**Aaron Woods Harrison**
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## Education

**Ph.D., Physical Chemistry** *December 2014*
*University of California, Berkeley***,** Berkeley, CA

**B.Sc., Chemistry** *May 2008*
*University of British Columbia*, Vancouver, BC

## Appointments

**Schmid College Teaching and Research Fellow** *June 2018-Present*
*Chapman University***,** Orange, CA

**Post-doctoral Researcher** *September 2015-May 2018*
*University of New South Wales*, Sydney, NSW

**Chemistry Laboratory Lecturer** *September 2014-May 2015*
*Mills College*, Oakland, CA

## Research Experience

**Schmid College Teaching and Research Fellow** *June 2018-Present*
***Chapman University***
***Faculty Mentor:* Professor Warren De Bruyn (Schmid College of Science and Technology)**
- Studied aqueous photochemistry in actinic UV with experimental techniques including UV-Vis, GC-MS, and ESI-MS as well as used theory to study excited state reactions in aqueous environments (1 article)
- Supervised undergraduate students in summer research projects involving photochemical experiments

**Post-doctoral Researcher** *September 2015-May 2018*
***University of New South Wales***
***Research Adviser:* Professor Scott Kable (Head of School of Chemistry)**
- Characterized the photolysis of carbonyls using velocity-map imaging and FTIR spectroscopy. Performed *ab initio* calculations on reaction thermochemistry/mechanisms (2 articles, 2 as primary author)
- Mentored undergraduate and graduate students to become independent researchers and guided these students with their research direction and in the thesis writing process

**Visiting Researcher** *April 2017 - June 2017*
***National Chiao Tung University***
***Research Adviser:* Professor Yuan-Pern Lee (Department of Applied Chemistry)**
- Applied step-scan FTIR emission spectroscopy to investigate radical reactions with $O_2$ as well as theoretical methods to characterize oxidation pathways and performed kinetics calculations

**Graduate Student Researcher** *2009 - 2014*
***University of California, Berkeley***
***Research adviser*: Professor Daniel Neumark (Department of Chemistry)**
- Photochemical studies of radicals to measure previously unstudied species and used theoretical methods to determine reaction mechanism/kinetics (5 articles, 3 as primary author)

**Undergraduate Student Researcher** *2007-2008*
***University of British Columbia, Vancouver***
***Research adviser*: Professor Ed Grant (Department of Chemistry)**
- Completed Honors project including graduation thesis and oral seminar/defense

## Peer-Reviewed Publications

1. Photochemistry and Optical Properties of Laboratory Mimics of Atmospheric Brown Carbon. **A. W. Harrison** and W. J. de Bruyn. *Atmospheric Environment, In Preparation* (2019).

2. Computational Study of Photodecarboxylation Mechanisms of Glyoxylic Acid. **A. W. Harrison.** *Computational and Theoretical Chemistry, In preparation* (2019).

3. "Dynamics and Quantum Yields of $H_2$ + $CH_2CO$ as a Primary Photolysis Channel in $CH_3CHO$." **A.W. Harrison**, A. Kharazmi, M. F. Shaw, M. S. Quinn, M. J. T. Jordan and S. H. Kable. *Phys Chem Chem Phys., Advance Article* (2019).

4. "Biological Degradation of Ethanol in Southern California Coastal Seawater." W. J. de Bruyn, C. D. Clark, Mary Senstad, N. Toms, **A. W. Harrison**. *Marine Chemistry, In Review.* (2018).

5. "Photodissociation Dynamics of Propanal and Isobutanal: The Norrish Type I Pathway." **A.W. Harrison** and S. H. Kable. *J. Chem. Phys.* **148**, 164308 (2018).

6. "Photodissociation Dynamics of Methyl Perthiyl Radical at 248 and 193 nm." **A.W. Harrison**, M. Ryazanov, E. Sullivan, D.M. Neumark *J. Chem. Phys.* **145**, 024305 (2016).

7. "Investigation of 3-fragment photodissociation of $O_3$ at 193 and 157 nm by coincident measurements." M. Ryazanov, **A.W. Harrison**, G. Wang, P.E. Crider, D.M. Neumark *J. Chem. Phys.* **140**, 234304 (2014).

