Curriculum Vitae

Associate Professor
Department of Chemical Engineering
344 Ross Hall
Auburn University, AL 36849

Tel: (334) 844-7602;
Fax: (334) 844-2063;
Email: qhe@auburn.edu
Web: http://www.eng.auburn.edu/chen/

Education

1996	B.E.	Chemical Engineering	Tsinghua University, P. R. China
2002	M.S.	Chemical Engineering	The University of Texas at Austin
2005	Ph.D.	Chemical Engineering	The University of Texas at Austin

Academic Experience

08/2016 – present	Associate Professor, Dept. Chemical Engineering, Auburn University
10/2011 – 08/2016	Associate Professor, Dept. Chemical Engineering, Tuskegee University
08/2006 – 09/2011	Assistant Professor, Department of Chemical Engineering, Tuskegee University
08/1996 – 07/1999	Research Assistant, Department of Chemical Engineering, Tsinghua University

Industrial Experience

07/2005 – 07/2006	Senior Development Engineer, Spansion LLC (spin-off of AMD)
06/2004 – 06/2005	Development Engineer II, Advanced Micro Devices Inc
05/2003 – 08/2003	Summer Intern, E. I. du Pont de Nemours and Company

Research Interests

Renewable energy: value-added products from biogas; bioreactor design; fermentation process modeling and control; biofuels education in chemical engineering

Cancer research: cancer informatics; cancer health disparities assessment; cancer biomarker identification

Smart and sustainable manufacturing: Modeling, monitoring, optimization and control of large-scale high-mix semiconductor manufacturing processes and energy intensive pulping processes

Honors and Awards

Faculty of the Year, College of Engineering, Tuskegee University, 2016
Selected to participate in sixth National Academy of Engineering's Frontiers of Engineering Education (FOEE) Symposium, October 27-30, 2014, Irvine, CA.
Review Editor, Process and Energy Systems Engineering, 2014-present
Associate Editor, ISA Transactions, 2014-2017
Young Researcher Travel Award, FOCAPO/CPC, 2011
Outstanding Faculty Performance Award in Research, Tuskegee University, 2009
Nominated for Annual Best Paper Award, Journal of Process Control, 2009
Key Contributor Award, Spansion LLC, 2006
Chancellor's list, 2005
Chancellor's list, 2004
Special recognition for outstanding intern performance, E. I. du Pont de Nemours and Company, 2003

Outstanding Student Scholarship, First Prize, Tsinghua University, 1995

Outstanding Student Scholarship, Second Prize, Tsinghua University, 1994

Xinghua Fellowship, Tsinghua University, 1993

Invited Talk

Systems Engineering Enhanced Data Analytics and Its Applications in Manufacturing and Cancer Research, Auburn University, Jan 25, 2016

Industrial applications of data mining and knowledge discovery, Oklahoma State University, July 1, 2013

Data-Driven Systems Engineering Approaches and Their Applications to Industrial Processes, Auburn University, Sept. 10, 2012

Data Driven Approaches for Effective Process Monitoring, Iowa State University, March 8, 2012

Professional Activities

Senior Member, American Institute of Chemical Engineers (AIChE)

Senior Member, Institute of Electrical and Electronics Engineers (IEEE)

Member, IEEE Computer Society

Member, American Chemistry Society (ACS)

Member, Society for Industrial Microbiology and Biotechnology (SIMB)

Member, American Society for Engineering Education (ASEE)

Member, International Society of Automation (ISA)

Microsoft Certified Professional Systems Engineer + Internet (MCSE+Internet)

Patents Granted and Filed at US Patent and Trademark Office

1. Wang J. & **He Q.P.**, Enhanced state estimation method based on information credibility, US Patent # 8,515,567, issued on August 20, 2013.
2. Lansford C. & **He Q.P.**, "Integrated circuit wafer system with control strategy", U.S. Patent # 8,110,412, issued on February 7, 2012
3. **He Q.P.**, Wang J. & Bode C.A. (2007), "Method and apparatus for fast disturbance detection and classification", US Patent # 7,299,154, issued on November 20, 2007
4. Wang J.& **He Q.P.**, A process monitoring framework based on statistics patterns, US Provisional Patent Application # 61/296,302, filed January 18, 2010.
5. Wang J., **He Q.P.**, Galicia H., Hodges, R.E, Krishnagopalan, G.A and Cullinan, H.T., A subspace identification based dynamic soft sensor approach for digester control, US Provisional Patent Application # 61259462, filed on November 13, 2009.
6. Kadosh D. & **He Q.P.**, "Process Control System Employing First-Principles Model Lookup Table" U.S. Patent Application Serial Number 11/312,786, filed Nov. 11, 2005

Book Chapters

1. **He Q.P.**, Wang J. & Qin S.J. (2010), An alternative stiction modeling approach and comparison of different stiction models, in Detection and Diagnosis of Stiction in Control Loops – State of the Art and Advanced Methods, Jelali, M. and Huang, B. (Eds.), Springer, pp37-60
2. **He Q.P.** & Qin S.J. (2010), Curve fitting for detecting valve stiction, in Detection and Diagnosis of Stiction in Control Loops – State of the Art and Advanced Methods, Jelali, M. and Huang, B. (Eds.), Springer, pp149-164

