



Shibo Wang

Curriculum Vitae

(Updated as of September 2015)

Career Goals

Global Leader in Energy and Environment, especially in Promoting Green Engineering and Sustainability, Geologic Carbon Sequestration, and Enhanced Oil Recovery

Research Interests

1. Multiphase Flow through Porous Media 2. Reservoir Engineering 3. Colloids and Interfaces 4. Computational Fluid Dynamics 5. Lubricants and Oils, Tribology 6. Supercritical Fluids 7. Microfluidics 8. Carbon Neutral Manufacturing 9. Renewable Energy 10. Energy Efficiency 11. Nano-materials

Current Position

2013.3–Present **Postdoctoral Research Scientist**, Energy Frontier Research Center, Earth Sciences Division, Lawrence Berkeley National Laboratory (U.S. Department of Energy), University of California at Berkeley

Education

2009.6–2013.1 **Ph.D. in Civil and Environmental Engineering** GPA: 4.0/4.0, Top 1
University of Virginia (UVa), Charlottesville, Virginia.

◦ Dissertation: The Role of Interfacial Phenomena in Leakage from Geologic Carbon Sequestration Sites

2007.8–2009.5 **M.E. in Civil and Environmental Engineering** GPA: 4.03/4.0 (A⁺=4.33), Top 1
University of Virginia, Charlottesville, Virginia.

2003.9–2007.6 **B.S. in Chemical/Environmental Engineering** GPA: 3.86/4.0, Top 5%

◦ National Top 5 Degree Program

Minor. in English GPA: 3.88/4.0

Dalian University of Technology (DUT), Dalian, China.

Research, Teaching and Working Experiences

Research

- 2013.3–Present **Postdoctoral Research Scientist**, Energy Frontier Research Center, Earth Sciences Division, Lawrence Berkeley National Laboratory, University of California Berkeley
- working with Dr. Tetsu K. Tokunaga and Dr. Jiamin Wan
 - 2 Research Awards, 7 Peer-Reviewed Journal Articles (2 Published, 5 in Preparation)
- 2009.6–2013.1 **PhD Researcher**, Virginia Environmentally Sustainable Technologies Laboratory, Department of Civil and Environmental Engineering, University of Virginia
- worked with Dr. Andres F. Clarens
 - 6 Research Awards, 12 Peer-Reviewed Journal Articles and Conference Papers
- 2007.8–2009.5 **Graduate Researcher**, Virginia Environmentally Sustainable Technologies Laboratory, Department of Civil and Environmental Engineering, University of Virginia
- worked with Dr. Andres F. Clarens and Dr. Wu-seng Lung
 - 1 Research Award, 1 Patent
- 2005.9–2007.6 **Undergraduate Researcher**, Key Laboratory of Industrial Ecology and Environmental Engineering, Chinese Ministry of Education, Dalian University of Technology
- worked with Dr. Xie Quan, Dr. Jingwen Chen and Dr. Dong Wang
 - 7 Research Awards, 1 Peer-Reviewed Journal Article

Teaching

- 2009.9–2010.1 **Graduate Instructor**, Department of Civil and Environmental Engineering, University of Virginia
- Class of “CE 6220: Water Chemistry for Environmental Engineering”
 - Only Winner of Annual Graduate Teaching Award in the Department
 - Nominee of Graduate Teaching Award in School of Engineering and Applied Sciences
- 2007.9–2008.1 **Graduate Teaching Assistant**, Department of Civil and Environmental Engineering, University of Virginia
- Class of “CE 6720: Continuum Mechanics”

On-Campus Part-Time Employment

- 2009.9–2010.1 **Catering Professional**, Aramark Corporation, University of Virginia

Honors and Awards

- 2015.5 **ACS Editors' Choice Award** American Chemical Society (ACS)
○ Selected Based on Recommendations from over 400 Editors of ACS' 44 Peer-Reviewed Journals
- 2013.5 **Annual Award for Excellence in Research** Dept. of CEE, UVa (\$500 cash prize)
○ Only Winner for Year 2012
- 2013.1 **Chinese Government Scholarship for Outstanding Self-Financed Student**
China Scholarship Council (\$6,000 cash prize)
○ Highly Competitive Global Selection among All Chinese Ph.D. Scholars Overseas
- 2012.3 **Huskey Award for Outstanding Research—"Two-Hoos" Team Research**
UVa (Shared with Ian Edwards) (\$100 cash prize)
- 2012.2 **Student Travel Grant Award** Dept. of CEE, UVa (\$1,500 grant)
- 2011.9 **Student Travel Grant Award** American Geophysical Union (\$500 grant)
- 2011.5 **Annual Graduate Teaching Award** Dept. of CEE, UVa (\$500 cash prize)
○ Only Winner for Year 2010
- 2010.2 **Graduate Student Award** Division of Environmental Chemistry, American Chemical Society (\$125 cash prize)
○ #1 Ranking among the 25 Awardees Selected from all American Universities Each Year
- 2009.9 **ConocoPhillips–Penn State Energy Prize** (\$75,000 research funding)
○ Finalist and First Runner Up (Shared with Andres F. Clarens and Brian Tison)
- 2007.9 **Distinguished Bachelor Award** DUT
○ Only 3% of Bachelor Graduates Received this Award
- 2007.9 **Outstanding Bachelor Thesis Award** DUT
○ Only 3% of Graduated Undergraduates Received this Award
- 2007.5 **"A" Level for Students' Research Ability** DUT
○ University Wide Highest Rating
- 2006.6 **Exchange Honor Student with Scholarship** University of Kitakyushu, Japan
○ Team Lead and Keynote Speaker
- 2004–2007 **Outstanding Student Scholarships** DUT (\$300 cash prize)
○ In Three Consecutive Years

Publications

Peer-Reviewed Journal Articles (Journals are Top Tier in Related Fields)

