LIN (LINDA) GAO

EDUCATION

- Ph.D. Analytical Chemistry, specializing in MicroScale Bioseparations and Nanochannel-Based Fuel Cells, Texas Tech University, Lubbock, TX.
- M.S. Analytical Chemistry, specializing in Fuel Cell Anode Surface Catalysis, Texas Tech University, Lubbock, TX.
- B.S. Analytical Chemistry, Jilin University, China.

WORK EXPERIENCE

Professor (8/2018~present), Associate Professor (8/2013~8/2018) and Assistant Professor (8/2007~8/2013), Department of Chemistry, University of Mary Hardin-Baylor (UMHB), Belton TX.

- Teaching 12 hours per semester with 3 lecture and 2 or 3 lab preparations.
 - Introduction to Forensic Science with Lab (non-major class)
 - Chemistry and Society with Lab (non-major class)
 - College Chemistry with Lab (nursing major class)
 - General Chemistry I with Lab
 - General Chemistry II with Lab
 - Quantitative Analysis with Lab
 - Instrumental Analysis with Lab
 - Chemical Research
 - Chemical Research Capstone Course
 - Competency-Based Education (CBE) College Chemistry with Lab
- Instructing students on standard operating procedures of analytical instruments, including gas
 chromatograph-mass spectrometer (GC-MS), high performance liquid chromatograph (HPLC), gas
 chromatograph (GC), Fourier transform infrared spectrometer (FTIR), UV-Vis spectrometer, and potentiostat.
- Supervising undergraduate research on:
 - Evaluation of energy consumption and greenhouse gas emissions of alternative fuels.
 - Fuel cell catalysts and fuel cell electrochemistry.
 - Development of a sensitive and low-cost immunosensor for direct detection based on self-assembled monolayers.

<u>Teaching and Research Assistant</u>, Department of Chemistry and Biochemistry, Texas Tech University, 8/2000~12/2006.

- Lab courses taught: General Chemistry, Analytical Chemistry, Analytical Chemistry Methods, Instrumental Analytical Method, and Microscale Organic Laboratory.
- Developed a new Cross-Linked Polyacrylamide (CPA) coating for capillary electrophoretic separation of proteins and peptides.
- Constructed and characterized an economic, multiplexed capillary electrophoresis (CE) instrument with Optic-Fiber UV detection.
- Achieved high performance/high throughput CE separation on CPA coated capillaries and comprehensive protein profiling with the homemade CE-UV instrument.
- Investigated a Nanochannel-Based Proton Membranes for Fuel Cell applications.
- Determined CO₂ from electrochemical oxidation of methanol on Direct Methanol Fuel Cell (DMFC) catalysts (Pt, Pt-Ru) by Transmission Infrared Spectroscopy.
- Investigated platinum nanoparticles as novel Fuel Cell catalysts on Highly Ordered Pyrolytic Graphite (HOPG) with the use of electrochemical methods and Atomic Force Microscopy (AFM).

<u>Staff Chemist</u>, National Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, China, 7/1999~7/2000.

• Designed and tested a homemade Molecular Recognition Electroanalytical Analyzer, a key project of the Chinese Academy of Sciences.