Peer-reviewed journal articles

1. **He Q.P.**, Wang J., Johnson D., Knight A., Polala R., Zhang R. (2016), A Modular Approach of Integrating Biofuels Education into Chemical Engineering Curriculum: Part I – Learning Materials, *Chemical Engineering Education*, Vol 50(2), 9-17.
2. Kim M., Liang M., **He Q.P.** & Wang J. (2016), A Novel Bioreactor to Study the Dynamics of Co-culture Systems, *Biochemical Engineering Journal*, Vol 107, 52-60.
3. Wang H., Liu W., Turner O., Black S., Daniels J., **He Q.**, Davis M. & Yates C., (2016) Kaiso, a transcriptional repressor, promotes cell migration of prostate cancer cells through regulation of miR-31 expression, *Onco-Targets*, 7(5), 5677..
4. Damiani A., **He Q.P.**, Jeffries T.W. & Wang J. (2015), Comprehensive evaluation of two genome-wide metabolic network models of Scheffersomyces stipitis, *Biotechnology and Bioengineering*, 112(6), 1250-1262.
5. Wang Z., **He Q.P.** & Wang J. (2015), Comprehensive comparison of seven variable selection methods for PLS-based soft sensor modeling, *Journal of Process Control*, 26, pp 56-72.
6. Wang J., **He Q.P.** and Edgar T.F. (2014), State estimation for integrated moving average processes in high-mix semiconductor manufacturing, *Industrial & Engineering Chemistry Research*, 2014, 53 (13), pp 5194–5204, DOI: 10.1021/ie401537d.
7. **He Q.P.** & Wang J. (2014), Valve Stiction Quantification Method Based on a Semiphysical Valve Stiction Model, *Ind. Eng. Chem. Res.*, 2014, 53 (30), pp 12010–12022. (citation: 5)
8. Liang M., **He Q.P.** & Wang J. (2014), Elucidating Xylose Metabolism of Scheffersomyces stipitis by Integrating Principal Component Analysis with Flux Balance Analysis, *Advanced Chemical Engineering Research*, 3(1):8-17.
9. Yoo W., Mayberry R., Bae S., Singh K., **He Q.P.**, Lillard J.W., (2014) A Study of Effects of MultiCollinearity in the Multivariable Analysis. *International Journal of Applied Science and Technology*, 2014;4(5):9-19.
10. Liang, M., Damiani, A., **He, Q.P.**, & Wang, J. (2014). Elucidating xylose metabolism of Scheffersomyces stipitis for lignocellulosic ethanol production. *ACS Sustainable Chemistry & Engineering*, 2(1), 38-48. (citation: 5)
11. Liang M., Kim M.H., **He Q.P.** & Wang J. (2013), Impact of pseudo-continuous fermentation on the ethanol tolerance of Scheffersomyces stipitis, *Journal of Bioscience and Bioengineering*, Vol. 116 (3), 319-326. DOI: 10.1016/j.jbiosc.2013.03.016 (citation: 3)
12. Otali, D., **He, Q.P.**, & Grizzle, W. E. (2013). The Effect of Antigen Retrieval on Cells Fixed in 10% Neutral Buffered Formalin Followed by Transfer to 70% Ethanol. *PloS one*, *8*(12), e82405.
13. Otali, D., **He, Q.P.**, Stockard, C. R., & Grizzle, W. E. (2013). Preservation of immunorecognition by transferring cells from 10% neutral buffered formalin to 70% ethanol. Biotechnic & Histochemistry, 88(3-4), 170-180. (citation: 3)
14. Galicia H.J., **He Q.P.**, Wang J. (2012), Comparison of the performance of a reduced-order dynamic PLS soft sensor with different updating schemes for digester control, *Control Engineering Practice*, 20(8), 747–760. (citation: 21)
15. Wang H., Jones J., Turner T., **He Q.P.**, Hardy S., Grizzle W.E., Welch D., & Yates C. (2012), Clinical and Biological Significance of KISS1 Expression in Prostate Cancer, *The American Journal of Pathology*, Vol. 180(3):1170-8. (citation: 15)
16. Jones J., Wang H., Zhou J., Hardy S., Austin D., Turner T., **He Q.P.**, Wells, A., Grizzle W., Yates C. (2012) Nuclear Kaiso Indicates Aggressive Prostate Cancers and Promotes Migration and Invasiveness of Prostate Cancer Cells, *The American Journal of Pathology*, Vol. 181(5): 1836–1846. (citation: 14)
17. Grunda J.M., Steg A.D., **He Q.P.**, Steciuk M.R., Parker S.B., Johnson M.R., Grizzle W.E. (2012) Differential expression of breast cancer-associated genes between stage- and age-matched tumor specimens from African- and Caucasian-American Women diagnosed with breast cancer, *BMC Research Notes*, 5:248. (citation: 6)
18. Galicia H., **He Q.P.**, Wang J. (2011), A reduced order soft sensor approach and its application to a continuous digester, *Journal of Process Control*, Vol. 21(4), 489-500 (citation: 42)
19. **He Q.P.**, Wang J., Mobley J.A., Richman, J. & Grizzle W. E. (2011), Self-Calibrated Warping for Spectrum Alignment, *Cancer Informatics*, Vol. 10, 65-82 (citation: 7)

