

Hui Yan, Assistant Professor

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EDUCATION

- December 2011 **Ph.D.** in Environmental Chemistry. Advisor: Professor Liang T. Chu, University at Albany, State University of New York.
- July 2005 **M.S.** in Physical Chemistry. Advisors: Professors Xia Guo and Rong Guo, Yangzhou University, Yangzhou, P. R. China
- July 2002 **B.S.** in Chemistry and Chemistry Education. Yangzhou University, Yangzhou, P. R. China.

TEACHING EXPERIENCE

- 2013 Spring **Course Manager**, General Chemistry II.
Department of Chemistry and Biochemistry, University of South Carolina (USC).
Taught recitation lectures for 100 students (4 sections), designed and graded quizzes weekly, assisted in creating exams, proctored and graded exams, for 200 undergraduates including students majoring in chemistry. Maintained familiarity with course content and class progress in General Chemistry. Worked with the instructor in training and supervising teaching assistants.
- 2004 **Teaching Assistant**, Physical Chemistry Laboratory.
School of Chemistry and Chemical Engineering, Yangzhou University.
Instructed Physical Chemistry Laboratory courses for undergraduates (~ 40) majoring in chemistry and chemical engineering. Demonstrated and taught lab experiments, conducted and coordinated student assessment and feedback, graded lab reports and gave final grades. Sample experiments included: the determination of refractive index of cane sugar solution, the determination of electric conductivity of KCl solution, etc.
- 2003-2004 **Student Mentor**, undergraduate thesis (2).
School of Chemistry and Chemical Engineering, Yangzhou University.
Designed the initial research experiments, maintained the physical facilities; trained students on how to operate instruments, assisted students with data analysis and writing theses.
- 2002-2004 **Supplemental Instructor**, undergraduate English.
School of Chemistry and Chemical Engineering, Yangzhou University.
Integrated course content (what to learn) with study strategies (how to learn), solved problems, and gave study sessions to the undergraduates (~ 70, two classes).
Discussed difficult concepts with students, helped students to prepare for tests and exams, such as College English Tests (CET-4 and CET-6), as well as their daily English practices including reading, listening and writing.
- 2002 **Student Teacher**, bilingual high school chemistry.
High school affiliated with Yangzhou University.
Designed and taught a bilingual (Chinese and English) high school chemistry course.
Performed one open class to all high school chemistry teachers in Yangzhou city.
- 2002 **Teacher Certification**, high school and middle school chemistry course.
Valid to teach in any high and/or middle school at Jiangsu province of China.