- 2015 **Shibo Wang**, and Tetsu K. Tokunaga. “Changes in Interfacial and Wettability after Long-Term Incubation of Geological Materials in Supercritical CO₂ and Brine”. *Environmental Science and Technology* (American Chemical Society), In Preparation.
○ Journal Impact Factor: 5.48
- 2015 Tetsu K. Tokunaga, **Shibo Wang**, Jiamin Wan, Yongman Kim and Wenming Dong. “Surface Chemistry Changes Due To Extended CO₂ Exposure: An XPS Study”. *Environmental Science and Technology* (American Chemical Society), In Preparation.
○ Journal Impact Factor: 5.48
- 2015 Abdullah Cihan, **Shibo Wang**, and Tetsu K. Tokunaga. “An Integrated Experimental and Modeling Study on Immiscible Gravity Exchange Flow”. *Water Resources Research* (American Geophysical Union), In Preparation.
○ Journal Impact Factor: 3.71
- 2015 **Shibo Wang**, Ian Bourg, Yangyang Liu, Tetsu K. Tokunaga, and Andres F. Clarens. “Wettability in CO₂ Sequestration: A Combined Experimental and Molecular Dynamic Modeling Study”. *Proceedings of the National Academy of Sciences* (U.S. National Academy of Sciences), In Preparation.
○ Journal Impact Factor: 9.81
- 2015 **Shibo Wang**, and Tetsu K. Tokunaga. “Capillary Pressure–Saturation Relations and Residual Saturation of Oil, CO₂ and Air in Sandstone and Carbonates”. *Environmental Science and Technology* (American Chemical Society), In Preparation.
○ Journal Impact Factor: 5.48
- 2015 **Shibo Wang**, and Tetsu K. Tokunaga. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. *Environmental Science and Technology* (American Chemical Society), 49 (12), 7208–7217.
○ ACS Editors’ Choice Award
○ Journal Impact Factor: 5.48
- 2013 **Shibo Wang**, Zhiyuan Tao, Sara M. Persily, and Andres F. Clarens. “CO₂ Adhesion on Hydrated Mineral Surfaces”. *Environmental Science and Technology* (American Chemical Society), 47 (20), 11858–11865.
○ Journal Impact Factor: 5.48
- 2013 **Shibo Wang**, and Andres F. Clarens. “Analytical Model of Metalworking Fluid Penetration into the Flank Contact Zone in Orthogonal Cutting”. *Journal of*

Manufacturing Processes (Society of Manufacturing Engineers), 15 (1), 41-50.

o Journal Impact Factor: 1.53

- 2013 Yiwen Ouyang, **Shibo Wang**, Jingyi Li, Paul S. Riehl, Matthew Begley, and James P. Landers. "Rapid Patterning of 'Tunable' Hydrophobic Valves on Disposable Microchips by Laser Printer Lithography". *Lab on a Chip* (Royal Society of Chemistry), 13 (9), 1762-1771.

o Journal Impact Factor: 5.75

- 2012 **Shibo Wang**, Ian M. Edwards, and Andres F. Clarens. "Wettability Phenomena at the CO₂-Brine-Mineral Interface: Implications for Geologic Carbon Sequestration". *Environmental Science and Technology* (American Chemical Society), 47 (1), 234-241.

o Journal Impact Factor: 5.48

- 2012 **Shibo Wang**, and Andres F. Clarens. "The Effects of CO₂-Brine Rheology on Leakage Processes in Geologic Carbon Sequestration". *Water Resources Research* (American Geophysical Union), 48 (8), W08518.

o Journal Impact Factor: 3.71

- 2010 Andres Clarens, Amir Younan, **Shibo Wang**, and Paul Allaire. "Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Tilting-Pad Journal Bearings". *Journal of Tribology* (American Society of Mechanical Engineers), 132 (3), 031802.

o Journal Impact Factor: 1.14

- 2007 Yanhe Han, Xie Quan, Shuo Chen, **Shibo Wang**, Yaobin Zhang. "Electrochemical Enhancement of Adsorption Capacity of Activated Carbon Fibers and Their Surface Physicochemical Characterizations". *Electrochimica Acta* (International Society of Electrochemistry), 52 (9), 3075-3081.

o Journal Impact Factor: 4.43

Conference Proceedings

- 2012 **Shibo Wang**, and Andres F. Clarens. "Improved Force Balance for Predicting Vertical Migration of CO₂ from Geologic Sequestration Sites". In *American Institute of Chemical Engineers Carbon Management Technology Conference*, February 7-9, 2012, Orlando, Florida.

- 2012 Yiwen Ouyang, Jingyi Li, Christopher Phaneuf, **Shibo Wang**, Paul S. Riehl, and James P. Landers. "Design and Fabrication of a CD-like Disposable Microfluidic Platform for Serial Dilution". In *The 16th International Conference on Miniaturized System for Chemistry and Life Science*, October 28-November 1, 2012, Okinawa, Japan.

- 2010 Andres Clarens, **Shibo Wang**, Amir Younan, and Paul Allaire. "Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Rotating Machinery". In *Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers*

- International Joint Tribology Conference*, October, 2010, San Francisco, California.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Analytical Model of Metalworking Fluid Penetration into the Flank Contact Zone in Orthogonal Cutting”. In *Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers International Joint Tribology Conference*, October, 2010, San Francisco, California.
- 2010 Karla H. Sharrer, **Shibo Wang**, Brian Weaver, and Andres F. Clarens. “Research Experience for Teachers: Evaluating CO₂ Leakage from Sequestration Sites Using Column Studies”. In *University of Virginia RET Research Symposium*, Charlottesville, Virginia, July, 2010.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Power Turbines”. In *239th American Chemical Society National Meeting and Exposition*, March 21-25, 2010, San Francisco, California.

PhD Dissertation

- 2013 **Shibo Wang**. “The Role of Interfacial Phenomena in Leakage from Geologic Carbon Sequestration Sites”. University of Virginia.
- o PhD Committee: Dr. Andres Clarens (Advisor), Dr. Catherine Peters (Princeton University), Dr. James Smith, Dr. Teresa Culver, Dr. Roseanne Ford
 - o <http://libra.virginia.edu/catalog/libra-oa:2870>

Session Proposal

- 2015 **Shibo Wang**, Lauren E. Beckingham, Megan Smith, and Charles Werth. “New Perspectives on CO₂ Flow, Transport, and Long-Term Storage in Subsurface Reservoirs”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.
- 2015 **Shibo Wang**, and Lauren E. Beckingham. “New Perspectives on Hydrological and Geochemical Processes pertaining to Geologic CO₂ Storage”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.
- 2014 Stuart D. Walsh, Susan Carroll, Megan Smith, and **Shibo Wang**. “Coupled Hydraulic, Geochemical, and Geomechanical Processes in Carbon Storage”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.