20. **He Q.P.** & Wang J. (2011), Statistics Pattern Analysis - A New Process Monitoring Framework and Its Application to Semiconductor Batch Processes, *AIChE journal*, 57(1), 107–121 (citation: 43)
21. Wang J., **He Q.P.** (2010), Multivariate process monitoring based on statistics pattern analysis, *Industrial & Engineering Chemistry Research*, Vol. 49 (17), 7858-7869 (citation: 49)
22. **He Q.P.** & Wang J. (2010), Large-scale Semiconductor Process Monitoring Using a Fast Pattern Recognition Based Method, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 23(2),194-200 (citation: 30)
23. Wang J., **He Q.P.** and Qin S.J. (2010), Stability analysis and optimal tuning of EWMA controllers: Gain adaptation vs. intercept adaptation, *Journal of Process Control*, Vol. 20 (2), 134-142, **nominated for the Annual Best Paper Award**. (citation: 14)
24. Wang J., **He Q.P.** & Edgar T.F. (2009), State estimation in high-mix semiconductor manufacturing, *Journal of Process Control*, Vol. 19, 443-456. (citation: 29)
25. **He Q.P.** & Wang J. (2007), Fault detection using k-nearest neighbor rule for semiconductor manufacturing processes (invited), *IEEE Transactions on Semiconductor Manufacturing*, Vol. 20(4), 345-354. (citation: 140)
26. **He Q.P.**, Wang J., Pottmann M. & Qin S.J. (2007), A Curve fitting method for detecting valve stiction in oscillating control loops, *Industrial & Engineering Chemistry Research*, Vol. 46 (13), 4549 -4560. (citation: 89)
27. Wang J. & **He Q.P.** (2007), A Bayesian approach for fast disturbance detection and classification in microelectronics manufacturing, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 20(2), 126 – 136. (citation: 23)
28. Bode, C.A., Wang J., **He Q.P.** & Edgar T.F. (2007), Run-to-run control and state estimation in semiconductor manufacturing (invited), *Annual Reviews in Control*, Vol. 31(2), 241 – 253. (citation: 21)
29. **He Q.P.**, Wang J. & Qin S. J. (2005), A new fault diagnosis method using fault directions in Fisher discriminant analysis, *AIChE Journal*, Vol. 51(2), 555 – 571. (citation: 147)
30. Wang J., **He Q.P.**, Qin S.J., Bode C. & Purdy M. (2005), Recursive least squares estimation for run-to-run control with metrology delay and its application to STI etch process, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 18(2), 309 – 319. (citation: 57)
31. **He Q.P.**, Qin S.J. & Toprac A.J. (2003), Computationally efficient modeling of wafer temperatures in a low pressure chemical vapor deposition furnace. *IEEE Transactions on Semiconductor Manufacturing*, Vol. 16 (2), 342 – 350. (citation: 6)
32. Wang J., Liu, Z., Luo J., **He Q.P.**, Ding F. & Yuan N. (2000). Determination of zeta-potential by measuring electroosmotic flux in an alternating electric field and its application in the study of membrane fouling. *Separation Science and Technology*, 35(8), 1195 – 1206. (citation: 13)
33. Yin G., **He Q.P.**, Liu Z., Ding F. & Yuan N. (1999) Isolation and characterization of biliproteins and polysaccharides from Spirulina. *Fine Chemicals (China)*, 16(2), 10 – 13.
34. Wang J., Liu Z., **He Q.P.**, Luo J. & Yuan N. (1999). Characterization of membrane fouling process using zeta-potential. *Huagong Xuebao (China)*, 50(5), 687 – 691.
35. Mu F., Fan Y., **He Q.P.**, Wang Q., Hu H., Ding F. & Yuan N. (1998). Gas holdup and liquid circulation velocity of the external-loop airlift reactor. *Journal of Chemical Engineering of Chinese Universities (China)* 12(4), 345 – 349.

Peer-reviewed conference proceedings

1. Damiani A, Stone K., **He Q.P.**, & Wang J. (2015), A system identification enhanced phenotype phase plane analysis, *Proceedings of Foundations of Systems Biology in Engineering* 2015, paper #27;
2. Wang J., **He Q.P.**, & Damiani A (2015), A system identification based framework for genome-scale metabolic network model validation and refinement, *Proceedings of Foundations of Systems Biology in Engineering* 2015, paper #26;
3. Wang Z., **He Q.P.**, & Wang J. (2014), Comparison of different variable selection methods for partial least squares soft sensor development, *Proceedings of 2014 American Control Conference*, 3116-3121.
4. Wang J., **He Q.P.**, & Edgar T.E. (2013), Improved state estimation for high-mix semiconductor manufacturing, *Proceedings of 2013 American Control Conference*, 6664-6669.