RESEARCH EXPERIENCE

- Oct, 2013 to August, 2015 **Research Associate**, “*Development of X-ray Assisted STM*”, with Dr. Evgeny Nazaretski, NSLS-II, Photon Sciences Directory, Brookhaven National Laboratory, Upton, NY.
- Develop methods and instrumentation required to achieve atomic resolution elemental mapping with X-ray assisted scanning tunneling microscopy (SXSTM).
 - Develop methods related to SXSTM for studies of functional and nanofabricated material systems, using focused ion beam, plasma enhanced chemical vapor deposition and other cleanroom nanofabrication techniques.
 - 2 granted proposals to user facilities of center for functional nanomaterials (CFN) at BNL, and Argonne National Laboratory.
- Oct, 2011- Sep, 2013 **Postdoctoral Associate**, “*Characterization and Chemical Activity of Oxide-Supported Bimetallic Clusters*”, with Professor Donna A. Chen, Department of Chemistry and Biochemistry, USC, Columbia, SC.
- Studied the growth and chemical activity of bimetallic nanoclusters deposited on oxide surfaces in ultrahigh vacuum systems.
 - Investigated the effect of cluster size, structure, metal-oxide interactions and metal-metal interactions on surface chemistry of oxide-supported metal nanocluster growth, using STM, X-ray photoelectron spectroscopy (XPS), low-energy ion scattering spectroscopy (LEIS), Auger electron spectroscopy (AES), low-energy electron diffraction (LEED), and temperature programmed desorption (TPD).
 - Assembled and functionalized a UHV chamber for sample preparation.
- Oct, 2010-Apr, 2011 **Internship**, “*Evaluation of Primary Cesarean Section in New York State*”, Division of Family Health, Department of Health, New York State.
- Applied a logistic regression model to evaluate the risk factors and demographic characteristics of the primary cesarean section rate in New York State.
- 2005-2011 **Graduate Research Assistant**, “*Interactions of Hydrogen Peroxide and Oxalic Acid on Ice Films*”, Department of Environmental Health Sciences, SUNY-Albany and Wadsworth Center, Department of Health, New York State.
- Modified, assembled, and tested the apparatus of specular reflection-absorption Fourier transform infrared spectrometer coupled with differentially pumped quadrupole mass spectrometer (RAIRS-QMS) for the study of oxalic acid and ice on a Cu surface. Designed and built a cryogenic sample stage and sample input system for the RAIRS-QMS apparatus.
 - Studied adsorption and desorption of oxalic acid and ice on the Cu surface. Determined surface structures of adsorbed oxalic acid on ice using RAIR spectra and temperature programmed desorption (TPD) profiles.
 - Investigated H₂O₂ uptake on ice films using a fast flow reactor coupled with a differentially pumped quadrupole mass spectrometer (QMS) and determined uptake coefficients (rates) and uptake amounts of H₂O₂ on ice surfaces. Studied the coadsorption and surface reaction of H₂O₂ and HX (X=Cl and Br) on ice surfaces in the fast flow reactor.
 - Identified the Br₂ formation from the heterogeneous reaction of HBr and H₂O₂ on ice surfaces. Determined reaction probabilities (rates) of HBr and H₂O₂ on ice surfaces. Determined uptake coefficients and uptake amounts of HCl on H₂O₂-treated ice surfaces, and uptake coefficients of H₂O₂ on HCl-treated ice.

2003-2005

Graduate Research Assistant, “*Interactions between Ovalbumin and Surfactants*”, School of Chemistry and Chemical Engineering, Yangzhou University.

- Studied the effect of ionic surfactants, sodium dodecyl sulfate (SDS), dodecyl trimethylammonium bromide (DTAB) and cetyltrimethylammonium bromide (CTAB) on the structure of a protein (ovalbumin), using nuclear magnetic resonance (NMR), transmission electron microscopy (TEM), UV-vis and fluorescence spectrometry.
- Investigated the effect of ovalbumin on the structural characteristics of surfactants (SDS, CTAB and DTAB). Determined conductivities and surface tensions of the surfactants.

2002

Undergraduate Research, “*Interactions between Malachite Green and Surfactants*”, the Provincial Laboratory of Colloid and Surface Chemistry, Yangzhou, Jiangsu Province.

- Studied the effect of malachite green on the structural characteristics of surfactants, such as the critical micelle concentrations, aggregation numbers and diffusion coefficients, using cyclic voltammetry. Measured the conductivity and surface tension of surfactants at the presence of malachite green.

