

- Education**
- Ph.D., Physical Chemistry**, Princeton University **Jun 2015**
“A Diode Laser Study of the Catalytic Oxidation Dynamics of Acetaldehyde on Polycrystalline Platinum”
Advisers: Steven Bernasek and Annabella Selloni
- B.Sc., Chemistry**, University of Virginia **May 2009**
“A Photochemically Activated, Oxygen Consuming TiO_x Sol-Gel Film”
Adviser: John T. Yates, Jr.
- I. E. S. Paris and l’Université de Paris IV - Sorbonne** **Sep - Dec 2006**
Courses (in French) at the I.E.S. Paris Center and l’Université de Paris IV - Sorbonne.
- Research Experience**
- Postdoctoral Research**, University of Texas at Austin **Oct 2015 - Present**
Adviser: Carlos Baiz
Investigation of ethyl acetate solvation dynamics and the conformational dynamics of calcium-sensing protein calmodulin using ultrafast 2DIR spectroscopy, molecular dynamics simulations, and FTIR. Notable experience includes:
- Building a new ultrafast 2DIR spectrometer and writing original data acquisition and control software.
 - Mentoring several undergraduate and graduate students.
 - Interpreting FTIR and 2DIR spectra using molecular dynamics simulations to develop detailed models of solvation and conformational dynamics.
- Ph.D. Research**, Princeton University **Sep 2009 - Sep 2015**
Study of oxidation dynamics on Pt surfaces using state-resolved infrared laser absorption spectroscopy and mass spectrometry. Notable experience includes:
- Investigating reaction dynamics through concerted study of product CO₂’s rotational-vibrational state population and mass spectrometry of the product stream.
 - Rebuilding the research group’s flow reactor system and building a thermal desorption spectroscopy (TDS) system using parts available in our lab.
 - Writing original software in Python and LabView for the efficient processing and analysis of experimental data, most notably for state-resolved infrared spectra.
- Undergraduate Research**, University of Virginia **Sep 2007 - May 2009**
Research in the lab of Professor John T. Yates, Jr. on multiple surface science research projects involving:
- Infrared and UV/VIS spectroscopy of titanium sub-oxide films
 - TDS studies of organic molecules on single-walled carbon nanotubes
- Teaching Experience**
- NSC 088L/NSC 088T Mentored Teaching Experience** **Sep 2016 - May 2017**
College of Natural Science, University of Texas at Austin
- Senior Graduate Fellow** **May 2013 - Jun 2015**
McGraw Center for Teaching and Learning, Princeton University

Graduate Fellow **May 2012 - May 2013**
McGraw Center for Teaching and Learning, Princeton University

Resident Graduate Student **Sep 2010 - May 2014**
Butler Residential College, Princeton University

Teaching Assistant **Sep 2010 - May 2012**
Departments of Chemistry and Near Eastern Studies, Princeton University

Teaching Assistant **Jan 2008 - May 2008**
Department of Chemistry, University of Virginia

Awards and Honors National Society of Collegiate Scholars Phi Eta Sigma National Honor Society
Golden Key National Honors Society

Technical Skills **Experimental design:** Optics and ultrafast lasers; design, construction, and maintenance of UHV apparatus and instrumentation; basic machining
Experimental techniques: Ultrafast spectroscopy, FTIR, laser absorption spectroscopy, mass spectrometry, XPS, STM, SEM, TDS
Computer languages: C, Python, MATLAB, Java, OpenMP, PHP, SQL, LabView, HTML, CSS

Publications **Edington, SC** and Baiz, CR. "Vibrational relaxation in EDTA is ion dependent". In preparation.

Edington, SC and Bernasek, SL. "Elucidating the reaction dynamics of catalytic acetaldehyde oxidation on polycrystalline platinum". In preparation.

Edington, SC and Bernasek, SL. "An asynchronous data collection scheme yielding signal enhancement for scanned IR laser spectroscopy". Submitted.