5. **He Q.P.** & Wang J. (2013), Quantification of valve stiction based on a semi-physical model, *Proceedings of 2013 American Control Conference*, 4368-4373.
6. Liang M., **He Q.P.**, Jeffries T.W. & Wang J. (2013), Elucidating xylose metabolism of *Scheffersomyces stipitis* by integrating principal component analysis with flux balance analysis, *Proceedings of 2013 American Control Conference*, 3783-3788.
7. **He Q.P.**, Zhang R., Wang J., Armstead III F., Walburn R., Taylor J.L., Johnson D.R., A Modular Approach of Integrating Biofuel Education into Chemical Engineering Curriculum, *Proceedings of 2013 ASEE annual conference*, Paper ID # 7518.
8. **He Q.P.**, Wang J., Walburn R., Johnson D.R., Education On Biofuels Technology In Chemical Engineering, *Proceedings of Hawaii University International Conferences On Education & Technology*, Paper #11.
9. Liang M., Kim M.H., **He Q.P.** & Wang J. (2012), Metabolic network analysis of xylose metabolism by *Scheffersomyces stipitis*, *Proceedings of Sun Grant Initiative 2012 National Conference*.
10. Kim M.H., Liang M., **He Q.P.** & Wang J. (2012), Simultaneous fermentation of glucose and xylose by co-culture in a novel bioreactor, *Proceedings of Sun Grant Initiative 2012 National Conference*.
11. **He Q.P.**, Wang J., Galicia H.J., Stuber J. and Gill B. (2012), Statistics Pattern Analysis based Virtual Metrology for Plasma Etch Processes, *Proceedings of 2012 American Control Conference*, 4897-4902.
12. Galicia H.J., **He Q.P.** & Wang J. (2012), Adaptive Kappa Number Prediction via Reduced-Order Dynamic PLS Soft Sensor for the Control of a Continuous Kamyr Digester, *Proceedings of Control Systems 2012*, 421-435.
13. Galicia H.J., **He Q.P.** & Wang J. (2011), Statistics Pattern Analysis based fault detection and diagnosis. *Proceedings of Chemical Process Control VIII*. Paper #55.
14. Galicia H.J., **He Q.P.** & Wang J. (2011), A Bayesian supervisory approach of outlier detection for recursive soft sensor update. *Proceedings of Chemical Process Control VIII*. Paper #54.
15. Galicia H.J., **He Q.P.** & Wang J. (2011), Recursive update of a reduced-order dynamic PLS soft sensor and its application to digester control. *Proceedings of 2011 ISA Automation Week*. Paper Number: 0040-000115.
16. Galicia H.J., **He Q.P.** & Wang J. (2011), Statistics Pattern Analysis - fault detection and diagnosis. *Proceedings of 2011 ISA Automation Week*. Paper Number: 0040-000116.
17. **He Q.P.** and Wang J. (2010), Valve stiction modeling: first-principles vs data-drive approaches, *Proceedings of 2010 American Control Conference*, 3777-3782.
18. **He Q.P.** and Wang J. (2010), Comparison of a new spectrum alignment algorithm with other methods, *Proceedings of 2010 American Control Conference*, 1260-1265.
19. Wang J., **He Q.P.** and Edgar T.F. (2010), Control Performance Assessment and Diagnosis for Semiconductor Processes, *Proceedings of 2010 American Control Conference*, 7004-7009.
20. **He Q. P.** and Wang J. (2008), Principal component based k-nearest neighbor rule for semiconductor process fault detection, *Proceedings of 2008 American Control Conference*, 1606-1611.
21. Wang J. and **He Q.P.** (2008), EWMA Run-to-Run Controllers with Gain Updating: Stability and Sensitivity Analysis, *Proceedings of 2008 American Control Conference*, 2872-2877.
22. **He Q.P.** and Wang J. (2008), Automatic quantification of control valve stiction based on data-driven models, in *Proceedings of Symposium on Advanced Control of Industrial Processes (ADCONIP 2008)*, 347-352.
23. Wang J. and **He Q.P.** (2008), A Practical Solution for Continuous Digester Control – Subspace Identification based Inferential Control Revisited, in *Proceedings of Symposium on Advanced Control of Industrial Processes (ADCONIP 2008)*, 433-438.
24. Wang J., **He Q.P.** and Edgar T.F. (2007), A general framework for state estimation in high-mix semiconductor manufacturing, *Proceedings of 2007 American Control Conference*, 3636-3641.

25. **He Q.P.** (2006), Multivariate visualization techniques in statistical process monitoring and their applications in semiconductor manufacturing, *Proceedings of SPIE's International Symposium on Data Analysis and Modeling for Patterning Control III*, Vol. 6155, p 615506
26. Wang J. & **He Q.P.** (2005), A new run-to-run method for oxide CMP processes, *Proceedings of SPIE's International Symposium on advanced microelectronic manufacturing*, Vol. 5755, 9 – 17.
27. Wang J. & **He Q.P.** (2005), An overlapping receding horizon approach to reduce delay of disturbance detection and classification using Bayesian statistics, *Proceedings of 2005 International Symposium on Semiconductor Manufacturing*, 402 – 405.
28. **He Q.P.**, Qin S.J. & Toprac A. (2003), Computationally efficient modeling of wafer temperatures in an LPCVD furnace, *Proceedings of SPIE's International Symposium on Advanced Process Control and Automation*, Vol. 5044, 97 – 108