Abstracts

- 2015 **Shibo Wang**, Timothy J. Kneafsey, Tetsu K. Tokunaga, Jiamin Wan, Jonathan Ajo-Franklin, Marco Voltolini, and David Trebotich. “Capillary and Wettability Controls on CO₂-brine Distributions in Geologic Carbon Sequestration”. In *U.S. Department Of Energy (DOE) EFRC Principal Investigators’ Meeting*, Washington D.C., October, 2015.
- 2015 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary Pressure-Saturation

- Relations and Residual Saturation of CO₂, Oil and Air in Quartz and Limestone Sands”. In *12th International Symposium on Reservoir Wettability and Its Effects on Oil Recovery*, Lawrence, Kansas, October, 2015.
- 2015 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. In *250th American Chemical Society National Meeting and Exposition*, Boston, Massachusetts, August, 2015.
- 2015 Timothy J. Kneafsey, **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Jonathan Ajo-Franklin, Marco Voltolini, and David Trebotich. “Effects of Wettability on CO₂ Behavior in Mineral Media”. In *U.S. Department Of Energy (DOE) Carbon Storage R&D Project Review Meeting: Transforming Technology through Integration and Collaboration*, National Energy Technology Laboratory, Pittsburgh, Pennsylvania, August, 2015.
- 2015 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. In *Gordon Research Conference on Carbon Capture, Utilization and Storage*, Easton, Massachusetts, June, 2015.
- 2014 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine: Implications for Capillary/Residual Trapping in Carbonate Reservoirs during Geologic Carbon Sequestration”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2014 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure–Saturation Relations and Residual Saturation of CO₂, Oil, and Air in Quartz and Limestone Sandpacks”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014 Tetsu K. Tokunaga, **Shibo Wang**, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure and CO₂ Trapping in Carbonate Sands”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014 Jiamin Wan, Tetsu K. Tokunaga, Yongman Kim, and **Shibo Wang**. “Contact Angle Measurement Ambiguity in Supercritical CO₂-Water-Mineral Systems”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2013 **Shibo Wang**, Andres F. Clarens, Zhiyuan Tao, and Sara M. Persily. “Adhesion of CO₂ on Hydrated Mineral Surfaces and Its Implications to Geologic Carbon Sequestration”. In *American Geophysical Union Fall Meeting*, San Francisco, California,

December, 2013.

- 2013 Andres F. Clarens, and **Shibo Wang**. “CO₂ Adhesion At the Hydrated Mineral Interface Could Greatly Reduce the Risk of Leakage From Geologic Carbon Sequestration Sites”. In *American Institute of Chemical Engineers Carbon Management Technology Conference*, Alexandria, Virginia, October, 2013.
- 2013 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Jong-Won Jung, Tae Wook Kim, Yongman Kim, Wenming Dong, Andres F. Clarens, Zhiyuan Tao, and Sara Persily. “Investigation of Interfacial Phenomena: Capillary Pressure–Saturation Relations, CO₂ Adhesion and Wettability Hysteresis for Geologic Carbon Sequestration”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2013.
- 2013 Jiamin Wan, Yongman Kim, Prem Bikkina, Tetsu K. Tokunaga, and **Shibo Wang**. “Wetting Behavior of Supercritical CO₂ and Brine on Mica Surfaces and in Silica Pore Networks”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2013.
- 2013 Tetsu K. Tokunaga, Jiamin Wan, Jongwon Jung, TaeWook Kim, Yongman Kim, Wenming Dong, and **Shibo Wang**. “Capillary Pressure Relations with Brine Saturations under Geologic Carbon Sequestration Conditions”. In *Clay Minerals Society Annual Meeting*, University of Illinois, Urbana-Champaign, Illinois, October, 2013.
- 2013 Tetsu K. Tokunaga, Jiamin Wan, Jongwon Jung, TaeWook Kim, Yongman Kim, Wenming Dong, and **Shibo Wang**. “Testing Predictability of Capillary Pressure–Saturation Relations for Geological CO₂ Sequestration”. In *Center for Nanoscale Control of Geologic CO₂ (NCGC) Seminar*, Lawrence Berkeley National Laboratory, Berkeley, California, July, 2013.
- 2013 **Shibo Wang**, and Andres F. Clarens. “Adhesion and Its Role in Geologic Carbon Sequestration”. In *12th Carbon Capture, Utilization and Sequestration Conference*, Pittsburgh, Pennsylvania, May, 2013.
- 2012 Andres F. Clarens, **Shibo Wang**, Bo Liang, Catherine A. Peters, Jeffrey P. Fitts, Hang Deng, and Brian R. Ellis. “An Integrated Experimental Program to Understanding Leakage from Geologic Carbon Sequestration Sites across Scales”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2012.
- 2012 Yiwen Ouyang, Jingyi Li, Christopher Phaneuf, **Shibo Wang**, Paul S. Riehl, and James P. Landers. “Design and Fabrication of a CD-like Disposable Microfluidic Platform for Serial Dilution”. In *16th International Conference on Miniaturized System for Chemistry and Life Science*, October-November, 2012, Okinawa, Japan.
- 2012 **Shibo Wang**, Jeffrey Fitts, Catherine Peters, and Andres F. Clarens. “Wettability Phenomena of Representative Minerals in Geologic Carbon Sequestration

- Formations". In *11th Carbon Capture, Utilization and Sequestration Conference*, Pittsburgh, Pennsylvania, May, 2012.
- 2012 **Shibo Wang**. "The Impact of Interfacial Phenomena on Controlling Leakage from Geologic Carbon Sequestration Sites". In *University of Virginia Engineering Research Symposium (UVERS)*, University of Virginia, Charlottesville, Virginia, March, 2012.
- 2012 **Shibo Wang**, and Andres Clarens. "Improved Force Balance for Predicting Vertical Migration of CO₂ from Geologic Sequestration Sites". In *American Institute of Chemical Engineers Carbon Management Technology Conference*, Orlando, Florida, February, 2012.
- 2011 **Shibo Wang**, and Andres F. Clarens. "CO₂–Brine Rheology Could Suppress Leakage From Geologic Carbon Sequestration Sites". In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2011.
- 2011 **Shibo Wang**, Ian M. Edwards, and Andres F. Clarens. "CO₂–Mineral Wettability and Implications for Understanding Leakage Processes from Geologic Carbon Sequestration Sites". In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2011.
- 2011 Catherine A. Peters, Andres F. Clarens, Jeffrey P. Fitts, Curtis M. Oldenburg, Patrick F. Dobson, Joseph S.Y.Wang, Yves Guglielmi, Brian R. Ellis, and **Shibo Wang**. "Safe and Effective Geologic Sequestration of CO₂: Multi-Scale Experimental Studies of Formation Integrity and Leakage". In *Association of Environmental Engineering and Science Professors Biannual Meeting*, Tampa, Florida, July, 2011.
- 2011 Ian M. Edwards, **Shibo Wang**, and Andres F. Clarens. "Contact Angle Measurements for assessing the Wettability of CO₂ in a Saline–Rock/Clay System: Implications for Geologic Carbon Sequestration". In *University of Virginia REU Research Symposium*, Charlottesville, Virginia, July, 2011.
- 2011 Brandon C. Lee, **Shibo Wang**, Brian Weaver and Andres F. Clarens. "Evaluating CO₂ Leakage from Sequestration Sites Using Column Studies". In *University of Virginia RET Research Symposium*, Charlottesville, Virginia, July, 2011.
- 2011 **Shibo Wang**, and Andres F. Clarens. "Analytical Model of Metalworking Fluid Penetration into the Flank Cutting Zone in Orthogonal Cutting". In *University of Virginia Engineering Research Symposium (UVERS)*, University of Virginia, Charlottesville, Virginia, March, 2011.
- 2010 Andres Clarens, **Shibo Wang**, Amir Younan, and Paul Allaire. "Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Rotating Machinery". In *Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers International Joint Tribology Conference*, October, 2010, San Francisco, California.
- 2010 Andres F. Clarens, and **Shibo Wang**. "Modeling Metalworking Fluid Penetration into the Cutting Zone to Describe the Behavior of Environmentally Adapted Lubricants". In

Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers International Joint Tribology Conference, October, 2010, San Francisco, California.