GRANTS AND AWARDS

- Faculty Co-Advisor, American Chemical Society Student Chapter Honorable Mention Award, 2017~2018.
- National Meeting Travel Grant for the student chapter for attending the 253rd American Chemical Society National Meeting & *Exposition*, San Francisco, CA, **\$300**, April 2-4, 2017.
- Faculty Co-Advisor, American Chemical Society Student Chapter Commendable Award, 2016~2017.
- Departmental Research Grant of The Welch Foundation, \$30,000/year, Co-Investigator, 2016~2018.
- National Meeting Travel Grant for the student chapter for attending the 251st American Chemical Society National Meeting & Exposition, San Diego, CA, \$300, March 13-15, 2016.
- Faculty Co-Advisor, American Chemical Society Student Chapter **Commendable Award**, 2015~2016.
- Departmental Research Grant of The Welch Foundation, \$30,000, Co-Investigator, 2015~2016.
- Faculty Co-Advisor, American Chemical Society Student Chapter Outstanding Award, 2014~2015.
- UMHB Faculty Development Funds, \$5,000, 2014~2015.
- Faculty Co-Advisor, American Chemical Society Student Chapter Outstanding Award, 2013~2014.
- National Meeting Travel Grant for the student chapter for attending the 245th American Chemical Society National Meeting & *Exposition*, New Orleans, LA, **\$300**, April 6-8, 2013.
- Departmental Research Grant of The Welch Foundation, \$25,000/year, Co-Investigator, 2012~2015.
- Faculty Co-Advisor, American Chemical Society Student Chapter Honorable Mention Award, 2012~2013.
- Pittsburgh Conference Memorial National College Grant (matched by the University), \$16,145, Principal Investigator, 2012.
- UMHB Summer Research Grant, \$10,000, 2012.
- Faculty Co-Advisor, American Chemical Society Student Chapter **Green Chemistry Award** and American Chemical Society Student Chapter **Commendable Award**, 2011~2012.
- UMHB Faculty Development Funds, \$8,000, 2009~2010.
- Contributor to the development of "Nanochannel-Based Fuel Cells". This project received Nano 50 Award for the "best of the best" top 50 technologies, awarded by Nanotech Briefs magazine. 2006.
- Travel Grant to the 18th International Symposium on Microscale Bioseparations, New Orleans, LA, February 2005, California Separation Science Society (CaSSS).
- Graduate Student Travel Grant, \$400, Graduate School of Texas Tech University, 2005.
- Texas Excellence Fund Fellowship, Texas Tech University, 2002.
- Outstanding Undergraduate Scholarship, Jilin University, China, 1995~1999.

PEER REVIEWED JOURNAL AND BOOK PUBLICATIONS (* = UMHB undergraduate student)

- "Great Services, Fun Learning, and Success", Lin Gao (corresponding author), Joy Ahlgren-Beckendorf, book chapter in "Building and Maintaining Award-Winning ACS Student Member Chapters", *American Chemical Society (ACS) Symposium Series*, published online on October 5, 2016.
- "Beyond the Vehicle Operation Cycle", Lin Gao, Zach C. Winfield*, *International Innovation*, 2015, *178*, 80-81.

- "Evaluating the Energy Consumption and Emissions of Direct Alcohol Fuel Cells", Lin Gao, Malintha C. Abeysiri*, Zach C. Winfield*, *International Journal of Energy Science*, 2012, *2* (5), 211-216.
- "Life Cycle Assessment of Environmental and Economic Impacts of Advanced Vehicles", Lin Gao, Zach C. Winfield*, *Energies*, 2012, *5*, 605-620.
- "Well-to-Wheels Analysis of Energy Use and Greenhouse Gas Emissions for Alternative Fuels", Lin Gao, *International Journal of Applied Science and Technology*, 2011, *1* (6), 1-8.
- "An Economic Approach for Construction of a Multiplexed Capillary Electrophoresis System", Shaorong Liu, Qiaosheng Pu, Lin Gao, Joann Lu, *Talanta*, 2006, *70*, 644-650.
- "Comprehensive Protein Profiling by Multiplexed Capillary Zone Electrophoresis Using Cross-Linked Polyacrylamide Coated Capillaries", Shaorong Liu, Lin Gao, Qiaosheng Pu, Joann J. Lu, Xingjia Wang, *Journal of Proteome Research.*, 2006, 5, 323-329.
- "From Nanochannel-Induced Proton Conduction Enhancement to a Nanochannel-Based Fuel Cell", Shaorong Liu, Qiaosheng Pu, Lin Gao, Carol Korzeniewski, Carolyn Matzke, Nano Letters, 2005, 5, 1389-1393.
 - This project received Nano 50 Award for the "best of the best" top 50 technologies, awarded by Nanotech Briefs magazine, 2006.
- "Cross-Linked Polyacrylamide Coating for Capillary Isoelectric Focusing", Lin Gao, Shaorong Liu, *Analytical Chemistry*, 2004, *76*, 7179-7186.
- "The Efficiency of Methanol Conversion to CO₂ on Thin Films of Pt and PtRu Fuel Cell Catalysts", Lin Gao, Huiliang Huang, Carol Korzeniewski, *Electrochimica Acta*, 2004, *49*, 1281-1287.
- "Methanol Electrochemistry at Carbon-Supported Pt and PtRu Fuel Cell Catalysts: Voltammetric and In Situ Infrared Spectroscopic Measurements at 23 °C and 60 °C", Ganesh Vijayaraghavan, Lin Gao, Carol Korzeniewski, Langmuir, 2003, 19, 2333-2337.

