

### **Jin Wang, PhD**

B. Redd Associate Professor of Chemical Engineering  
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#### **Professional Preparation**

- Tsinghua University, Chemical Engineering, BS with distinction (1994)
- Tsinghua University, Chemical Engineering (Biochemical engineering), PhD (1999)
- University of Texas at Austin, Chemical Engineering (Control engineering) , PhD (2004)

#### **Professional Experience**

- 2011 – B. Redd Associate Professor, Dept. of Chem. Eng., Auburn University
- 2006 – 2011 B. Redd Assistant Professor, Dept. of Chem. Eng., Auburn University
- 2004 – 2006 Sr. Process Development Engineer, Advanced Micro Devices, Inc.
- 2002 – 2004 Process Development Engineer II, Advanced Micro Devices, Inc.

#### **Honors and Awards**

- Selected for Frontiers of Engineering Education – National Academy of Engineering, 2014
- Top Reviewer, Computers and Chemical Engineering, 2013
- Nominated for Annual Best Paper Award, Journal of Process Control, 2009
- ORAU Ralph E. Powe Junior Faculty Enhancement Award, 2008
- Key Contributor Award, AMD, 2005
- Vice President Spotlight Award, AMD, 2004
- Vice President Spotlight Award, AMD, 2003

#### **Graduate student advisee awards**

- Hector Galicia, Outstanding Graduate Student, Auburn University, 2012
- Hector Galicia, Young Researcher Travel Award, Chemical Process Control VIII, 2012
- Min Hea Kim, 2nd Place Engineering Poster Presentation, Auburn University, 2012
- Zi Xiu Wang, McLeod Outstanding Chemical Engineering Graduate Student Teaching Award, Auburn University, 2011
- Hector Galicia, **CAST Division Directors' Presentation Award, AIChE**, 2011
- Hector Galicia, **CAST Division Student Travel Award, AIChE**, 2011
- Hector Galicia, 1st Place Engineering Poster Presentation, Auburn University, 2009
- Meng Liang, 2nd Place Engineering Poster Presentation, Auburn University, 2009
- Hector Galicia, McLeod Outstanding Chemical Engineering Graduate Student Teaching Award, Auburn University, 2008

### **Synergistic Activities**

1. Elected to Technical Committee of International Federation of Automatic Control (IFAC) TC 6.1 modeling and control of chemical and biological processes, Jan. 2013
2. Associate Editor for *Journal of Process Control*, since Jan 2014.
3. Session chair for International Symposium on Advanced Control of Chemical Process, July, 2012, Singapore, session chair and co-chair for American Control Conferences, AIChE Annual Conferences for multiple years
4. Reviewer for *AIChE Journal*, *Automatica*, *Industrial and Engineering Chemistry Research*, *Computers & Chemical Engineering*, *Biomass and Bioenergy*, *Journal of Bioscience and Bioengineering*, *Bioenergy*, *Journal of Process Control*, *IEEE Transactions on Semiconductor Manufacturing*, *IEEE Transactions on Control Systems Technology*, *IEEE Transactions on Industrial Informatics*, etc.
5. Reviewer and panel reviewer for NSF, USDA, ACS Petroleum Research Foundation, 2009 - 2014.
6. Senior member of American Institute of Chemical Engineers, member of Society for Industrial Microbiology and Biotechnology, American Society of Chemistry, Institute of Electrical and Electronics Engineers, Society for Industrial and Applied Mathematics, American Association for the Advancement of Science.

### **Patents Granted by 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. Wang J., Chong R.J., Bode C.A., Qin S.J. & Pasadyn A.J., Applying a self-adaptive filter to a drifting process, US Patent # 7,424,392, issued on September 9, 2008
3. He Q.P., Wang J. & Bode C.A., Method and apparatus for fast disturbance detection and classification, US Patent # 7,299,154, issued on November 20, 2007
4. Wang J. & Cherry G.A., Adjusting a sampling protocol in an adaptive control process, US Patent # 7,050,879, issued on May 23, 2006
5. Wang J. & Cherry G.A., Fault detection and classification based on calculating distances between data points, US Patent # 7,043,403, issued on May 9, 2006
6. Jenkins N.M., Wang J., Markle R.J., Coss, E. & Cusson B.K., Conflict resolution among multiple controllers, US Patent # 7,031,793, issued on April 18, 2006
7. Good R.P., Cherry G.A. & Wang J., Probability constrained optimization for electrical fabrication control, US Patent # 6,959,224, issued on October 25, 2005
8. Chong R.J. & Wang J., Method and apparatus for controlling a fabrication process based on a measured electrical characteristic, US Patent # 6,912,437, issued on June 28, 2005
9. Sonderman T.J., Wang J., Jenkins, N.M. & Coss, C., Process control based upon a metrology delay, US Patent # 6,834,213, issued on December 21, 2004
10. Chong R.J., Green E.O. & Wang J., Process control based on tool health data, US Patent # 6,804,619, October 12, 2004
11. Wang J., Coss E., Cusson B.K., Pasadyn A.J., Miller M.L., Jenkins N.M. & Bode C.A., Identifying a cause of a fault based on a process controller output, US Patent # 6,778,873, issued on August 17, 2004
12. Pasadyn A.J., Sonderman T.J. & Wang J., Dynamic targeting for a process control system, US Patent # 6,773,931, issued on August 10, 2004

13. Wang J. & Cusson B.K., Adjusting a sampling rate based on state estimation results, US Patent # 6,766,214, issued on July 20, 2004

#### Patents Pending at US Patent and Trademark Office

14. Wang J., He Q.P., A process monitoring framework based on statistics patterns, US Provisional Patent Application # 61/296,302, filed January 18, 2010.
15. 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.