PUBLICATIONS

1. **Hui Yan**, Marvin Cummings, Fernando Camino, Weihe Xu, Ming Lu, Xiao Tong, Nozomi Shirato, Daniel Rosenmann, Volker Rose, Evgeny Nazaretski, “Fabrication and Characterization of CNT-based Smart Tips for Synchrotron Assisted STM”, *Journal of Nanomaterials*, Volume 2015 (2015), Article ID 492657, 2015.
2. Weihe Xu, Kenneth Lauer, **Hui Yan**, Veljko Milanovic, Ming Lu, Evgeny Nazaretski, “Performance and characterization of a MEMS-based device for alignment and manipulation of x-ray nanofocusing optics”, *AIP Advances*, 2015, 5, 037137
3. Randima P. Galhenage, **Hui Yan**, Osman Ozturk, Ali S. Ahsen, Donna A. Chen, “Understanding the Growth and Chemical Activity of Co-Pt Bimetallic Clusters on TiO₂(110): CO Adsorption and Methanol Reaction”, *J. Phys. Chem. C*, 2014, 118, 17773–17786.
4. Randima P. Galhenage, **Hui Yan**, Samuel A. Tenney, Nayoung Park, Graeme Henkelman, Peter Albrecht, David R. Mullins, Donna A. Chen, “Understanding the Nucleation and Growth of Metals on TiO₂: Co compared to Au, Ni and Pt”, *J. Phys. Chem. C*, 2013, 117(14), 7191–7201.
5. Samuel A. Tenney, S. Islamuddin Shah, **Hui Yan**, Brett A. Cagg, Mara S. Levine, Talat S. Rahman, Donna A. Chen, “Methanol Reaction on Pt–Au Clusters on TiO₂ (110): Methoxy-Induced Diffusion of Pt”, *J. Phys. Chem. C*, 2013, 117, 26998–27006.
6. Randima P. Galhenage, Salai C. Ammal, **Hui Yan**, Audrey S. Duke, Samuel A. Tenney, Andreas Heyden, Donna A. Chen, “Nucleation, Growth, and Adsorbate-Induced Changes in Composition for Co-Au Bimetallic Clusters on TiO₂”, *J. Phys. Chem. C*, 2012, 116 (46), 24616–24629.
7. **Hui Yan**, Liang T. Chu, “Interactions of H₂O₂ and Ice Films”, *Atmospheric Chemistry and Physics Discussions*, 2011, 11, 30091–30124.
8. **Hui Yan**, Liang T. Chu, Ronghua Jin, Guowang Diao, “Studies of Atmospherically Relevant Reactions Using Differentially Pumped Mass Spectrometer and Fourier Transform Infrared Spectroscopy”, *Spectroscopy Letters*, 2009, 42, 444–457.
9. **Hui Yan**, Liang T. Chu, “Interactions of Oxalic Acid and Ice on Cu Surface”, *Langmuir*, 2008, 24, 9410–9420.
10. Xia Guo, **Hui Yan**, Rong Guo, “Interactions of Ovalbumin with Ionic Surfactants”, *Chinese Journal of Chemistry (English)*, 2008, 26, 1589–1595.

SEMINAR and MEETING PRESENTATIONS

1. **Hui Yan**, Marvin Cummings, Fernando Camino, Weihe Xu, Ming Lu, Xiao Tong, Nozomi Shirato, Daniel

- Rosenmann, Volker Rose, Evgeny Nazaretski, “Development of CNT-based Smart Tips for Synchrotron Assisted STM”, International SRI 2015 Conference, New York City, NY, July 2015.
2. **Hui Yan**, Marvin Cummings, Xiao Tong, Daniel Rosenmann, Fernando Camilo, Ming Lu, Weihe Xu, Volker Rose, Evgeny Nazaretski, “Fabrication and Characterization of Smart CNT-based Tips for Synchrotron Assisted STM”, International Workshop on Nanoscale Spectroscopy and Nanotechnology, Chicago, IL, July 2014. (contributed talk)
 3. **Hui Yan**, “Research in Surface Chemistry”, Career in Science Lecture Series, University of South Carolina Lancaster, Lancaster, SC, September 2013. (invited seminar)
 4. **Hui Yan**, “Characterization and Chemical Activity of Co and Co-Au Clusters on TiO₂(110)”, Brookhaven National Laboratory, Upton, NY, August 2013. (invited seminar)
 5. **Hui Yan**, “Interactions of Hydrogen Peroxide and Oxalic Acid on Ice”, School of Chemistry and Chemical Engineering, Yangzhou University, Yangzhou, China, February 2012. (invited seminar)
 6. **Hui Yan**, “Interactions of Hydrogen Peroxide and Oxalic Acid on Ice”, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC, February 2012. (invited seminar)
 7. **Hui Yan**, Liang T. Chu, “Interaction of H₂O₂ on Ice”, 28th Regional Meeting on Kinetics and Dynamics, Trinity College, Hartford, CT, January 2010. (oral presentation)
 8. **Hui Yan**, Liang T. Chu, “Interactions of Oxalic Acid and Ice on Cu Surface”, New York State Department of Health Poster Day, Albany, NY, November 2009.
 9. **Hui Yan**, Liang T. Chu, “Studies of Oxalic Acid and Ice Interactions on Cu Surface at 155-283 K”, 36th American Chemical Society Northeast Regional Meeting (NERM), Hartford, CT, October 2009. (oral presentation)
 10. **Hui Yan**, Liang T. Chu, “Uptake of H₂O₂ on Ice Films”, 18th Annual Student Poster Day, School of Public Health, SUNY-Albany, April 2009. (SPH student award)
 11. **Hui Yan**, Liang T. Chu, “Uptake of H₂O₂ on Ice Films”, 27th Regional Meeting on Kinetics and Dynamics, U Mass, Amherst, MA, January 2009. (oral presentation)
 12. **Hui Yan**, Liang T. Chu, “Interactions of Oxalic Acid and Ice on Cu Surface”, 236th American Chemical Society National meeting, Philadelphia, PA, August 2008.
 13. **Hui Yan**, Liang T. Chu, “Interactions of Oxalic Acid and Ice on Cu Surface”, 17th Annual Student Poster Day, School of Public Health, SUNY-Albany, April 2008. (SPH student award)
 14. **Hui Yan**, Liang T. Chu, “Interactions of Oxalic Acid and Ice on Cu Surface”, 26th Regional Meeting on Kinetics and Dynamics, SUNY-Albany, January 2008. (oral presentation)
 15. **Hui Yan**, Liang T. Chu, “RAIRS–QMS Studies of Adsorption of Oxalic Acid and Ice/Oxalic Acid on the Cu Surface”, 16th Annual Student Poster Day, School of Public Health, April 2007.
 16. **Hui Yan**, Ronghua Jin, Liang T. Chu, “Preliminary Study of Oxalic Acid on the Cu Surface— a RAIRS–QMS System”, 25th Regional Meeting on Kinetics and Dynamics, Wadsworth Center, Albany, NY, January 2007. (oral presentation)