PROFESSIONAL MEMBERSHIPS AND OFFICES

- Alternate Councilor of Heart O' Texas Section of the American Chemical Society (ACS), 2015~present.
- Program Committee of the Annual International Conference on Chemistry, Chemical Engineering and Chemical Process (CCECP), 2014~2015.
- Outreach Coordinator of Heart O' Texas Section of the American Chemical Society (ACS), 2012~present.
- Chair of Heart O' Texas Section of the American Chemical Society (ACS), 2012.
- Member of Associated Chemistry Teachers of Texas (ACT₂).
- Chair Elect of Heart O' Texas Section of the American Chemical Society (ACS), 2011.
- Member of Texas Academy of Science (TAS).
- Member of American Chemical Society Member (ACS), 2000~present.

EDITORIAL POSITIONS AND JOURNAL REVIEWS

- Journal of Chemistry and Biochemistry, Editorial Board, 2019~present
- Global Journals, Editorial Board, 2016~present.
- Batteries, Editorial Board, 2015~present.
- International Journal of Applied Science and Technology, Editorial Board, 2012~present.
- Analytical Chemistry
- Journal of Chromatography B
- Analytica Chimica Acta

- Chemistry, Molecular Sciences and Engineering
- Journal of Pharmaceutical and Biomedical Analysis
- Energies
- International Journal of Energy Research
- Sustainability
- World Electric Vehicle Journal
- Transport Problems
- SAE International
- Journal of Mathematical Biology
- Journal of Developmental Biology and Tissue Engineering
- British Journal of Economics, Management & Trade

CONFERENCE PRESENTATIONS (* = UMHB undergraduate student)

- "Green Chemistry with the Cru-Serving the Community and Environment", Amy Nguyen*, Brett Bishop, Lin Gao, poster presentation at the 257th American Chemical Society National Meeting & Exposition, Orlando, FL, April 1, 2019.
- "Electrochemical Studies of Methanol Oxidation Reactions at Platinum and Platinum-Ruthenium Nanoparticle Catalysts in Direct Methanol Fuel Cells", Zach Eason*, Dr. Lin Gao (faculty advisor), *The UMHB Honors Senior Research Project Defense*, April 15, 2019.
- "Life Cycle Assessment of Greenhouse Gas Emissions and Energy Usage of Biodiesel and Renewable Diesel Fuels", Steven Howdeshell*, Dr. Lin Gao (faculty advisor), oral presentation at the *UMHB STEM Day Student Symposium*, November 8, 2018 and poster presentation at the *UMHB Scholars' Day*, November 12, 2018.
- "Carbon Nanotubes and Methanol Fuel Cells", Jeremy Scott*, Dr. Lin Gao (faculty advisor), oral presentation at the *UMHB STEM Day Student Symposium*, November 8, 2017.
- "Demos in the Den: Visual Demonstration of Chemistry in an Auditorium", Mackenzie Sautter*, David McKinzey*, Joanne Thomson*, Joy Beckendorf, Lin Gao, poster presentation at the 253rd American Chemical Society National Meeting & Exposition, San Francisco, CA, April 3, 2017.
- "Alka-Seltzer Rockets and Spinach Blood" for ChemDemo Exchange, David McKinzey*, Mackenzie Sautter*, Joanne Thomson*, Lin Gao, 253rd American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2, 2017.
- "Synthesis and Characterization of Platinum/Ruthenium Nanoparticles for Methanol Fuel Cells", David McKinzey*, Lin Gao, poster presentation at the 120th Annual Meeting of the Texas Academy of Science (TAS), Belton, TX, March 4, 2017.
- "Chinese Culture Seminar", Dr. Haedy Liu, Dr. Lin Gao, Dr. Chao Gong, Dr. Shuai-fu Lin, invited seminar given to UMHB faculty, February 10, 2017.
- "Cost-Effective and Sensitive Immunosensor Derived from Electrochemical Measurements and Self-Assembled Monolayers", Savannah Robinson*, John Lawrence*, Dr. Lin Gao (faculty advisor), poster presentation at the *UMHB Scholars' Day*, March 30, 2016.
 - This poster received the 1st Place Best Abstract Award of the 2016 UMHB Scholars' Day.
- "Chemistry with The Cru Successful Outreach to the Children's Hospital", David McKinzey*, Kendall McGahey*, Joy Beckendorf, Lin Gao, poster presentation at the 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 14, 2016.
- "Balloon Blow-Up and Spinach Blood" for ChemDemo Exchange, David McKinzey*, Matthew Acker*, Lin Gao, 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13, 2016.