- 2010 Karla H. Sharrer, **Shibo Wang**, Brian Weaver, and Andres F. Clarens. “Research Experience for Teachers: Evaluating CO₂ Leakage from Sequestration Sites Using Column Studies”. In *University of Virginia RET Research Symposium*, Charlottesville, Virginia, July, 2010.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Rheology of CO₂-Saturated Brine Solutions: Implications for Fluid Flow under Geologic-Storage Relevant Conditions”. In *National Energy Technology Laboratory Carbon Capture and Sequestration Meeting*, May, 2010, Pittsburgh, Pennsylvania.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Shear Thinning Behavior of CO₂-Saturated Brine Solutions: Implications for Fluid Flow under Geologic Storage Relevant Conditions”. In *9th Annual Carbon Capture and Sequestration Conference*, May, 2010, Pittsburgh, Pennsylvania.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Power Turbines”. In *239th American Chemical Society National Meeting and Exposition*, March, 2010, San Francisco, California.
- 2010 **Shibo Wang**, and Andres F. Clarens. “Viscosity Effects in CO₂-Brine Mixtures and Implications for Controlling Leakage from Saline Aquifer”. In *239th American Chemical Society National Meeting and Exposition*, March, 2010, San Francisco, California.

Patents Granted

2011/2012 **Gas-Expanded Lubricants for Increased Energy Efficiency and Related Method and System.** 2009 Priority

- Inventors: Andres F. Clarens, Paul E. Allaire, Amir Younan, Shibo Wang
- Publication Number: WO2011047285 AI (International)
US20120199421 AI (U.S.)
EP2488614 AI (European)

Research Projects

Lawrence Berkeley National Laboratory, Berkeley, California

Reservoir Processes and Engineering

- 2015.5-Present Effects of Natural Organic Matters on Capillarity and Wettability
- 2015.3-Present Mechanisms of Immiscible Gravity-Exchange Flow: Experiments and Modeling
- 2013.3-Present Investigation of Capillary Pressure-Saturation Relations of Oil and Brine for Sandstone

and Carbonate Reservoirs

- 2013.3-Present Investigation of Capillary Pressure–Saturation Relations of Supercritical CO₂ and Brine for Sandstone and Carbonate Reservoirs
- 2013.8-Present Surfactant and CO₂ flooding in Quartz and Limestone Sandpacks
- 2014.5-Present Improved Mobility Control and Sweep Efficiency with CO₂/CO₂–Foam in Enhanced Oil Recovery
- 2013.3-Present Oil/CO₂/Brine Displacement, Pore Flow Dynamics (e.g., Snap-Off, Haines Jumps, Interface Evolution)
- 2013.9-Present Visualization of In-Situ Multiphase Flow of CO₂/CO₂–Foam in Microfluidic Porous Model
- 2013.7-Present Investigation of Proppant Transport Efficiency and Fluid Leak-Off in Hydraulic Fracturing
- 2013.3-Present Further Exploration of Reservoir Wettability Mechanisms and Their Impacts on Pore and Darcy Flow
- 2013.3-Present Improvement of Pore to Reservoir/Basin Upscaling and Capillary Scaling

University of Virginia, Charlottesville, Virginia

Reservoir Characterization and Engineering

- 2012.8-2013.1 Pore-Scale Modeling of CO₂ Transport Velocity in Different Reservoirs
- 2009.6-2013.1 Characterization of Reservoir Rock, Fluid and Interfacial Properties (e.g., Wettability, Adhesion) with Supercritical CO₂ and N₂
- 2008.9-2012.3 Investigation of Reservoir Fluid Properties (e.g., Viscosity, Rheology) of CO₂–Brine Mixtures for Mobility Control
- 2010.8-2013.1 Modeling of Multiphase Flow through Porous Media under Enhanced Oil Recovery/CO₂ Sequestration Reservoir Conditions; Evaluation of Roles of Important Geophysical, Geochemical and Operational Parameters
- 2011.5-2013.1 Porous Media Column Study via Electrical Resistivity to Study Pore-Scale CO₂–Brine Transport, Distribution and Dissolution
- 2012.1-2013.1 Pore–to–Reservoir Upscaling Methods

CO₂ Utilization, Renewable Energy, Lubrication/Tribology

- 2007.8-2009.5 Invention of CO₂-Based Property Adjustable Lubricants with a 20% Increase in Energy Efficiency in Wind Turbine
- 2008.1-2010.7 Determination of the Viscosity, Tribology and Thermoelastichydrodynamic Properties of the Invented Lubricants
- 2008.1-2011.8 Modeling of Fluid Dynamics of Lubricants (e.g., Emulsion, CO₂, N₂, Polymer, CO₂–

Polymer); Evaluated Tribology and Heat Transfer in Advanced Manufacturing Processes Using Finite Element/Difference (FEA/FDA) Methods

Hydrology and Watershed Modeling

2007.9-2008.6 Fate and Transport Modeling of Estrogen Pollutants in Chesapeake Watershed

Dalian University of Technology, Dalian, China

Environmental and Chemical Engineering

2007.1-2007.6 Fabrication of Orderly Semiconductor Nitrogen, Potassium Doped TiO₂ Nano Material and Its Environmental Application in Degradation of Persistent Organic Pollutants

2005.9-2007.5 Electrochemical Adsorption Capacity of Activated Carbon Fibers and Their Surface Physicochemical Characterizations

2006.5-2007.4 Building a Comprehensive Data Base on Waste Water Treatment Plants in China

2006.9-2007.1 Design of Environmentally Friendly Lunchbox Using Life Cycle Impact Analysis

2006.4-2007.1 Uptake of Atmospheric PAHs by Leaves

Oral and Poster Presentations

Invited Talks

2015.8 **Shibo Wang**. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. In *Geologic Carbon Sequestration Program Meeting*, Earth Sciences Division, Lawrence Berkeley National Laboratory, August, 2015, Berkeley, California.

2014.4 **Shibo Wang**. “Investigation of Interfacial Phenomena: Capillary Pressure–Saturation Relations, Rheology, Wettability and CO₂ Adhesion for Geologic Carbon Sequestration”. In *Energy Frontier Research Center Junior Scientist Meeting*, Earth Sciences Division, Lawrence Berkeley National Laboratory, April, 2014, Berkeley, California.