Presentations at National and International Meetings

1. Kim M.H., **He Q.P.** & Wang J., Oxygen utilization rate (OUR) alone does not define the optimal condition for ethanol production with Scheffersomyces stipitis, 38th Symposium on Biotechnology for Fuels and Chemicals, Apr 25-29, 2016, Baltimore, MD.
2. Wang J., **He Q.P.**, Skjellum A., Shah D. & Lemus C., Statistics Pattern-Based Big Data Analytics Framework for Iot-Enabled Cybermanufacturing, Apr 10 – 14, Houston, TX
3. Wang J., A system identification based framework for genome-scale metabolic network model validation and refinement, invited talk, Modeling Life in the Lab Symposium, Carey Institute for Global Good, NY (cross listed under invited lecture).
4. Kim M.H., **He Q.P.** & Wang J., Quantifying the effects of oxygen utilization rate on ethanol production by S. stipitis under controlled chemostat, 2015 AIChE Annual Conference, Salt Lake City, Nov. 8 – 13, UT.
5. Stone K, Shah D. Zamora A., **He Q.P.** & Wang J., A novel soft sensor approach for estimating individual biomass in mixed cultures, 2015 AIChE Annual Conference, Salt Lake City, Nov. 8 – 13, UT.
6. Stone K., Hilliard M., **He Q.P.** & Wang J., A System Identification Enhanced Phenotype Phase Plane Analysis, 2015 AIChE Annual Conference, Salt Lake City, Nov. 8 – 13, UT.
7. **He Q.P.**, Wang J., Integrating biofuels educational modules into two chemical engineering courses, 2015 ASEE-SE Annual Conference, April 12-14, 2015, Gainesville, FL
8. Kim M.H., Damiani A., **He Q.P.** and Wang J., A novel co-culture system for ethanolic fermentation from lignocellulosic sugars, Sun Grant Regional Conference on Southern Crossroads: Progress In the Science & Technology of Biomass Production, Processing and Use, Feb. 2 – 4, 2015, Auburn, AL
9. Damiani A., **He Q.P.**, Jeffries T. and Wang J., iAD824: An improved genome-scale metabolic network model for *Scheffersomyces stipitis*, Sun Grant Regional Conference on Southern Crossroads: Progress In the Science & Technology of Biomass Production, Processing and Use, Feb. 2 – 4, 2015, Auburn, AL
10. Damiani A., **He Q.P.** and Wang J., A system identification based approach for phenotype phase plane analysis, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
11. Damiani A., **He Q.P.** and Wang J., An improved genome-scale network model for Scheffersomyces stipitis, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
12. Stone K., **He Q.P.** and Wang J., Biological conversion of methane: a comprehensive review, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
13. Kim M., Damiani A., **He Q.P.** and Wang J., Kinetic modeling of co-cultured Saccharomyces cerevisiae and Scheffersomyces stipitis, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
14. Wang Z., **He Q.P.** and Wang J., New criteria for evaluating variable selection performance, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
15. **He Q.P.**, Wang J., Integrating Biofuels Education into Chemical Engineering Curriculum, The sixth Frontiers of Engineering Education (FOEE) Symposium, October 26-29, 2014, Irvine, CA

16. Damiani A., **He Q.P.**, Jeffries T. and Wang J., Comprehensive evaluations of two genome-scale models of Scheffersomyces stipitis, Metabolic Engineering Conference X, June. 15 – June 19, 2014, Vancouver, BC, Canada
17. Damiani A., **He Q.P.** and Wang J., A system identification based framework for metabolic network analysis and its application to genome scale models of Scheffersomyces stipitis, 36th Symposium on Biotechnology for Fuels and Chemicals Apr. 28-May 1, 2014, Clearwater Beach, FL
18. **He Q.P.**, Wang J., A New Virtual Metrology Approach for Semiconductor Manufacturing Processes, 14th European advanced process control and manufacturing (apc|m) Conference, Rome, Italy • April 7 – 9, 2014
19. Wang J., **He Q.P.**, Non-threaded Run-to-Run Control, 14th European advanced process control and manufacturing (apc|m) Conference, Rome, Italy • April 7 – 9, 2014
20. **He Q.P.**, Wang J., Educate Chemical Engineers for Renewable and Sustainable Fuels and Chemicals: Opportunities and Challenges, 2014 ASEE Southeastern Section Conference, Mercer University School of Engineering, Mar. 30 – Apr. 1, 2014, Macon, GA
21. Damiani A., **He Q.P.**, and Wang J., Comprehensive evaluation of two genome-wide metabolic network models on Scheffersomyces stipitis, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA
22. Wang Z., **He Q.P.**, and Wang J., Comparison of different variable selection methods for PLS soft sensor development, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA
23. Kim M.H., Liang M., **He Q.P.** and Wang J., A novel co-culture system for pseudo-continuous ethanolic fermentation from lignocellulosic sugars, AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA
24. Wang J., **He Q.P.**, Edgar T and Stuber J., A new advanced process control framework for high-mix semiconductor manufacturing, **Keynote Speak**, APC XXIII, Oct. 14-16, 2013, Ann Arbor, MI
25. **He Q.P.** & Wang J., Educate Chemical Engineers for Renewable and Sustainable Fuels and Chemicals: Opportunities and Challenges, American Society for Engineering Education (ASEE) – Southeast Section Conference, Mar. 30 – Apr. 1, Mercer, GA.
26. **He Q.P.**, & Wang, J., Reducing Energy and Chemical Consumption in Kraft Pulping Process through a Soft Sensor Enabled Self-adaptive Control Approach, The 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2013), May 27-30, 2013, Dalian, China
27. Liang M., **He Q.P.**, & Wang, J., Elucidating xylose metabolism of *Scheffersomyces stipitis* for lignocellulosic ethanol production, The 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2013), May 27-30, 2013, Dalian, China
28. Liang M., **He Q.P.**, & Wang, J., Rational design of cofactor engineering strategies through metabolic network analysis, 35th Symposium on Biotechnology for Fuels and Chemicals, 2013, Portland, OR.
29. Damiani A., **He Q.P.**, & Wang, J., Comprehensive Evaluation of Two Genome-Wide Metabolic Network Models on *Scheffersomyces stipitis*, 35th Symposium on Biotechnology for Fuels and Chemicals, 2013, Portland, OR.
30. Wang J., **He Q.P.** & Edgar T.F., Improved state estimation for high-mix semiconductor manufacturing, AIChE annual meeting, 2012, Pittsburgh, PA.
31. **He Q.P.** & Wang J., A semi-physical valve stiction model and its application for stiction quantification, AIChE annual meeting, 2012, Pittsburgh, PA.
32. Liang M., Kim M.H., **He Q.P.**, Jeffries T & Wang, J., metabolic network modeling of redox balancing and ethanol production in *Scheffersomyces stipitis*, AIChE annual meeting, 2012, Pittsburgh, PA.
33. Galicia H.J., **He Q.P.** & Wang J., Intelligent recursive soft sensor adaptation via Bayesian outlier detection and classification, AIChE annual meeting, 2012, Pittsburgh, PA.
34. Kim, M.H., Liang, M., **He, Q.P.** & Wang, J., Efficient bioconversion of glucose/xylose mixtures for ethanol production using a novel co-culture system, AIChE annual meeting, 2012, Pittsburgh, PA.
35. Galicia H.J., Wang J. & **He Q.P.**, Adaptive Outlier Detection and Classification for Online Soft Sensor Update. 2012 International Symposium on Advanced Control of Chemical Processes, July 2012, Singapore.

