

**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 TiO<sub>2</sub> 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 O<sub>2</sub> treatments on the structure and activity of Au/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> 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 CeO<sub>2</sub>-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 11<sup>th</sup>, 2008.
- Universidad de Guadalajara, Departamento de Madera, Celulosa y Papel. November 7<sup>th</sup>, 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