Edington, SC; Gonzalez, A; Middendorf, TR; Halling, BD; Aldrich, RW, and Baiz, CR. "Coordination to trivalent lanthanide ions distorts binding site conformation in calmodulin". Proc. Natl. Acad. Sci. U.S.A, 2018, In press.

Edington, SC; Flanagan, JC; Baiz, CR. "An Empirical IR Frequency Map For Ester C=O Stretching Vibrations". J. Phys. Chem. A, 2016, 120 (22), pp 3888-3896.

Li, JG; Kim, S; **Edington, S**; Nedy, J; Cho, S; Lee, K; Heeger, AJ; Gupta, MC; Yates, JT. "A study of stabilization of P3HT/PCBM organic solar cells by photochemical active TiOx layer". Sol. Ener. Mat. Sol. Cells, 2011, 95 (4), pp 1123-1130.

Buttner, M; Xiao, L; Mandetort, L; **Edington, S**; Johnson, JK; Yates, JT. J. "Enhancement of Adsorption Inside Single Walled Carbon Nanotubes - Li Doping Effect on n-Heptane van der Waals Bonding". Phys. Chem. C, 2009, 113 (12), pp 4829-4838.

Edington, S. "Temperature-Programmed Desorption of n-Heptane from Single-Walled Carbon Nanotubes". The Virginia Journal of Undergraduate Research, Spring 2008.

Presentations "Revealing the dynamics that control protein and biomolecule activity using FTIR and ultrafast 2DIR spectroscopy in combination with molecular dynamics simulations" **Edington, SC**; Middendorf, TR; Aldrich, RW; and Baiz, CR. Poster at 254th ACS National

Meeting, Aug 20-24, 2017, Washington, DC.

“Active, exploratory learning in physics, chemistry, and biology through cutting-edge biophysics research” **Edington, S.** Oral presentation at Austin Area STEM Conference, Aug 2-5, 2016, Austin, TX.

“Elucidating the mechanism of heterogeneous acetaldehyde oxidation on polycrystalline platinum through flow cell studies” **Edington, S** and Bernasek, SL. Oral presentation at 76th Physical Electronics Conference, Jun 20-23, 2016, Fayetteville, AR.

“An Empirical IR Frequency Map For Ester C=O Stretching Vibrations” **Edington, SC**; Flanagan, JC; Baiz, CR. Poster at Southwest Ultrafast Conference, Jun 16-17, 2016, Austin, TX.

“Probing catalytic oxidation dynamics on platinum with state-resolved diode laser spectroscopy” **Edington, S.** Talk given at U.T. - Austin Department of Chemistry, Sep 18, 2015, Austin, TX.

“Probing catalytic oxidation dynamics on platinum with state-resolved diode laser spectroscopy” **Edington, S.** Talk given at Harvard Department of Chemistry, Aug 11, 2015, Cambridge, MA.

“Internal energy of CO₂(g) formed by the catalytic oxidation of acetaldehyde on a polycrystalline platinum surface” **Edington, S** and Bernasek, SL. Oral presentation at 74th Physical Electronics Conference, Jun 25-27, 2014, LaCrosse, WI.

“Eddy Covariance Measurements of CO₂ and Water Vapor Fluxes in a Heterogeneous Landscape on the Princeton University Campus” **Edington, S** and Smith, J. Poster at Mid-Infrared Technologies for Health and the Environment Workshop, Aug 5-10, 2007, Princeton, NJ.

**Professional /
Community
Activities**

American Chemical Society (Mar 2009 - Present)
American Association for the Advancement of Science (Mar 2009 - Present)
American Physical Society (Aug 2015 - Present)
Princeton University Graduate Student Government (Nov 2011 - Jun 2015)
President Mar 2014 - Mar 2015
Chemistry Graduate Student Organization (Jan 2010 - Jun 2015)
President Jun 2011 - Jun 2012