36. Galicia H.J., Wang J. & **He Q.P.**, A Comprehensive Evaluation of Statistics Pattern Analysis Based Process Monitoring. 2012 International Symposium on Advanced Control of Chemical Processes, July 2012, Singapore.
37. Kim M.H., Liang M., **He Q.P.** & Wang J., Pseudo-Continuous Fermentation – an effective way to study the dynamics of co-culture systems. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA.
38. Liang M., Kim M.H., **He Q.P.** & Wang J., Reconstruction of the central carbon metabolism of *Pichia stipitis*. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA
39. Liang M., Kim M.H., **He Q.P.** & Wang J., Elucidation of redox balance in xylose fermentation with Pichia stipitis. 34th Symposium on Biotechnology for Fuels and Chemicals, 2012, New Orleans, LA
40. Zhang R., Armstead III F., **He Q.P.** and Wang J. (2012) Bridging gaps between research and education in biofuel technologies, Research Based Undergraduate Science Teaching Conference II, May 20-22, 2012, Tuscaloosa, AL.
41. Grizzle W.E., Otali D., **He Q.P.** & Stockard C.R. (2012) Effects on immunorecognition of transfer of cells from 10% NBF to 70% ethanol, American Association for Cancer Research (AACR) Annual Meeting, March 31 – April 4, 2012, Chicago, IL.
42. Grizzle W.E., Otali D., **He Q.P.** & Stockard C.R. (2012) Effects on immunorecognition of transfer of cells from 10% NBF to 70% ethanol, Annual Biospecimen Research Network (BRN) Symposium, February 22-23, Bethesda, MD.
43. Armstead F., **He Q.P.** & Wang J. (2011) Integrating biofuels education into chemical engineering curriculum, 2011 NOBCChE southeast/southwest regional meeting, Nov. 11 – 12, 2011, Auburn, AL.
44. Hepburn T., **He Q.P.** & Wang J. (2011) Renewable energy education in the United States, 2011 NOBCChE southeast/southwest regional meeting, Nov. 11 – 12, 2011, Auburn, AL.
45. Grizzle WE, Steg AD, **He QP**, Steciuk MR, Byan-Parker S, Johnson MR, Grunda JM. (2011) Differential Expression of Breast Cancer-Associated Genes between Stage- and Age-Matched Tumor Specimens from African- and Caucasian-American Women Diagnosed with Breast Cancer, The 2011 CTRC-AACR San Antonio Breast Cancer Symposium, December 6-10, 2011, San Antonio, TX.
46. Galicia H.J., **He Q.P.** & Wang J. (2011), Fault detection and diagnosis in the Statistics Pattern Analysis framework. AIChE annual meeting, Oct. 16-21, 2011, Minneapolis, MN.
47. Galicia H.J., **He Q.P.** & Wang J. (2011), Online outlier detection with a Bayesian supervisory approach for recursive soft sensor update. AIChE annual meeting, Oct. 16-21, 2011, Minneapolis, MN.
48. Kim M.H., Liang M., **He Q.P.** & Wang J., Pseudo-Continuous Fermentation Using a Novel Bioreactor to Facilitate the Study of a Co-Culture System for Ethanol Production. AIChE annual meeting, Oct. 16-21, 2011, Minneapolis, MN.
49. Zhou J., Jones J., Wang H., Hardy S., Austin D., **He Q.P.**, Turner T., Wells A., Grizzle W., Yates C., Clinical and Biological Significance of Nuclear Kaiso in Widespread Prostate Cancer. Department of Defense, Innovative Minds in Prostate Cancer Research, March 9-12, 2011, Orlando, FL
50. Wang H., Jones J., **He Q.P.**, Hardy S., Grizzle W.E., Turner T. and Yates C., Frequent loss of KISS1 and KISS1R expression in prostate cancer: KISS1 decreases cells motility and reduces cell anoikis-resistance in prostate cancer, 16th Annual UAB Health Disparities Research Symposium 2011, April 25-26, 2011, Birmingham, AL
51. **He Q.P.** and Wang J. (2010), Multivariate Statistical Process Monitoring based on Statistics Pattern Analysis, AIChE Annual Meeting, November 7-12, 2010, Salt Lake City, UT
52. Galicia H.J., **He Q.P.**, Wang J., Hodges R.E., Krishnagopalan G.A. and Cullinan H.T. (2010) Outlier detection and process monitoring with application to a recursive soft sensor update for digester control, AIChE Annual Meeting, November 7-12, 2010, Salt Lake City, UT