- "Development of a Sensitive and Low-Cost Immunosensor Based on Capacitive Measurements and Self-Assembled Monolayers", Marie Stephensen*, Malintha C. Abeysiri*, Dr. Lin Gao (faculty advisor), poster presentation at the *UMHB Scholars' Day*, April 27, 2015.
- "Bouncing Bubble and Crushing Can" for ChemDemo Exchange, Kendall McGahey*, David McKinzey*, Christopher Clarke*, Hillary Salazar*, Savannah Robinson*, Lin Gao, 249th American Chemical Society National Meeting & Exposition, Denver, CO, March 22, 2015.
- "Evaluation of Energy Efficiency and Environmental Impact on Dedicated and Bi-Fuel Compressed Natural Gas Vehicles", Malintha C. Abeysiri*, Robert C. Meyer*, Lin Gao, poster presentation at the 70th Southwest Regional Meeting of the American Chemical Society, Forth Worth, TX, November 21, 2014.
- "Assessment of Energy Consumption and Emissions of Fuel Cells", Malintha C. Abeysiri*, Lin Gao, oral
 presentation at the 70th Southwest Regional Meeting of the American Chemical Society, Forth Worth, TX,
 November 19, 2014.
- "Assessment of Dedicated and Bifuel Compressed Natural Gas Vehicles", Malintha C. Abeysiri*, Dr. Lin Gao (faculty advisor), poster presentation at the UMHB Scholars' Day, April 28, 2014.
- "Alka-Seltzer Rockets" for ChemDemo Exchange, Casey Jessup*, Christopher Clarke*, Kendall McGahey*, Lindsay Leissner,*, Zach Winfield*, Joy Beckendorf, Lin Gao, 247th American Chemical Society National Meeting & Exposition, Dallas, TX, March 16, 2014.
- "Environmental and Economic Impacts of Compressed Natural Gas Vehicles", Zach Winfield*, Lin Gao, poster presentation at the 69th Southwest Regional Meeting of the American Chemical Society, Waco, TX, November 4, 2013.
- "Demos in the Dark: Visual Demonstration of Chemistry", Lindsay Leissner*, Quy Nguyen*, Zach Winfield*, Lin Gao, poster presentation at the *245th American Chemical Society National Meeting & Exposition*, New Orleans, LA, April 8, 2013.
- "Science Saturday: An Outreach to the Community", Caitlin Cambria*, Zach Winfield*, Lin Gao, poster presentation at the *245th American Chemical Society National Meeting & Exposition*, New Orleans, LA, April 8, 2013.
- "MOM to the Rescue" for ChemDemo Exchange, Caitlin Cambria*, Lindsay Leissner*, Quy Nguyen*, Zach Winfield*, Joy Ahlgren-Beckendorf, Lin Gao, 245th American Chemical Society National Meeting & Exposition, New Orleans, LA, April 7, 2013.
- "Well-to-Wheels Energy and Emission Analysis of Alternative Fuels", Lin Gao, oral presentation at the 68th Southwest Regional Meeting of the American Chemical Society, Baton Rough, LA, November 5, 2012.
- "Energy Use and Emission Studies of Direct Alcohol Fuel Cells", Malintha C. Abeysiri*, Lin Gao, poster presentation st the 68th Southwest Regional Meeting of the American Chemical Society, Baton Rough, LA, November 4, 2012.
- "Assessment of Energy Efficiency and Green-House Gas Emissions of Direct Alcohol Fuel Cells", Lin Gao, Summer Research Grant Report Presentation, August 14, 2012.
- "Environmental and Economic Impacts of Advanced Vehicles", Zach Winfield*, Dr. Lin Gao (faculty advisor), poster presentation at the *UMHB Scholars' Day*, April 23, 2012.
- "Effects of Nafion Film at Catalyst Surface for Methanol Oxidation", Simon Montelongo*, Dr. Lin Gao (faculty advisor), poster presentation at the UMHB Scholars' Day, April 18, 2011.
- "Study of Platinum Based Catalysts at Carbon Electrode Surface in Direct Methanol Fuel Cells", Michelle Del'Homme*, Dr. Lin Gao (faculty advisor), poster presentation at the UMHB Scholars' Day, April 18, 2011.
- Invited talk, "Electrochemical Studies of Methanol Oxidation at Platinum and Platinum-Ruthenium Particle Catalysts in Direct Methanol Fuel Cells", Lin Gao, *College of Sciences Brown Bag Talk*, March 23, 2011.
- Invited talk, "Chemical Laboratory Safety", Lin Gao, *Department of Chemistry TA Orientation*, January 28, 2011.
- Invited talk, "Direct Methanol Fuel Cells", Lin Gao, Sigma Pi Chemistry Club Seminar, November 8, 2010.

