

Julia Montoya

376 Rowland Hall, University of California Irvine,
Irvine, California, 92697

(949) 824-7473
jmontoy3@uci.edu

EDUCATION:

University of California, Irvine

Irvine, CA

Expected Year of Graduation: 2020

Major/Degree: Chemistry, Ph.D.

California State University, Los Angeles

Los Angeles, CA

Year of Graduation: 2015

Major/Degree: Chemistry, B. S.

RESEARCH EXPERIENCE:

- **June 2015 - Present: University of California, Irvine, CA**

Graduate Research Assistant, Atmospheric Chemistry Laboratory

PI: Prof. Sergey Nizkorodov

This study aims to investigate the effects of ammonia on secondary organic aerosol (SOA) formation and composition. Systematic chamber studies are conducted and particle growth is monitored via a scanning mobility particle sizer (SMPS). Samples are analyzed via direct analysis in real time mass spectrometry (DART-MS) to elucidate the molecular composition of SOA and determine whether NH_3 actively participates in the formation of SOA, in particular by identifying nitrogen-containing compounds. The results of these studies will inform modelers to better understand and predict NH_3 role in SOA formation for a particular region, and consequently expand our understanding of SOA on climate and air quality.

- **June 2012– June 2015: California State University, Los Angeles, CA**

Undergraduate Research Assistant, Physical Chemistry Laboratory

PI: Prof. Krishna Foster

The research objective aim was to determine the efficiency of pyrene, a polycyclic aromatic hydrocarbon (PAH), to sensitize singlet oxygen and its potential effect on the oxidizing capacity in the lower atmosphere. The experimental method involved training with UV-VIS spectroscopy, a Nd:YG laser, and oscilloscope.

- **June–August 2014: Oregon State University, OR**

Undergraduate Research Assistant, Inorganic Chemistry Laboratory

PI: Prof. Doug Keszler

The focus of the project was to determine whether rare earth (f-orbital) metal oxides exhibit different properties than transition metal oxides. The project consisted of synthesizing, and depositing Holmium clusters to make thin film metal oxides. Characterization of metal clusters and metal oxide thin films involved training with infrared (IR) spectrometry, Raman spectroscopy, small and wide x-ray scattering (SWAXS), dynamic light scattering (DLS), ellipsometry, and temperature desorption- mass spectrometry (TPD-MS).

PUBLICATIONS:

Julia Montoya, Jeremy R. Horne, Mallory L. Hinks, Lauren T. Fleming, Veronique Perraud, Peng Lin, Alexander Laskin, Julia Laskin, Donald Dabdub, and Sergey A. Nizkorodov (2017). Secondary Organic Aerosol from Atmospheric Photooxidation of Indole. *Atmos. Chem. Phys.* (submitted)

Mallory L. Hinks, **Julia Montoya**, Lucas Ellison, Peng Lin, Alexander Laskin, Julia Laskin, Manabu Shiraiwa, Donald Dabdub and Sergey A. Nizkorodov (2017). Effect of relative humidity on the yield and composition of secondary organic aerosol from oxidation of toluene, *Environ. Sci. Technol.* (submitted)

PRESENTATIONS:

- Fall 2016 **Julia Montoya**, Mallory L. Hinks, Sergey A. Nizkorodov, Jeremy R. Horne, and Donald Dabdub. *Effects of Ammonia on SOA Formation and Composition*. Presented at the 2016 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Conference in Long Beach, CA.
- Fall 2016 **Julia Montoya**, Mallory L. Hinks, Sergey A. Nizkorodov, Jeremy R. Horne, and Donald Dabdub. *Effects of Ammonia on SOA Formation and Composition*. Presented at the International Global Atmospheric Chemistry (IGAC) Project 2016 Science Conference in Breckenridge, CO.
- Summer 2015 **Julia Montoya** and Sergey Nizkorodov. *Effects of Ammonia on SOA Formation and Composition*. Presented at the 2015 Summer Research Symposium in Irvine, CA.
- Winter 2015 **Julia Montoya**, Geovani Montoya, Dong Zhang, Matthias Selke, and Krishna Foster. *Identification of Pyrene as a Sensitizer of Singlet Oxygen in the Lower Atmosphere*. Presented at the 23rd Annual Cal State L.A. Student Symposium on Research, Scholarship and Creative Activity in Los Angeles, CA.
- Winter 2015 **Julia Montoya**, Matthew Hardy, and Doug Keszler. *Hydrophilicity of Holmium Oxide Thin Films: Characterization of Ho-cluster Solution and Thin Films*. Presented at the MORE Programs Seminar in Los Angeles, CA.
- Fall 2014 **Julia Montoya**, Geovani Montoya, Dong Zhang, Matthias Selke, and Krishna Foster. *Identification of Pyrene as a Sensitizer of Singlet Oxygen in the Lower Atmosphere*. Presented at the 2014 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Conference in Los Angeles, CA.

- Summer 2014: **Julia Montoya**, Matthew Hardy, and Doug Keszler. *Characterization of Ho-cluster Solution and Thin Film*. Presented at the CSMC Undergraduate Student Symposium in Corvallis, OR.
- Winter 2014: **Julia Montoya**, Geovani Montoya, Dong Zhang, Matthias Selke, and Krishna Foster. *Identification of Pyrene as a Sensitizer of Singlet Oxygen in the Lower Atmosphere*. Presented at the MORE Programs Symposium in Los Angeles, CA.
- Summer 2013: **Julia Montoya**, Geovani Montoya, Dong Zhang, Matthias Selke, and Krishna Foster. *Identification of Pyrene as a Sensitizer of Singlet Oxygen in the Lower Atmosphere*. Presented at the MORE Programs Symposium in Los Angeles, CA.
- Spring 2013: **Julia Montoya** and Krishna Foster. *Identification of Benzo[a]pyrene-1,6-dione as a Sensitizer of Singlet Oxygen in the Lower Atmosphere*. Presented at the MORE Programs Symposium in Los Angeles, CA.
- Winter 2013: Delmy Escobar, **Julia Montoya**, and Vincent Espinoza. *Pollution in Central LA and Central SB Valley: Monitoring NO₂ and O₃*. Presented at the CSULA Honors College Symposium in Los Angeles, CA.
- Summer 2012: Maria Vazquez, **Julia Montoya**, and Krishna Foster. *Reduced Phosphorus Oxyanions Speciation in Ancient Rocks*. Presented at MORE Programs Symposium in Los Angeles, CA.

AWARDS:

- 2017-2020: NSF-GRFP Fellowship
- 2017: Ford Foundation Pre-doctoral Fellowship - Honorable Mention
- 2015-2017: LSAMP-BD Fellowship
- 2015-2016: Chemistry at the Space-Time Limit (CaSTL) Diversity Fellowship
- 2014-2015: Dean's List
- 2013-2015: NIH MARC U*STAR Fellowship
- 2013-2014: Rashad E. Razouk Chemistry Scholarship
- 2012-2013: NIH RISE Scholarship
- 2012-2013: Dean's List
- 2011-2012: Dean's List
- 2010-2011: Dean's List
- 2009-2010: General Education Honors

PROGRAMS:

- 2015- Present: NSF UC Irvine Bridge to the Doctorate (LSAMP-BD) Program

- 2015- Present: Iota Sigma Pi (ISP) Calcium Chapter of the National Honor Society for Women in Chemistry
- Summer 2015: Competitive Edge Summer Research Program
- 2013-2015: Minority Access to Research Careers-Undergraduate Student Training for Academic Research (NIH MARC U*STAR)
- Summer 2014: The Center for Sustainable Materials Chemistry (CSMC) Undergraduate Summer Research Program
- 2012-2013: Louis Stokes Alliance for Minority Participation (LSAMP)
- 2012-2013: Minority Biomedical Research Support-Research Initiative for Scientific Enhancement (NIH-MBRS-RISE Undergraduate) Program