53. Liang M., **He Q.P.** and Wang J.(2010), Pseudo-continuous operation: an effective way to improve ethanol tolerance of *Pichia stipitis* in hexose/pentose fermentation, 2010 SIM Annual Meeting And Exhibition, August 1-5, 2010, San Francisco, CA
54. Liang M., **He Q.P.** and Wang J.(2009), Improving Ethanol Tolerance of Pichia Stipitis Via Continuous Fermentation with Cell Retention, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN
55. Galicia H.J., **He Q.P.**, Wang J., Hodges R.E, Krishnagopalan G.A and Cullinan H.T.(2009), A Multi-Model Recursive Dynamic Soft Sensor for Digester Control, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN
56. **He Q.P.** and Wang J.(2009), Statistics Pattern Analysis and Its Application to Semiconductor Process Monitoring, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN
57. **He Q.P.** and Wang J. (2009), Valve Stiction Modeling: Data-Driven Vs. First Principles, AIChE Annual Meeting, November 8-13, 2009. Nashville, TN
58. **He Q.P.** and Wang J. (2009), Fundamental properties of statistics pattern analysis, AEC/APC Symposium XXI, Ann Arbor, MI, Sep 28 – Oct 1, 2009
59. Wang J., **He Q.P**. and Edgar T.F. (2009), Control Performance Monitoring for EWMA Controllers, AEC/APC Symposium XXI, Ann Arbor, MI, Sep 28 – Oct 1, 2009
60. Grizzle W.E., Jhala N.C., Eloubeidi M.A., Christein J.D., Arnoletti J.P., Oelschlager D.K., Wang J., **He Q.P.**, Vickers S. M. (2009) Cytokine Analysis of EUS-FNAs of the Pancreas Using Multiplex Immunoassays, The 2009 NCI Translational Science Meeting, Vienna, VA, November 5-7, 2009
61. **He Q.P.** & Wang J. (2008), Valve stiction detection and quantification in oscillatory control loops, AIChE 2008 Annual Meeting, Nov. 16-21, Philadelphia, PA
62. **He Q.P.** & Wang J. (2008), A new algorithm for spectrum alignment by maximizing correlations among signature peaks, AIChE 2008 Annual Meeting, Nov. 16-21, Philadelphia, PA
63. **He Q.P.** & Wang J. (2008), A Statistics Pattern Based Framework for Batch Process Monitoring, AIChE 2008 Annual Meeting, Nov. 16-21, Philadelphia, PA
64. **He Q.P.** & Wang J. (2008), A Novel Non-threaded FDC Framework for High-mix Semiconductor Manufacturing, AEC/APC Symposium XX, Sep. 4-8, Snowbird, Utah
65. Wang J. & **He Q.P.** (2008), A novel approach for cancer diagnosis and prognosis using omics data, 5th NIH Early Detection Research Network Scientific Workshop, Mar. 17-20, Bethesda, MD
66. **He Q.P**. & Wang J. (2007), A study on confounding factors in clinical proteomics**,** AIChE 2007 Annual Meeting, Nov. 4-9, Salt Lake City, UT
67. Wang J., **He Q.P**. & Barnes III, M.N. (2007), Ovarian cancer early detection using proteomic data - a systems engineering approach for biomarker discovery**,** AIChE 2007 Annual Meeting, Nov. 4-9, Salt Lake City, UT
68. **He Q.P**. (2007), Fault detection using principal component based k-nearest-neighbor rule**,** AIChE 2007 Annual Meeting, Nov. 4-9, Salt Lake City, UT
69. **He Q.P**. & Wang J. (2007), Further evaluation on a valve stiction detection method – its capabilities and limitations**,** AIChE 2007 Annual Meeting, Nov. 4-9, Salt Lake City, UT
70. **He Q.P.** (2007), Fault Detection Using Principal Component Based k-Nearest-Neighbor Rule, AEC/APC Symposium XIX, Indian Wells, CA, Sep. 15-17, 2007
71. **He Q.P.** & Wang J. (2006), A multivariate fault detection method using k-nearest-neighbor rule, AIChE 2006 Annual Meeting, Nov. 12-17, San Francisco, CA
72. Wang J. & **He Q.P.**, (2006), On state estimation in high-mix semiconductor manufacturing using a Gauss-Markov model, AIChE 2006 Annual Meeting, Nov. 12-17, San Francisco, CA
73. **He Q.P.** & Wang J. (2006), A Multivariate Fault Detection Method Using k-Nearest-Neighbor Rule, AEC/APC Symposium XVIII, Sept. 30 – Oct. 5, Westminster, CO
74. Wang J. & **He Q.P.**, (2006), On state estimation in low-volume high-mix semiconductor manufacturing, AEC/APC Symposium XVIII, Sep. 29-Oct. 6, Westminster, CO