- "Electrochemical Studies of Methanol Oxidation at Platinum Nanoparticles Catalysts in Direct Methanol Fuel Cells", Tanesha Charles, Lin Gao, poster presentation at the 2010 Central Texas NSF-STEP Summer Research Program Symposium, August 6, 2010.
- Invited seminar, "Recent Advances in Nano-science and Nano-technology for Direct Alcohol Fuel Cell Developments", Lin Gao, Texas Bioscience Institute Practicing Science Professionals Seminar Series, Temple, TX, March 12, 2010.
- High Quality Separations of Proteins Using Cross-Linked Polyacrylamide Coated Capillaries", Lin Gao, Shaorong Liu, International Symposium on MicroScale Bioseparations, February 12-17, 2005.
- Strategies for Probing Pathways in the Electrochemical Oxidation of Methanol and Related Small Molecules at Nanometer-Scale Catalysts", Carol Korzeniewski, Ganesh Vijayaraghavan, Wei Zhou, Lin Gao, Prachak Inkaew, American Chemical Society National Meeting, March 2003.
- "Strategies for the Study of CH, OH and CO Electrochemistry on Nanometer-Scale Metal Particles", Carol Korzeniewski, Lin Gao, Wei Zhou, Ganesh Vijayaraghavan, *American Chemical Society National Meeting*, August 18, 2002.
- "Approaches in the Study of Methanol Electrocatalysis", Carol Korzeniewski, Ganesh Vijayaraghavan, Lin Gao, Gordon Research Conference on Fuel Cells, July 28-August 2, 2002.
- "Electrochemical Studies of Methanol Oxidation at Nanometer-Scale Deposits of Platinum", Lin Gao, *The TTU All University Conference*, April 12, 2002.
- "Strategies for Probing Competing Reaction Pathways of Methanol and Related Small Molecules on Fuel Cell Catalysts", Huiliang Huang, Lin Gao, Carol Korzeniewsk, Gordon Research Conference on Electrochemistry, January 20-25, 2002.