Keynote Talks

2006.7 **Shibo Wang**, Xuehua Li, Xiaojia Mu, Tingting Zhang, Sihan Sun and Yiwen Liu. “Life Cycle Impact Analysis of Disposable Lunchbox and Its Alternatives”. In *International Specialized Environmental Issues Conference*, July, 2006, Kitakyushu, Japan.

Talks

2015.10 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary Pressure–Saturation Relations and Residual Saturation of CO₂, Oil, and Air in Quartz and Limestone Sandpacks”. In *12th International Symposium on Reservoir Wettability and its Effects on Oil*

- Recovery, Lawrence, Kansas, October, 2015.
- 2015.8 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. In *250th American Chemical Society National Meeting and Exposition*, Boston, Massachusetts, August, 2015.
- 2015.8 Tetsu K. Tokunaga, **Shibo Wang**, Jiamin Wan, and Yongman Kim. “Why Do Some scCO₂ – Brine Saturation Relations Deviate from Capillary Scaling Predictions?”. In *Center for Nanoscale Control of Geologic CO₂ Pore-scale Multiphase Workshop*, Stanford University, Stanford, California, August, 2015.
- 2015.7 Tetsu K. Tokunaga, and **Shibo Wang**. “Thrust 2, Residual/Capillary Trapping Updates”. In *Center for Nanoscale Control of Geologic CO₂ PI Telecon*, Lawrence Berkeley National Laboratory, Berkeley, California, July, 2015.
- 2015.6 **Shibo Wang**, Tetsu K. Tokunaga, and Jiamin Wan. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. Pop-Up Presentation in *Gordon Research Conference on Carbon Capture, Utilization and Storage*, Easton, Massachusetts, June, 2015.
- 2015.5 Tetsu K. Tokunaga, and **Shibo Wang**. “Capillary Pressure–Saturation Relations for Supercritical CO₂ in Carbonate Reservoirs”. In *Center for Nanoscale Control of Geologic CO₂ PI Telecon*, Lawrence Berkeley National Laboratory, Berkeley, California, May, 2015.
- 2015.4 Tetsu K. Tokunaga, **Shibo Wang**, and Jiamin Wan. “Capillary Controls on CO₂–Brine Distributions in Porous Media”. In *Center for Nanoscale Control of Geologic CO₂ Dynamic Wetting Workshop*, Lawrence Berkeley National Laboratory, Berkeley, California, April, 2015.
- 2014.12 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine: Implications for Capillary/Residual Trapping in Carbonate Reservoirs during Geologic Carbon Sequestration”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2014.11 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure–Saturation Relations and Residual Saturation of CO₂, Oil, and Air in Quartz and Limestone Sandpacks”. Pop-Up Presentation In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.11 Tetsu K. Tokunaga, **Shibo Wang**, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure and CO₂ Trapping in Carbonate Sands”. In *Center for Nanoscale*

- Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.11 Jiamin Wan, Tetsu K. Tokunaga, Yongman Kim, and **Shibo Wang**. “Contact Angle Measurement Ambiguity in Supercritical CO₂–Water–Mineral Systems”. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.10 Tetsu K. Tokunaga, **Shibo Wang**, Jiamin Wan, Yongman Kim, and Wenming Dong. “Proposed Plans for P_c(S) Relations in Reservoir Materials”. In *Thrust 2: Secondary Trapping Meet-Up*. Stanford University, Palo Alto, California, October, 2014.
- 2013.12 **Shibo Wang**, Andres F. Clarens, Zhiyuan Tao, and Sara M. Persily. “Adhesion of CO₂ on Hydrated Mineral Surfaces and Its Implications to Geologic Carbon Sequestration”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2013.
- 2013.12 Tetsu K. Tokunaga, and **Shibo Wang**. “Capillary Pressure and Mineral Wettability Influences on Reservoir CO₂ Capacity”. In *Mineralogical Society of America and Geochemical Society Short Course on Geochemistry of Geologic CO₂ Sequestration*. Lawrence Berkeley National Laboratory, Berkeley, California, December, 2013.
- 2013.11 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Jong-Won Jung, Tae Wook Kim, Yongman Kim, Wenming Dong, Andres F. Clarens, Zhiyuan Tao, and Sara M. Persily. “Investigation of Interfacial Phenomena: Capillary Pressure–Saturation Relations, CO₂ Adhesion and Wettability Hysteresis for Geologic Carbon Sequestration”. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2013.
- 2013.11 Jiamin Wan, Yongman Kim, Prem Bikkina, Tetsu K. Tokunaga, and **Shibo Wang**. “Wetting Behavior of Supercritical CO₂ and Brine on Mica Surfaces and in Silica Pore Networks”. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2013.
- 2013.10 Andres F. Clarens, and **Shibo Wang**. “CO₂ Adhesion at the Hydrated Mineral Interface Could Greatly Reduce the Risk of Leakage from Geologic Carbon Sequestration Sites”. In *American Institute of Chemical Engineers Carbon Management Technology Conference*, Alexandria, Virginia, October, 2013.
- 2013.10 Tetsu K. Tokunaga, Jiamin Wan, Jongwon Jung, TaeWook Kim, Yongman Kim, Wenming Dong, and **Shibo Wang**. “Capillary Pressure Relations with Brine Saturations under Geologic Carbon Sequestration Conditions”. In *Clay Minerals Society Annual Meeting*, University of Illinois, Urbana-Champaign, Illinois, October, 2013.
- 2013.7 Tetsu K. Tokunaga, Jiamin Wan, Jongwon Jung, TaeWook Kim, Yongman Kim, Wenming Dong, and **Shibo Wang**. “Testing Predictability of Capillary Pressure–Saturation Relations for Geological CO₂ Sequestration”. In *Center for Nanoscale Control*