75. **He Q.P.** (2005), Novel Multivariate Fault Detection Methods Using Mahalanobis Distance, AEC/APC Symposium XVII, CA, Sept. 24 – 29, Indian Wells
76. **He Q.P.**, Wang J., Pottmann, M. & Qin S.J. (2005), A curve fitting method for detecting valve stiction in oscillating control loops, AIChE 2005 Annual Meeting, Oct. 30-Nov. 4, Cincinnati, OH.
77. Wang J. & **He Q.P.** (2005), A new Bayesian approach for improved state estimation in semiconductor manufacturing processes, AIChE 2005 Annual Meeting, Oct. 30-Nov. 4, Cincinnati, OH.
78. Wang J. & **He Q.P.** (2005), A pattern matching approach for fast disturbance detection and classification using Bayesian statistics, AEC/APC Symposium XVII, Sept. 24-29, Indian Wells, CA.
79. **He Q.P.** & Qin S.J. (2004), Multivariate visualization in data analysis for process operations, AIChE 2004 Annual Meeting, Nov. 7 – 12, Austin, TX
80. **He Q.P.**, Wang J. & Qin S.J. (2003) Fault diagnosis using fault directions in Fisher discriminant analysis, AIChE 2003 Annual Meeting, Nov. 16-21, San Francisco, CA.
81. **He Q.P.**, Qin S.J. & Toprac A.J. (2002), A new thermal model for the hot-wall low pressure chemical vapor deposition. AIChE 2002 Annual Meeting, Nov. 3-8, Indianapolis, IN
82. **He Q.P**., & Qin S. J., Modularized process monitoring and analysis software, Presented at TWMCC spring meeting, February 2001, Austin, TX.

Professional Development

1. Attended 2016 NIH Regional Seminar, Baltimore, MD, May 11-13, 2016
2. Attended Cancer Detection and Diagnostics Technologies for Global Health, Bethesda, MD, August 22-23, 2011.
3. Attended Advanced Grant Writing Workshop, Arlington, VA, March 15-16, 2010
4. Attended ABET Workshop, Atlanta, GA, Feb. 7, 2009.
5. Attended USDA CSREES Grantsmanship Workshop, Sept. 30 – Oct. 1, 2008.
6. Attended 14th ASEE Summer School for Chemical Engineering Faculty, Pullman, WA, July 28 – Aug. 2, 2007.
7. Attended NSF CAREER Proposal Writing Workshop, Hilo, HI, March 26, 2007.
8. Attended Advanced Grant Writing Workshop, Arlington, VA, February 27-28, 2007.

Synergistic Activities

1. Reviewer for *AIChE Journal*, *Biomass and Bioenergy*, *Journal of Process Control*, *IEEE Transactions on Semiconductor Manufacturing*, *IEEE Transactions on Control Systems Technology*, *IEEE Transactions on Industrial Informatics*, *Industrial and Engineering Chemistry Research*, *Computers & Chemical Engineering*, *The Canadian Journal of Chemical Engineering*, and *International Journal of Heat and Mass Transfer*, *Control Engineering Practice*, *Applied Stochastic Models in Business and Industry*, *International Journal of Robust and Nonlinear Control*, *Journal of Vibration and Control*
2. EPA proposal panel reviewer, 2013, 2014, 2015
3. NSF proposal panel reviewer, 2010, 2011, 2013, 2014, 2015
4. ACS Petroleum Research Foundation proposal reviewer, 2010.
5. Qatar National Research Fund (QNRF) proposal panel reviewer, 2011.
6. Session chair/co-chair, American Control Conference (ACC), 2008 – now
7. Session chair/co-chair at AIChE annual Meeting, 2007 – now
8. Session chair at the 2011 ISA Automation Week, Oct. 17-20, 2011, Mobile, AL, USA
9. Session co-chair at ADCONIP International Conference, May 4-7, 2008, Jasper, Alberta, Canada
10. Tuskegee University Faculty Senate, Tuskegee University
11. Tuskegee University Faculty Senate Committee Chair on Research and Graduate Studies
12. Bio-Safety Compliance Committee Member, Tuskegee University
13. Steering Committee Member of College of Engineering, Architecture & Physical Sciences, Tuskegee

Collaborators

- Jin Wang, Department of Chemical Engineering, Auburn University
- Anthony Skjellum, Department of Computer Science and Software Engineering, Auburn University
- Thomas Edgar, Department of Chemical Engineering, The University of Texas at Austin
- Clayton Yates, Department of Biology, Tuskegee University
- Honghe Wang, Department of Biology, Tuskegee University
- Timothy Turner, Department of Biology, Tuskegee University
- Mary E. Lidstrom, Department of Chemical Engineering, Microbiology, University of Washington
- Thomas W. Jeffries, Department of Bacteriology, The University of Wisconsin at Madison
- William E. Grizzle, MD, PhD, Department of Pathology, University of Alabama at Birmingham
- Mario Eden, Department of Chemical Engineering, Auburn University
- Steven Taylor, , Department of Biosystems Engineering, Auburn University

Advisors

Ph.D. dissertation advisor – Prof. S. Joe Qin Department of Chemical Engineering and Materials Science, University of Southern California
B.S. thesis advisor – Prof. Fuxin Ding, Dept. of Chemical Engineering, Tsinghua University (China)