8. "Photodissociation Dynamics of the Thiophenoxy Radical at 248, 193, and 157 nm." **A. W. Harrison**, J. S. Lim, M. Ryazanov, G. Wang, S. Gao, D. M. Neumark, *J. Phys. Chem. A* **117**, 11970-11978 (2013)

9. "Three-body photodissociation dynamics of $I_2^-(CO_2)$." **A. W. Harrison**, J. S. Lim, P. E. Crider, D. M. Neumark, *Chem. Phys. Lett.* **512**, 30-34 (2011)

10. "Two- and three-body photodissociation dynamics of diiodobromide ($I_2Br^-$) anion." P. E. Crider, **A. W. Harrison**, D. M. Neumark, *J. Chem. Phys.***134**, 134306 (2011)

## Popular Articles

1. *Lessons from Spider-Man: How video games could change college education*. **Aaron W. Harrison** *The Conversation*, January 2019.

2. *Healthy Squeeze.* **Aaron Harrison**, *Berkeley Science Review*, Spring 2013 issue.

3. Book Review: *Heisenberg in the Atomic Age*. **Aaron Harrison,** *Berkeley Science Review*, Fall 2012 issue.

## Conference Oral Presentations

1. **A.W. Harrison**, S.H. Kable. "Aliphatic Aldehydes as Photolytic Sources of $H_2$ in the Atmosphere" *AMOS Southern Hemisphere Meteorology and Oceanography*, February 2018.

2. **A.W. Harrison**, S. H. Kable. "Aliphatic Aldehydes as Photolytic Sources of $H_2$ in the Atmosphere" *Royal Australian Chemical Institute Conference*, July 2017.

## Conference Poster Presentations

1. **A.W. Harrison**, S. H. Kable. "Ion Imaging Studies of Acetaldehyde Photodissociation."
*Gordon Research Conference: Gaseous Ions*, February 2019.

2. **A.W. Harrison**, S. H. Kable. "$CH_2CO+H_2$: A New Photochemical Channel of Acetaldehyde."
*Pacific Conference of Spectroscopy and Dynamics*, January 2017.

3. **A.W. Harrison**, S. H. Kable. "$CH_2CO+H_2$: A New Photochemical Channel of Acetaldehyde."
*Royal Australian Chemical Institute Physical Chemistry Student Conference*, September 2016.

4. **A.W. Harrison**, J.S. Lim, D.M. Neumark. "Photodissociation of thiophenoxy radical ($C_6H_5S$)." *32nd International Symposium on Free Radicals*, July 2013.

5. **A.W. Harrison**, D.M. Neumark. "Three-body photodissociation dynamics of $I_2^-(CO_2)$."
*Gordon Research Conference: Gaseous Ions*, March 2011.

6. **A.W. Harrison**, D.M. Neumark. "Two- and three-body photodissociation dynamics of $I_2Br^-$."
*Gordon Research Conference: Atomic and Molecular Interactions*, July 2010.

## Teaching Experience

**Schmid College Teaching and Research Fellow** *June 2018-Present*
***Chapman University, Schmid College of Science and Technology***

- Instructor in the *Grand Challenges Initiative*, a discussion- and project-based learning course for freshman science students
- Prepared short PowerPoint lectures, conducted discussions on assigned reading and writing assignments, and supervised students on team-based projects over the course of the semester

**Chemistry Laboratory Lecturer** *September 2014-May 2015*
***Mills College, Department of Chemistry***

- Prepared PowerPoint pre-laboratory lectures, instructed students in the use of basic chemistry laboratory techniques and instrumentation
- Developed grading rubric for laboratory reports for general chemistry course, held weekly regular office hours to assist students in analysis and interpretation of results

**Graduate Student Instructor** *2009-2013*
***University of California, Berkeley, Department of Chemistry***

- Designed recitation sections, wrote examination questions, administered examinations, evaluated student work, and instructed students in error analysis and basic statistics
- Courses taught: general and honors general chemistry; introductory chemistry laboratories, advanced physical chemistry

## Awards and Honors

**Golden Key International Honour Society (Top 15% of graduating class)** *2008*
**Chemical Sciences Seminar Presenter**, Lawrence Berkeley National Laboratory *2013*
**AirUCI Seminar Presenter**, University of California-Irvine *2019*