#### 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*, 37-59, Jelali, M. and Huang, B. (Eds.), Springer.

#### Peer-Reviewed Journal Articles

1. Kim M., Liang M., He Q.P. & Wang J. (2014), A novel bioreactor for systematic study of co-culture Systems, *Bioresource Technology*, to be submitted.
2. Damiani A., He Q.P. & Wang J. (2014), A system identification based approach for phenotype phase plane analysis, *Metabolic Engineering*, to be submitted.
3. Damiani A., He Q.P. & Wang J. (2014), An improved genome-scale network model for *Scheffersomyces stipitis*, *Biotechnology and Bioengineering*, to be submitted.
4. Wang Z., He Q.P. & Wang J. (2014), Comprehensive comparison of seven variable selection methods for PLS-based soft sensor modeling, *Journal of Process Control*, under review.
5. Damiani A., He Q.P. & Wang J. (2014), System-level evaluation of two genome-wide metabolic network models of *Scheffersomyces stipitis*, *Biotechnology and Bioengineering*, under review.
6. He Q.P. & Wang J. (2014), Valve Stiction quantification method based on a semi-physical valve stiction model, *Ind. Eng. Chem. Res.*, 53 (30), pp 12010–12022.
7. Damiani A., Kim M.H., & Wang J. (2014) An Improved Dynamic Method to Measure  $k_{LA}$  in Bioreactors, *Biotechnology and Bioengineering*, 111 (10), pp 2120-2125 .
8. Liang M., He Q.P. & Wang J. (2014), Understanding Xylose Metabolism of *Scheffersomyces stipitis* through a Central Carbon Metabolic Network Model, *Journal of Advanced Chemical Engineering Research*, Vol. 3 (1), 8-17.
9. Liang M., Damiani A., He Q.P. & Wang J. (2014), Elucidating xylose metabolism of *Scheffersomyces stipitis* by flux balance analysis integrated with principal component analysis, *ACS Sustainable Chemistry & Engineering*, 2014, 2 (1), pp 38–48. DOI: 10.1021/sc400265g
10. Wang J., He Q.P. and Edgar T.F. (2013), State estimation for integrated moving average processes in high-mix semiconductor manufacturing, *Industrial & Engineering Chemistry Research*, in press, DOI: 10.1021/ie401537d.
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
12. 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*, Vol. 20, 747-760.

13. He Q.P., **Wang J.**, Mobley J.A., Richman J. and Grizzle W.E. (2011), Self-Calibrated Warping for Mass Spectra Alignment, *Cancer Informatics*, Vol. 10, 85-82.
14. 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.
15. He Q.P. & **Wang J.** (2010), Statistics Pattern Analysis - A New Process Monitoring Framework and Its Application to Semiconductor Batch Processes, *AIChE journal*, Vol. 57(1), 107-121.
16. **Wang J.** & He Q.P. (2010), Multivariate process monitoring based on statistics pattern analysis, *Industrial & Engineering Chemistry Research*, Vol. 49(17), 7858-7869
17. **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.**
18. **Wang J.** (2010), Discussion on: "Closed-Loop Identification of MIMO Systems: A New Look at Identifiability and Experiment Design", *European Journal of Control*, Vol. 16(3), 240-241.
19. **Wang J.** (2010), Properties of EWMA controllers with gain adaptation, *IEEE Transactions on Semiconductor Manufacturing*, Vol. 23(2), 159-167.
20. 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.
21. **Wang J.**, He Q.P. and Edgar T.F. (2009), On state estimation of high-mix semiconductor manufacturing, *Journal of Process Control*, Vol. 19 (2), 443-456.
22. He Q.P. & **Wang J.** (2007), Fault detection using K-nearest neighbor rule for semiconductor manufacturing (invited), *IEEE Transactions on Semiconductor Manufacturing*, Vol.20 (4), 345-354.
23. 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, 241-253.
24. He Q.P., **Wang J.**, Pottmann M. and 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.
25. **Wang J.** & He Q.P. (2007), A new Bayesian approach for fast disturbance detection and classification in microelectronics manufacturing, *IEEE Transactions on Semiconductor Manufacturing*, Vol.20 (2), 126-136.
26. **Wang J.** & Qin S.J. (2006), Closed-loop subspace identification using the parity space, *Automatica*, Vol. 42(2), 315-320.
27. Qin S.J., Cherry G., Good **Wang J.**, and Harrison C. (2006), Semiconductor manufacturing process control and monitoring: a fab-wide framework, *Journal of Process Control*, Vol.16, 179-191.
28. **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.
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.
30. **Wang J.** & Qin S.J. (2002), A new subspace identification approach based on principal component analysis. *Journal of Process Control*, Vol. 12(8), 841-855.
31. **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.

