

Eleanor Castracane

Instrument Development · Laser Spectroscopy · Data Analysis

CONTACT

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EDUCATION

Ph.D. in Physical Chemistry

University of California San Diego

La Jolla, California

09/2017 - Expected Fall 2023

M.S. in Chemistry

Stony Brook University

Stony Brook, New York

09/2016 - 05/2017

B.S. in Chemistry

Stony Brook University

Stony Brook, New York

09/2012 - 08/2016

Study Abroad

Freie Universität Berlin

Berlin, Germany

07/2016 - 08/2016

SKILLS

Instrumentation Design · Development
· Optimization

Mass Spectrometry Electrospray
Ionization · Time-of-Flight · Reflectron ·
Quadrupole · Tandem MS

Laser Spectroscopy UV Photoelectron ·
Photofragment · IR

Mechanical Design CAD Software ·
Machine drawings

Data Analysis Matlab · IDL · LabVIEW

Simulation Software SIMION

Computation Software Gaussian09

Languages English (fluent) · American
Sign Language (intermediate)

SUMMARY

- Ph.D. researcher with over 5 years experience in instrument design and augmentation
- Commitment to answering scientific questions through novel technique development
- Possesses detailed analytical chemistry skills with a penchant for workplace safety

EXPERIENCE

Doctoral Researcher - University of California San Diego

01/2018 - Present

- Devised and carried out unique spectroscopic experiments to study atmospherically relevant organic acid anions
- Designed, simulated, and successfully implemented multiple mechanical modifications to the custom-built instrument to facilitate ion formation
- Designed and coded an approximation to a three-body problem

Postgraduate Researcher - Stony Brook University

05/2017 - 08/2017

- Mentored an undergraduate student in successfully modifying a commercially available mass spectrometer to study deuteration effects on aerosol clusters

Graduate Researcher - Stony Brook University

09/2016 - 05/2017

- Conducted mass spectrometric studies of amine substitution in atmospherically relevant aerosol clusters
- Developed a visualization tool for comparing cluster stability and charge as a function of size

PUBLICATIONS

- 7 **Castracane, E.**; Hanold, K.A.; Continetti, R.E. "Two- and three-body dissociative photodetachment dynamics of α -keto acid anions." *In preparation*.
- 6 Gibbard, J.A.; **Castracane, E.**; Krylov, A.I.; Continetti, R.E. "Photoelectron photofragment coincidence spectroscopy of aromatic carboxylates: benzoate and p-coumarate." *Phys. Chem. Chem. Phys.*, **2021**, 34 (23), 18414.
DOI: 10.1039/D1CP02972J
- 5 Gibbard, J.A.; **Castracane, E.**; Continetti, R.E. "Photoelectron-photofragment coincidence spectroscopy of the mixed trihalides." *J. Chem. Phys.*, **2020**, 153 (5), 054304.
DOI: 10.1063/5.0014253
- 4 Gibbard, J.A.; **Castracane, E.**; Shin, J.A.; Continetti, R.E. "Dissociative photodetachment dynamics of the oxalate monoanion." *Phys. Chem. Chem. Phys.*, **2020**, 22 (3), 1427-1436.
DOI: 10.1039/C9CP05338G
- 3 Waller, S.E.; Yang, Y.; **Castracane, E.**; Kreinbihl, J.K.; Nickson, K.; Johnson, C.J. "Electrospray Ionization-Based Synthesis and Validation of Amine-Sulfuric Acid Clusters of Relevance to Atmospheric New Particle Formation." *J. Am. Soc. Mass Spectrom.*, **2019**, 30 (11), 2267-2277.
DOI: 10.1007/s13361-019-02322-3
- 2 Gibbard, J.A.; Shin, A.J.; **Castracane, E.**; Continetti, R.E. "A high beam energy photoelectron-photofragment coincidence spectrometer for complex ions." *Rev. Sci. Instrum.*, **2018**, 89 (12), 123304.
DOI: 10.1063/1.5074112
- 1 Waller, S.E.; Yang, Y.; **Castracane, E.**; Racow, E.; Kreinbihl, J.; Nickson, K.; Johnson, C.J. "The Interplay Between Hydrogen Bonding and Coulombic Forces in Determining the Structure of Sulfuric Acid-Amine Clusters." *J. Phys. Chem. Lett.*, **2018**, 9 (6), 1216-1222.
DOI: 10.1021/acs.jpcclett.8b00161