

David W.H. Swenson

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Education

- 2005-Present **University of California, Berkeley**, *Doctor of Philosophy*.
Field: Physical Chemistry, Advisor: William H. Miller
- 2003-2005 **Université Louis Pasteur**, *Diplôme d'Études Universitaires Générales*.
Field: Mathématiques, Informatique, et Applications aux Sciences
Undergraduate degree in "mathematics, computer science, and applications to the sciences"
from one of the top five universities in France.
- 1999-2003 **The Colorado College**, *Bachelor of Arts*.
Majors: Chemistry, French Literature, and Physics
- 1998-1999 **Indiana University-Purdue University, Indianapolis**.
Upper-division classes in French taken concurrently with senior year in high school.

Publications

- David W.H. Swenson, Heather M. Jaeger, and Clifford E. Dykstra. "Clustering of molecular hydrogen around benzene." *Chem. Phys.* **326** (2006) 329-334.
- Heather M. Jaeger, David W.H. Swenson, and Clifford E. Dykstra. "Feature Article: Remarkable Features in the Interactions of Quadrupolar Molecules." *J. Chem. Phys. A* **110** (2006) 6399-6407.

Awards

- 1999-2003 **Otis A. and Margaret T. Barnes Scholarship**, *The Colorado College*.
A four-year, full-tuition scholarship for chemistry majors.
- 1999-2003 **Central Newspapers Foundation Scholarship**, *Central Newspapers Foundation*.
A four-year, \$10,000 scholarship for children of employees of Central Newspapers, Inc.

Teaching Experience

- Fall 2007 **Advanced Quantum Mechanics**, *Teaching Assistant*.
Instructor: Daniel M. Neumark (University of California, Berkeley)
Graduate-level course taken by most physical chemistry graduate students.
- Fall 2006 **Physical Chemistry**, *Teaching Assistant*.
Instructors: William H. Miller and Haw Yang (University of California, Berkeley)
Undergraduate course which introduces chemistry majors to quantum mechanics.
- Fall 2005 **General Chemistry**, *Teaching Assistant*.
Instructors: Richard Saykally, Mark Kubinec, and Michelle Douskey
(University of California, Berkeley)
Introduction to chemical principles for non-majors.
- 2003-2004 **English Assistant**, *Lycée Le Corbusier (Illkirch, France)*.
Taught English (as a foreign language) in a French high school focused on construction-related employment. My students ranged from housepainter apprentices to those who planned to become architects and designers.

Research Employment Experience

- 2005-Present **University of California, Berkeley.**
Field: Theoretical Chemistry, Advisor: William H. Miller
Developed methods to include constrained molecular systems in the semiclassical initial value representation.
- Sept 2008 – Jan 2009 **D. E. Shaw Research, LLC, New York, NY.**
Field: Theoretical Chemistry/Computational Biology, Manager: John Klepeis
Developed code to calculate autocorrelation functions for velocity and orientation using a parallel framework based on Google's Map-Reduce architecture. Applied my code to verify selfdiffusion, viscosity, and orientational correlation of a novel water model, and to compare with pre-existing water models. Began applications toward heptane models.
- Summers 2003-2005 **Indiana University-Purdue University Indianapolis.**
Field: Theoretical Chemistry, Advisor: Clifford E. Dykstra
Developed a potential energy surface to describe the clustering of molecular hydrogen around a single benzene molecule. Used that model to study clusters of up to 20 hydrogen molecules around benzene.
- Summer 2002 **Université Bordeaux I.**
Field: Theoretical Chemistry, Advisors: Jean-Claude Rayez and Laurent Bonnet
Began work on a quasiclassical trajectory simulation to determine product state distributions from the associative desorption of hydrogen from a Pt(1 1 1) surface.
- Summer 2001 **University of Oregon.**
Field: Theoretical Chemistry, Advisor: Jeffrey A. Cina
Studied the potential energy surface of the I₂-Ar system in preparation for theoretical studies of the pump-probe spectroscopy of I₂ in an argon matrix. Analyzed the viability of using a computer algebra system as a tool in theoretical chemistry.
- Summer 2000 **The Colorado College.**
Field: Natural Product Synthesis, Advisors: Nick Drapela and Ted Lindeman
Helped the development of the synthesis of sequoiatone A, a natural product with some anti-tumor properties, particularly against breast cancer.

Posters and Presentations

- David W.H. Swenson and Cristian Predescu. "A Method for Solving Poisson Problems." Mini Statistical Mechanics Meeting: Berkeley, California. January 12-14, 2007. (Poster)
- David W.H. Swenson, Laurent Bonnet, and Jean-Claude Rayez. "The State Distribution of the Associative Desorption of H₂ from a Pt(1 1 1) Surface." 2002 Undergraduate Research Poster Session: Gainesville, Florida. October 25-27, 2002. (Poster)
- David W.H. Swenson and Jeffrey A. Cina. "Exploring the Ground State Potential of I₂-Ar." Inter-REU Workshop: 1st US/France Chemistry and Communication Meeting: Strasbourg, France. June 13-15, 2002. (Poster)

Service and Volunteer Activities

- 2002-2003 **Student Representative to Department Meetings, The Colorado College.**
Elected by fellow students to represent their interests at Chemistry Department meetings. Organized student involvement in the hiring of a new professor.
- 2000-2003 **Kids' Science Day, The Colorado College.**
Program to introduce elementary school students to fun parts of science. Helped organize the first annual event, and served as counselor or chemistry/physics demonstrator every year.
- 1999-2003 **Student Affiliates of the American Chemical Society, The Colorado College.**
Served in several roles, including editor of the department newsletter, outreach coordinator, co-coordinator of National Chemistry Week activities, and executive vice president.