

Alex Krotulski, 2010-2011

Kathryn Lambeth, 2011-2012, enrolled in Tulane University Public Health M.S. program

Ashley Simoneaux, 2011-2013, co-supervised with Professor A. Duggar

### **Other Undergraduate Research Students Supervised**

---

Shannon Koplitz, Summer Internships 2008 and 2010; BA and MA, Stanford; enrolled in Harvard University Earth and Planetary Science Ph.D. program

### **University Service**

---

University Senate Representative, F08-S10, F13, F15-

Mission and Ministry Committee of the Board of Trustees, F14-

College Planning Team, F14, filled in for K. Birdwhistell

Ad Hoc Committee on Academic Structures, Co-Chair with Gwen George, S14-SS14

Academic Advising Council, F13-F14

Ad hoc committee tasked with defining university financial exigency policies and procedures, F13

Retention and Student Success Initiative, Workgroup on Academic and Career Services, Resources, and Programs, S13-SS13

College of Humanities and Natural Sciences Curriculum Committee, F13-present

Ad hoc committee tasked with reviewing and revising university sexual harassment policy, reviewing and revising the non-retaliation policy, and establishment of an ombuds office, S10-2012

Standing Committee on the Common Curriculum, Natural Sciences Alternate, F11-present

Common Curriculum Implementation Committee, Natural Sciences Alternate, F09-S11, full-time member S11

University Board of Review, F08-S14

Study Group on Campus Sustainability, F08-S11

Environmental Studies Faculty Group, F07-present

### **Department Service**

---

Department of Chemistry Faculty Search Committee, F14

Interim Director of the Forensic Chemistry Program, F13-F14

Revise, update, and maintain departmental website, F07-S14

Maintain and repair department instrumentation in support of advanced laboratories and departmental shared research equipment, F07-present

Assisted the department in the major curriculum revision of the B.S. in Forensic Chemistry program (approved F11) and in FEEPAC accreditation application, F10-S12

### **Service to the Field**

---

Referee, *Analytical and Bioanalytical Chemistry*, *Langmuir*, Naval Research Labs, National Science Foundation

### **Professional Development**

---

Khan Academy Workshop, June 2013, Mountain View, CA

Loyola University Ignatian Fellows Program, Spring 2013

Workshop in Forensic Science, Williams College, sponsored by the National Science Foundation Center for Workshops in Chemical Sciences, June 2008

Committee on the Advancement of Women in Chemistry (COACH) Workshop for postdoctoral chemists pursuing academic careers, August 26-27, 2005

### **Professional Memberships**

---

AAUP