PROFESSIONAL CONFERENCES AND WORKSHOPS ATTENDED

- 253rd American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2-3, 2017.
- 120th Annual Meeting of the Texas Academy of Science Meeting, Belton, TX, March 3-4, 2017.
- Pearson Mastering Chemistry Online Homework Workshop, UMHB Library, July 26, 2016.
- 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-14, 2016.
- 2015 Process Oriented Guided Inquiry Learning (POGIL) South Central Regional Workshop at The University of Texas at Dallas, Richardson, TX, July 8-10, 2015.
- UMHB Health Professions Advisory Workshop, April 15, 2015.
- 249th American Chemical Society National Meeting & Exposition, Denver, CO, March 16, 2015.
- 70th Southwest Regional Meeting of the American Chemical Society, Forth Worth, TX, November 19-21, 2014.
- 247th American Chemical Society National Meeting & Exposition, Dallas, TX, March 16, 2014.
- GHS Label Elements and Safety Data Sheets Online Training, Flinn Scientific, Inc., November 26, 2013.
- 69th Southwest Regional Meeting of the American Chemical Society, Waco, TX, November 4, 2013.
- 245th American Chemical Society National Meeting & Exposition, New Orleans, LA, April 7-8, 2013.
- 68th Southwest Regional Meeting of the American Chemical Society, Baton Rough, LA, November 4-5, 2012.
- UMHB Advising Workshop, October 3, 2012.
- 28th Biennial Conference of the Associated Chemistry Teachers of Texas (ACT2), Belton, TX, June 24-28, 2012.
- Demonstration of Sapling Learning's Online Homework System, May 9, 2012.
- "How to Create Academically-Aligned, Remote Lab Experiments for Online Students Studying Forensic Science and Criminal Justice", Hands-on Labs, Inc., April 27, 2012.

- "How to Create a Rigorous Web Lab Experience for Online Science Courses", Hands-on Labs, Inc., March 27, 2012.
- 67th Southwest Regional Meeting of the American Chemistry Society, November 9-12, Austin, TX, 2011.
- 111th Annual Meeting of the Texas Academy of Science (TAS), Corpus, Christi, TX, March 6-8, 2008.

UNIVERSITY SERVICE

- College of Humanities and Sciences Ad Hoc Committee, 2019~2020.
- Search Committee for Assistant/Associate Professor of Biochemistry Chemistry, 2019~2020.
- Search Committee Chemistry Instructor, 2019.
- Search Committee for Assistant/Associate Professor of Biology, 2018~2019.
- Search Committee for Dean of College of Humanities and Sciences, 2017~2018.
- Search Committee for Assistant/Associate Professor of Biochemistry, 2017.
- Search Committee for Assistant/Associate Professor of Organic Chemistry, 2016~2017.
- Education Technology Committee, 2016~2019.
- National STEM Day Committee, 2016~2018.
- Admissions and Financial Aid Committee, 2013~2016.
- Study Abroad Committee, 2013~2015.
- Search Committee for Assistant/Associate Professor of Organic Chemistry, 2013.
- Faculty Co-Advisor of Sigma Pi Chemistry Club, the official Student Chapter of the American Chemical Society, 2012~present.
 - Activities include taking students to national conferences, UMHB chemistry alumni speaker seminars,
 Demos in the Dark, Science Saturday, National Chemistry Week, Earth Day, Adopt-A-Highway, Chemistry with The Cru, and National STEM Day.
- Science Saturday Committee, 2012~present.
- Health Professions Advisory Committee, 2012~present.
- Environmental Concerns Committee, 2011~2013.
- Search Committee for Dean of College of Sciences, 2011.
- Scholars' Day Committee, 2009~2015.
- Advisor for Chemistry, Forensic Science and Pre-Health Profession students, 2009~present.
- Interviewing and evaluating international students for exiting the English for Speakers of Other Languages (ESOL) classes, 2009~2017.
- Diversity Committee, 2009~2011.

CHURCH AND COMMUNITY SERVICE

- Bylaws Committee, Chinese Mission of First Baptist Church of Belton, TX, 2017.
- Finance Assistant Coworker, Chinese Mission of First Baptist Church of Belton, TX, 2016~2017.
- Elected Finance Coworker, Chinese Mission of First Baptist Church of Belton, TX, 2015.
- Elected Worship Coworker, Chinese Mission of First Baptist Church of Belton, TX, 2013~2014.
- Chemical demonstration at Sparta Elementary School Science Fair, Belton, TX, May 20, 2013.
- Finance Assistant Coworker, Chinese Mission of First Baptist Church of Belton, TX, 2012.

- Invited workshop, "Prayer in Faith", 2012 Shepherds Conference at First Baptist Church of Belton, TX, August 4, 2012.
- Faculty mentor of Texas Bioscience Institute Middle College Student, National Science Foundation Science, Technology, Engineering, and Mathematics Talent Expansion Program (NSF-STEP) Central Texas Summer Research Program, June-August, 2010.
- Member of Chinese Mission of First Baptist Church of Belton, TX, 2007~present.