PROFESSIONAL DEVELOPMENT and SERVICE

1. Science day, University of Louisiana at Lafayette, Sep 18th, 2015.
2. New York State Science congress 2015, judge for science projects, May 30th, 2014.
3. CARE Workshop (Career Advancement in Research Environments), March 10th, 2015.
4. Brookhaven National Lab's “Preparing for a Career after Your Postdoc”, September 8th -10th, 2014.
5. Brookhaven National Lab's “Summer Sundays”, volunteer for NSLS tour, July 13th, 2014.
6. Brookhaven National Lab's “Elementary School Science Fair”, judge for science projects, May 3rd, 2014.
7. USC “Discovery Day”, judge for STEM II oral presentations of undergraduate research, April 26th, 2013.
8. ACS “Postdoc to Faculty workshop”, nationally and internationally selected to participate, August 17th-18th, 2012.
9. 7th annual GIS & public health conference, Google Earth/SAS for public health applications, 2011.
10. Lab techniques: Flow reactor-QMS, RAIRS, STM, ISS, XPS, ultra-high vacuum, cryogenic technique,

- surface tensiometer, TEM, NMR, UV-vis spectrometer, fluorescence spectrometer, and cyclic voltammetry.
11. Major graduate course work: atmospheric chemistry, environmental chemical analysis, introduction to environmental health, principles of environmental chemistry, principles of radiation science, principles of statistical inference, structure and property of materials, surface analysis.
 12. Manuscript referee for journals of “Air and Waste Management Association”, “Applied Catalysis”.

AWARDS AND HONORS

2014	Oral Presentation Award, Young Researcher Symposium 2014, Brookhaven National Laboratory.
2009	Graduate Student Travel Fund Award, SUNY-Albany
2009	Excellence in Research Award (1 st place), 18 th Annual Student Poster Day, School of Public Health, SUNY-Albany.
2008	Excellence in Research Award (1 st place), 17 th Annual Student Poster Day, School of Public Health, SUNY-Albany.
2002–2005	University Fellowship for Graduate Students, Yangzhou University.
2003, 2001, 2000	1 st Class Scholarship (awarded 3 times), Yangzhou University, (top 5% students)
2002	Honored Undergraduate Student, Yangzhou University.
2002	Excellent Undergraduate Thesis, Yangzhou University.
2001	The Best Ten Undergraduate Students Award, Yangzhou University (10 out of 27,700 students).
2001	The Zhu Jingwen Scholarship, Yangzhou University (top 2.5% students).
2001	Nominated for “Outstanding Undergraduate Students in China” by Yangzhou University.
1999	2 nd Class Scholarship, Yangzhou University (top 10% students awarded).