- of Geologic CO₂ Seminar, Lawrence Berkeley National Laboratory, Berkeley, California, July, 2013.
- 2013.2 **Shibo Wang**. “The Role of Interfacial Phenomena in Leakage from Geologic Carbon Sequestration Sites”. Doctor of Philosophy Degree Oral Defense, University of Virginia, Charlottesville, Virginia, February, 2013.
- 2012.12 Andres F. Clarens, **Shibo Wang**, Bo Liang, Catherine A. Peters, Jeffrey P. Fitts, Hang Deng, and Brian R. Ellis. “An Integrated Experimental Program to Understanding Leakage from Geologic Carbon Sequestration Sites across Scales”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2012.
- 2012.3 **Shibo Wang**, and Ian M. Edwards. “CO₂ Wetting on Representative Minerals and Its Implications for Geologic Carbon Sequestration”. In *Robert J. Huskey Research Exhibition, Two Hoos Presentation Session*, Graduate School of Arts and Sciences, University of Virginia, Charlottesville, Virginia, March, 2012.
- 2011.12 **Shibo Wang**, and Andres F. Clarens. “CO₂–Brine Rheology Could Suppress Leakage from Geologic Carbon Sequestration Sites”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2011.
- 2011.7 Catherine A. Peters, Andres F. Clarens, Jeffrey P. Fitts, Brian R. Ellis, **Shibo Wang**, Curtis M. Oldenburg, Patrick F. Dobson, Joseph S.Y. Wang, and Yves Guglielmi. “Safe and Effective Geologic Sequestration of CO₂: Multi-Scale Experimental Studies of Formation Integrity and Leakage”. In *Association of Environmental Engineering and Science Professors Biannual Meeting*, Tampa, Florida, July, 2011.
- 2010.10 Andres Clarens, **Shibo Wang**, Amir Younan, and Paul Allaire. “Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Rotating Machinery”. In *Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers International Joint Tribology Conference*, October, 2010, San Francisco, California.
- 2010.10 Andres F. Clarens, and **Shibo Wang**. “Modeling Metalworking Fluid Penetration into the Cutting Zone to Describe the Behavior of Environmentally Adapted Lubricants”. In *Society of Tribologists and Lubrication Engineers/American Society of Mechanical Engineers International Joint Tribology Conference*, October, 2010, San Francisco, California.
- 2010.5 **Shibo Wang**, and Andres F. Clarens. “Rheology of CO₂-Saturated Brine Solutions: Implications for Fluid Flow under Geologic Storage Relevant Conditions”. In *National Energy Technology Laboratory Carbon Capture and Sequestration Meeting*, May, 2010, Pittsburgh, Pennsylvania.
- 2010.3 **Shibo Wang**, and Andres F. Clarens. “Feasibility of Gas-Expanded Lubricants for Increased Energy Efficiency in Power Turbines”. In *239th American Chemical Society National Meeting and Exposition*, March, 2010, San Francisco, California.
- 2010.3 **Shibo Wang**, and Andres F. Clarens. “Rheology of CO₂–H₂O Mixtures: Implications

for Understanding Leakage in Geologic Sequestration”. In *239th American Chemical Society National Meeting and Exposition*, March, 2010, San Francisco, California.

Posters

- 2015.10 **Shibo Wang**, Timothy J. Kneafsey, Tetsu K. Tokunaga, Jiamin Wan, Jonathan Ajo-Franklin, Marco Voltolini, and David Trebotich. “Capillary and Wettability Controls on CO₂-brine Distributions in Geologic Carbon Sequestration”. In *U.S. Department Of Energy (DOE) EFRC Principal Investigators’ Meeting*, Washington D.C., October, 2015.
- 2015.8 Timothy J. Kneafsey, **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Jonathan Ajo-Franklin, Marco Voltolini, and David Trebotich. “Effects of Wettability on CO₂ Behavior in Mineral Media”. In *U.S. Department Of Energy (DOE) Carbon Storage R&D Project Review Meeting: Transforming Technology through Integration and Collaboration*, National Energy Technology Laboratory, Pittsburgh, Pennsylvania, August, 2015.
- 2015.6 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan. “Capillary Pressure–Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”. In *Gordon Research Conference on Carbon Capture, Utilization and Storage*, Easton, Massachusetts, June, 2015.
- 2014.11 **Shibo Wang**, Tetsu K. Tokunaga, Jiamin Wan, Wenming Dong, and Yongman Kim. “Capillary Pressure–Saturation Relations and Residual Saturation of CO₂, Oil, and Air in Quartz and Limestone Sandpacks”. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.5 Tetsu K. Tokunaga, Jiamin Wan, Yongman Kim, TaeWook Kim, **Shibo Wang**, Antonio Lanzirotti, Matthew Newville, Stephen Sutton, W. Rao, and Sue Wirrick. “Controlling and Measuring Water Potentials and Water Film Thickness on Mineral Surfaces”. In *“Geosciences Models–Where are the Rocks?” the Annual Symposium for the Geosciences Research Program within the Department of Energy’s Office of Basic Energy Sciences*, Gaithersburg, Maryland, May, 2014.
- 2013.5 **Shibo Wang**, and Andres F. Clarens. “Adhesion and Its Role in Geologic Carbon Sequestration”. In *12th Carbon Capture, Utilization and Sequestration Conference*, Pittsburgh, Pennsylvania, May, 2013.
- 2012.10 Yiwen Ouyang, Jingyi Li, Christopher Phaneuf, **Shibo Wang**, Paul S. Riehl, and James P. Landers. “Design and Fabrication of a CD-like Disposable Microfluidic Platform for Serial Dilution”. In *16th International Conference on Miniaturized System for Chemistry and Life Science*, October–November, 2012, Okinawa, Japan.
- 2012.5 **Shibo Wang**, and Andres F. Clarens. “Wettability Phenomena of Representative Minerals in Geologic Carbon Sequestration Formations”. In *11th Carbon Capture, Utilization and Sequestration Conference*, Pittsburgh, Pennsylvania, May, 2012.

- 2012.4 **Shibo Wang**, “The Role of Interfacial Phenomena in Leakage from Geologic Carbon Sequestration Sites”. In *2nd Presidential Poster Competition*, University of Virginia, Charlottesville, Virginia, April, 2012.
- 2012.2 **Shibo Wang**, and Andres Clarens. “Improved Force Balance for Predicting Vertical Migration of CO₂ from Geologic Sequestration Sites”. In *American Institute of Chemical Engineers Carbon Management Technology Conference*, Orlando, Florida, February, 2012.
- 2011.12 **Shibo Wang**, Ian M. Edwards, and Andres F. Clarens. “The Wettability of CO₂ on Minerals under Relevant Geologic Carbon Sequestration Conditions and Its Implications on Leakage Processes”. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2011.
- 2011.7 Ian M. Edwards, **Shibo Wang**, and Andres F. Clarens. “Contact Angle Measurements for Assessing the Wettability of CO₂ in A Saline–Rock/Clay System: Implications for Geologic Carbon Sequestration”. In *University of Virginia REU Research Symposium*, Charlottesville, Virginia, July, 2011.
- 2011.7 Brandon C. Lee, **Shibo Wang**, Brian Weaver and Andres F. Clarens. “Evaluating CO₂ Leakage from Sequestration Sites Using Column Studies”. In *University of Virginia RET Research Symposium*, Charlottesville, Virginia, July, 2011.
- 2010.7 Karla H. Sharrer, **Shibo Wang**, Brian Weaver, and Andres F. Clarens. “Research Experience for Teachers: Evaluating CO₂ Leakage from Sequestration Sites Using Column Studies”. In *University of Virginia RET Research Symposium*, Charlottesville, Virginia, July, 2010.
- 2010.5 **Shibo Wang**, and Andres F. Clarens. “Rheology of CO₂-Saturated Brine Solutions: Implications for Fluid Flow under Geologic Storage Relevant Conditions”. In *National Energy Technology Laboratory Carbon Capture and Sequestration Meeting*, Pittsburgh, Pennsylvania, May, 2010.
- 2009.4 **Shibo Wang**, and Chenxi Li. “Effects of pH, Extraction Time, and Soil Types on Heavy Metal Extractability”. In *Environmental Microbiology Class Poster Competition*, University of Virginia, Charlottesville, Virginia, April, 2009.

