

Veronica Aguilar-Guerrero
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EDUCATION

PhD, Chemical Engineering, University of California Davis, December 2008

MS, Chemical Engineering, University of California Davis, May 2007

BS, Chemical Engineering, Mexico National Autonomous University (UNAM), December 2002

EXPERIENCE

Graduate Researcher, Dept. of Chemical Engineering, UCD, September 2003-Present

- Performed and designed catalytic experiments to test catalysts' performance in emissions control and to understand their chemical behavior.
- Worked in multidisciplinary teams to analyze complementary information gathered from various experimental techniques and achieve a better understanding of chemical systems.
- Trained and supervised new graduate and undergraduate students.
- Performed troubleshooting and minor repairs of laboratory equipment.
- Worked in collaboration with researchers in a cross-disciplinary environment to publish scientific papers.
- Worked with vendors to get quotes and purchase laboratory equipment and supplies.
- Worked at various national laboratories on 15 research trips as part of a research team.
- Arranged meeting logistics and tours for potential graduate students.
- Synthesized supported catalysts and metal oxides.
- Manipulated air- and moisture-sensitive samples.
- Characterized materials with spectroscopic techniques: X-Ray Absorption and Infrared spectroscopies.
- Infrequently used other characterization techniques such as BET surface area measurement techniques and X-Ray Diffraction.
- Analyzed Extended X-Ray Absorption Fine Structure (EXAFS) and X-Ray Absorption Near Edge Structure (XANES) data.

Instructor, Los Rios Community College, September to December 2007

- Taught General Chemistry for freshmen students. Lead Instructor at Sacramento City College, Davis Center.
- Designed lectures, held office hours, designed and graded tests.
- Developed homework problem sets and arranged homework assignments to best illustrate and reinforce lecture concepts.
- Promoted in-class discussion of homework assignments.
- Motivated students to participate to solve problems in class and to ask questions.
- Developed effective strategies to promote teacher-student interactions.

Teaching assistant, University of California, Davis, September 2004 - July 2005

- Courses included: Catalysis, Material Balances, Mathematical Methods, Heat Transfer, Kinetics & Reaction Engineering and Chemical Engineering Lab.
- Held office hours, designed and graded homework assignments.
- Led discussion sections to help students with homework assignments.
- Set up laboratory equipment, e.g. gas chromatographer, reaction setup, etc.
- Trained new students in laboratory techniques, equipment, and safety.
- Supervised experiments to ensure safety procedures in the laboratory.

Instructor, Mexico City, Mexico National Autonomous University (UNAM)

- Taught Calculus, Algebra and Chemistry at High school level. January-August 2003.
- Taught Chemistry and Mathematics at High school level at the UNAM Adults School, January 2000-August 2001.
- Designed course material and gave lectures.
- Designed tests and evaluation.

ASSOCIATIONS

AIChE member since October 2006.

Toastmasters International member since June 2007.

TECHNICAL SKILLS**Laboratory**

IR Spectroscopy, Gas Chromatography, Mass Spectrometry, Manipulation of air- and moisture-sensitive samples. Windows. Fortran, Visual Basic.

Languages

Bilingual: Spanish – English

German: Intermediate knowledge

HONORS AND AWARDS

- UC MEXUS Fellow 2005-present
- CONACyT Fellow 2003-present
- Graduated with Honors from B.S. at UNAM (Academic, research and dissertation excellency), (2002)
- Telmex Fellowship (1997-2002)
- Probetel Fellowship (Research Thesis project) (2002)
- Education Abroad Exchange Program (University of California, Santa Barbara (UCSB), Fall 2001)
- Chemical Engineers and Chemists Association Fellowship (1999-2002)

PUBLICATIONS

“Increasing Oxygen Vacancies on TiO₂ by Doping with Iron Activates Oxygen and Increases Catalytic Activity of Supported Gold” S. Carrettin, Y. Hao, V. Aguilar-Guerrero, B. C. Gates, S. Trasobares, J. J. Calvino, Avelino Corma, in Chemistry: A European Journal, **2007**, 7771-7779.

“Genesis of a highly active cerium oxide-supported gold catalyst for CO oxidation” V. Aguilar-Guerrero, B. C. Gates, *Chem. Commun.*, **2007**, 3210-3212.

“Influence of CO and O₂ treatments on the structure and activity of Au/γ-Al₂O₃ catalysts for CO oxidation” J. Guzman, J. C. Fierro-Gonzalez, V. Aguilar-Guerrero, Y. Hao, B. C. Gates, Zeitschrift für Physikalische Chemie, **2005**, 219, 921-938.

“Kinetics of CO oxidation catalyzed by highly dispersed CeO₂-supported gold” V. Aguilar-Guerrero, B. C. Gates, Journal of Catalysis, **2008**, 260, 351.

“Genesis of a cerium oxide supported gold catalysts for CO oxidation: Transformation of mononuclear gold complexes into clusters as characterized by X-Ray Absorption Spectroscopy” V. Aguilar-Guerrero, R. Lobo-Lapidus, B. C. Gates, Journal of Physical Chemistry C, **2009**, 113, 3259.

Kinetics of CO Oxidation Catalyzed by Supported Gold: A Tabular Summary of the Literature V. Aguilar-Guerrero, B. C. Gates, Catalysis Letters, in press.

PRESENTATIONS

- Universidad Nacional Autonoma de Mexico, Facultad de Quimica, November 11th, 2008.
- Universidad de Guadalajara, Departamento de Madera, Celulosa y Papel. November 7th, 2008.
- International Symposium on Relations between Homogeneous and Heterogeneous Catalysis (ISHHC XIII), Berkeley, CA, July 16-20, 2007
- North American Catalysis Meeting (NAM), Houston, Texas, June 17-22, 2007
- IV San Luis Symposium and Summer School on Surfaces, Interfaces and Catalysis, Cuernavaca, Mexico, April 14-23, 2007
- American Institute of Chemical Engineers (AIChE) Meeting, San Francisco, CA, November 12-18, 2006