Workshops and Panel Discussions

- 2015.8 Center for Nanoscale Control of Geologic CO₂ Meeting, Stanford University, Palo Alto, California, August, 2015.
- 2015.7 Center for Nanoscale Control of Geologic CO₂ PI Telecon, Lawrence Berkeley National Laboratory, Berkeley, California, July, 2015.
- 2015.5 Center for Nanoscale Control of Geologic CO₂ PI Telecon, Lawrence Berkeley National Laboratory, Berkeley, California, May, 2015.
- 2015.4 Center for Nanoscale Control of Geologic CO₂ Dynamic Wetting Workshop,

- Lawrence Berkeley National Laboratory, Berkeley, California, April, 2015.
- 2015.2 Center for Nanoscale Control of Geologic CO₂ Scenarios Workshop, Lawrence Berkeley National Laboratory, Berkeley, California, February, 2015.
- 2015.2 Research Showcase for Stanford University's Class "Reservoir Wettability and Contact Angle", Lawrence Berkeley National Laboratory, Berkeley, California, February, 2015.
- 2014.11 Thrust Area 2: Secondary Trapping. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.11 Collaborative Research Meeting with Dr. Sally Benson's and Dr. Hamdi Tchelepi's Groups from Stanford University, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2014.
- 2014.10 Thrust 2: Secondary Trapping Meet-Up. Stanford University, Palo Alto, California, October, 2014.
- 2013.12 Mineralogical Society of America and Geochemical Society Short Course on Geochemistry of Geologic CO₂ Sequestration. Lawrence Berkeley National Laboratory, Berkeley, California, December, 2013.
- 2013.11 Thrust Area 2: Reservoir Processes. In *Center for Nanoscale Control of Geologic CO₂ Fall Symposium*, Lawrence Berkeley National Laboratory, Berkeley, California, November, 2013.
- 2013.9 Society of Exploration Geophysicist International Exposition and 83rd Annual Meeting. Houston, Texas, September, 2013.
- 2011.11 Inter-University Student Initiative in Carbon Sequestration Fall Meeting, Princeton University, Princeton, New Jersey, November, 2011.

Professional Affiliations, Services and Activities

Convener and Chair

- 2015.12 **Primary Convener**, Session "H077A: New Perspectives on CO₂ Flow, Transport, and Long-Term Storage in Subsurface Reservoirs I" In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.
- 2015.12 **Primary Convener**, Session "H077B: New Perspectives on CO₂ Flow, Transport, and Long-Term Storage in Subsurface Reservoirs II" In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.
- 2015.12 **Primary Convener and Co-Chair**, Session "H077C: New Perspectives on CO₂ Flow, Transport, and Long-Term Storage in Subsurface Reservoirs Posters" In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.

- 2014.12 **Convener and Co-Chair**, Session “H11K: Coupled Hydraulic, Geochemical, and Geomechanical Processes in Carbon Storage I” In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2014.12 **Convener and Co-Chair**, Session “H12B: Coupled Hydraulic, Geochemical, and Geomechanical Processes in Carbon Storage II” In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2014.12 **Convener and Co-Chair**, Session “H23O: Coupled Hydraulic, Geochemical, and Geomechanical Processes in Carbon Storage IV” In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2014.12 **Convener and Co-Chair**, Session “H24A: Coupled Hydraulic, Geochemical, and Geomechanical Processes in Carbon Storage V” In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.

Referee

- 2015.12 **Outstanding Student Paper Awards**. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2015.
- 2014.12 **Outstanding Student Paper Awards**. In *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.

Seminar Organizer and Host

- 2015.12 Darcy Lecture/Distinguished Scientist Seminar Featuring Dr. Rainer Helmig on “Evaluating the Competitive Use of the Subsurface: The Influence of Energy Storage and Production in Groundwater”, Lawrence Berkeley National Laboratory, Berkeley, California, December, 2015.
- 2015.4 Distinguished Scientist Seminar Featuring Dr. Michael Celia on “Leakage Along old Wells with Applications to CO₂ Sequestration and Methane Emissions”, Lawrence Berkeley National Laboratory, Berkeley, California, April, 2015.
- 2014.9 Distinguished Scientist Seminar Featuring Dr. Robert Enick on “Improving CO₂ Enhanced Oil Recovery with CO₂-soluble Additives, with Possible Application to CO₂ Sequestration”, Lawrence Berkeley National Laboratory, Berkeley, California, September, 2014.

Committee

- 2014.3-Present Distinguished Scientist Seminar Series Committee, Earth Sciences Division, Lawrence Berkeley National Laboratory.
- 2011.4 University of Virginia Engineering Research Symposium, University of Virginia.
- 2010.7.-2011.7 Graduate Engineering Student Council (Vice President), University of Virginia.
- 2009-2010 Department Advisory Committee, CEE, University of Virginia.

Journal Reviewer

2015-Present Journal of Colloid and Interface Science
2015-Present Royal Society of Chemistry Advances
2015-Present Journal of Earth System Science
2015-Present Geophysical Research Letters
2015-Present Lab on a Chip
2015-Present Advances in Water Resources
2015-Present International Journal of Greenhouse Gas Control
2015-Present Water Resources Research
2015-Present Environmental Earth Sciences
2015-Present Environmental Progress and Sustainable Energy
2015-Present Geophysics
2014-Present Journal of Canadian Petroleum Technology
2014-Present Desalination
2014-Present Journal of Water and Climate Change
2014-Present Energies
2013-Present SPE Reservoir Evaluation & Engineering–Formation Evaluation
2013-Present Environmental Science and Technology

Membership

2015-Present International Society for Porous Media (InterPore)
2014-Present Stanford Energy Club (SEC)
2014-Present Berkeley Energy and Resources Collaborative (BERC)
2012-Present Society of Petroleum Engineers (SPE)
2011-Present American Geophysical Union (AGU)
 2013-2014 Society of Exploration Geophysicists (SEG)
 2012-2013 Chinese American Petroleum Association (CAPA)
 2007-2013 American Society of Civil Engineering (ASCE)
2008-2011, 15 American Chemical Society (ACS)
 2007-2009 Virginia Water Environment Association/Water Environment Federation
 (VWEA/WEA)
 2007-2009 American Water Works Association (AWWA)

Exhibitor and Volunteer

- 2014.12 Employee Representative of Earth Sciences Division, Lawrence Berkeley National Laboratory to Showcase Research, Network and Recruit at *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2014.
- 2013.12 Employee Representative of Earth Sciences Division, Lawrence Berkeley National Laboratory to Showcase Research, Network and Recruit at *American Geophysical Union Fall Meeting*, San Francisco, California, December, 2013.

Student Mentoring

- 2014.6-Present **Lawrence Berkeley National Laboratory**, Berkeley, California
- PhD Students: Weijun Shen, Rong Li
- 2009.6-2013.1 **University of Virginia**, Charlottesville, Virginia
- PhD Students: Bo Liang, Zhiyuan Tao, Brian Weaver
 - Undergraduate Students: Brian Tison, Ian Edwards, Sara Persily, Jasmine Copeland, Lauren Bolton, Simon Kobayashi, Christina Perry, Jack St. Marie
 - High School Teachers: Brandon Lee, Karla Sharrer, Deborah Putney

Software Skills

MATLAB, ABAQUS, C, LabVIEW, COMSOL, Crystal Ball, PHREEQC II, Visual Minteq, AspenPlus, Simapro, Microsoft Office Suite, Adobe Acrobat Suite

Media Coverage

- 2015.6 **“Capillary Pressure Saturation Relations for Supercritical CO₂ and Brine in Limestone/Dolomite Sands: Implications for Geologic Carbon Sequestration in Carbonate Reservoirs”**, US Department of Energy – Energy Frontier Research Centers Community Website
- 2015.6 **“Wang, Tokunaga Win ACS Editors' Choice Award”**, LBNL – Earth Sciences Division News and Events; ESD Twitter Webpage; ESD Facebook Webpage
- 2015.6 **“ACS Publications – Editors' Choice”**, American Chemical Society Website
- 2014.10 **“Introduction of Winner of Chinese Government Scholarship for Outstanding Self-Financed Student”**, China Scholars Abroad Magazine
- 2013.12 **“Lab Earth Scientists Present Talks at American Geophysical Union Meeting”**, Today at Berkeley Lab, LBNL Webpage
- 2013.4 **“2012 Chinese Government Scholarship for Outstanding Self-Financed Student”**, China Scholarship Council Webpage

- 2012.8 **“Underground Bubbles Could Help Keep Unwelcome Carbon Dioxide Out Of The Atmosphere”**, American Geophysical Union Blogosphere
- 2012.8 **“Patent Application Titled “Gas Expanded Lubricants For Increased Energy Efficiency and Related Method and System” Under Review”**, VerticalNews
- 2012.6 **“Shibo Wang and Ian Edwards Place In The “Two Hoos” Oral Presentation Competition”**, CEE News, University of Virginia
- 2012.5 **“Gas Expanded Lubricants: Smart Fluids For Improving Efficiency of Wind Turbines”**, National Science Foundation Website
- 2011.4 **“WIPO Assigns Patent To University of Virginia Patent Foundation For “Gas-Expanded Lubricants For Increased Energy Efficiency And Related Method And System” (American Inventors)”**, HighBeam Research
- 2010.11 **“Generating a ‘Smart’ Solution For More-Efficient Energy Production”**, School of Engineering and Applied Science E-News Online, University of Virginia
- 2010.10 **“Generating a ‘Smart’ Solution For More-Efficient Energy Production”**, Patent Foundation Website, University of Virginia
- 2010.5 **“Gas-Expanded Lubricants”**, Tech Beat, Tribology and Lubrication Technology

Entrepreneurship

- 2013.9-2015.3 **Co-Founder**, *Running River Investment LLC*, California
- 2012.3-Present **Co-Founder and Vice President**, *US–China Business and Finance Club*, University of Virginia
- 2011.1-Present **Co-Founder**, *Sinora Business and Financial Club*, US, China and Europe

Diversity and Volunteer Activities

- 2011.11 **Referee**, *Chinese Student and Scholars Society Singing Contest*, University of Virginia
- 2010.7.-2011.7 **Vice President**, *Graduate Engineering Student Council*, University of Virginia
- 2010.11 **Champion**, *Chinese Student and Scholars Society Singing Contest*, University of Virginia
- 2009-2010 **Member**, *Department Advisory Committee*, CEE, University of Virginia.
- 2010.2 **Co-Organizer and Volunteer**, *Charity Concert for Haiti Earthquake*, Charlottesville, Virginia (Raised \$30,000)
- 2009.1-2009.12 **Volunteer**, *Hope Community Center*, Charlottesville, Virginia
- 2008.5 **Co-Organizer and Volunteer**, *Charity Concert Series for 2008.5.12 Earthquake in China*, Charlottesville, Virginia (Raised \$10,000)
- 2006.10 **Outstanding Individual Award** on Donating Blood Voluntarily, Dalian University of Technology

- 2006.10 **Third Class Prize**, *4th Explore Cup English Contest*, Dalian University of Technology
2006.3 **Volunteer**, *Voluntary Blood Donation*, Dalian Blood Station
2004.9-2006.3 **Member**, *University Chorus*, Dalian University of Technology
2005.10 **Second Class Prize** on Drama, *15th English Gala*, Dalian University of Technology
2005.10 **Third Class Prize** on Singing, *15th English Gala*, Dalian University of Technology
2005.9 **Second Class Prize** on Poem, *7th Literature and Arts Contest*, Dalian University of Technology
2005.9 **Third Class Prize** on Photography, *7th Literature and Arts Contest*, Dalian University of Technology
2004.9-2005.6 **Vice President**, *Speech Making and Debate Association*, School of Environmental & Biological Science & Technology, Dalian University of Technology
2004.9-2005.6 **Member**, China Red Cross Society, Dalian
2003.9-2005.6 **Vice President**, *Outdoor Sport Association*, Dalian University of Technology
2005.3 **Volunteer**, *Voluntary Blood Donation*, Dalian Blood Center
2004.11 **First Prize and the Best Debater**, *1st Freshmen Debate Contest of School of Environmental & Biological Science & Technology*, Dalian University of Technology
2004.11 **Volunteer**, *Voluntary Blood Donation*, Dalian University of Technology
2004.9 **Excellent Prize** on the Academic Achievement, Dalian University of Technology
2004.5 **Organizer and Volunteer**, *Senior People Care*, Dalian Social Welfare Institution

Hobby and Interests

Skiing, Speed Skating, Charter Fishing, Horseback Riding, Hiking, Running, Golfing, Vocal Music, Violin