32. **Wang J.**, Liu Z., Ding F. & Yuan N. (1999). Longitudinal distribution of pH in preparative electrophoresis in a multicompartement electrolyzer. *Separation Science and Technology*, 34(8), 1661-1677.
33. **Wang J.**, Liu Z., He Q.P., Luo J. & Yuan N. (1999). Characterization of membrane fouling process using zeta-potential. *Huagong Xuebao (Chinese)*, 50(5), 687-691.
34. Liu Z., **Wang J.**, Luo J., Ding F., & Yuan N. (1998). Application of multichannel flow electrophoresis to separation of biomolecules: a survey. *Journal of Molecular Recognition*, 11, 149-150.
35. **Wang J.**, Liu Z., Luo J., Ding F. & Yuan N. (1998). pH value distribution model for multichannel flow electrophoresis. *Huagong Xuebao (Chinese)*, 49(5), 592-600.
36. Liu Z., **Wang J.**, Huang Z., Ding F., Shen Z. & Yuan N. (1996). Continuous separation of proteins by poly(vinyl alcohol) shielded multichannel flow electrophoresis. *Biotechnology Techniques*, 10(4), 253-256.
37. Liu Z., Zhao Y., **Wang J.**, Huang Z., Ding F. & Yuan N. (1996). Application of hydrophilic polymers in multichannel flow electrophoresis. *Tsinghua Science and Technology*, 1(4), 336-340.
38. Liu Z., Yang H., Huang Z., **Wang J.**, Ding F. & Yuan N. (1996). Multichannel flow electrophoresis in an alternating electric field. *Separation Science and Technology*, 31(16), 2257-2271.

#### Peer-Reviewed Conference Proceedings

1. 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*, 3128-3133.
2. **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.
3. He Q.P. & **Wang J.** (2013), Quantification of valve stiction based on a semi-physical model, *Proceedings of 2013 American Control Conference*, 4368-4373.
4. 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.
5. 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 7518, June 23 - 26, 2013. Atlanta, GA.
6. 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*, June 10 - 12, Honolulu, HI, paper accepted.
7. 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*.
8. 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*.
9. 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.
10. Galicia H.J., **Wang J.** & He Q.P. (2012), Adaptive Outlier Detection and Classification for Online Soft Sensor Update, *Proceedings of the 2012 International Symposium on Advanced Control of Chemical Processes*, 402-407.

11. Galicia H.J., **Wang J.** & He Q.P. (2012), A Comprehensive Evaluation of Statistics Pattern Analysis Based Process Monitoring, *Proceedings of the 2012 International Symposium on Advanced Control of Chemical Processes*, 39-44.
12. 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 the 2012 American Control Conference*, 4897-4902.
13. Galicia H.J., He Q.P. & **Wang J.** (2012), Statistics Pattern Analysis based fault detection and diagnosis. *Chemical Process Control VIII conference*, paper 54.
14. Galicia H.J., He Q.P. & **Wang J.** (2012), A Bayesian supervisory approach of outlier detection for recursive soft sensor update. *Chemical Process Control VIII conference*, paper 55.
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*.
16. Galicia H.J., He Q.P. & **Wang J.** (2011), Statistics Pattern Analysis - fault detection and diagnosis. *Proceeding of 2011 ISA Automation Week*.
17. **Wang J.**, He Q.P. and Edgar T.F. (2010), Control Performance Monitoring for Semiconductor Manufacturing Processes, *Proceedings of 2010 American Control Conference*, 7004-7009.
18. He Q. P. and **Wang J.** (2010), A New Spectrum Alignment Algorithm and Comparison to Other Alignment Algorithms, *Proceedings of 2010 American Control Conference*, 1260-1265.
19. He Q. P. and **Wang J.** (2010), Valve Stiction Modeling: First-Principles vs. Data-Driven Approaches, *Proceedings of 2010 American Control Conference*, 3777-3782.
20. **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.
21. **Wang J.** and He Q.P. (2008), A Practical Solution for Continuous Digester Control – Subspace Identification based Inferential Control Revisited (2008), *Proceedings of Advanced Control of Industrial Processes - International Conference*, 433-438.
22. 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.
23. He Q.P. and **Wang J.** (2008), Automatic quantification of control valve stiction based on data-driven models (2008), *Proceedings of Advanced Control of Industrial Processes - International Conference*, 347-352.
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. **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.
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.** & Qin S.J. (2004), Subspace identification using the parity space, *Proceedings of the 7th International Conference on Dynamics and Control of Process Systems*.
28. Qin S.J., Cherry G., Good R., **Wang J.**, & Harrison C. (2004), Control and monitoring of semiconductor manufacturing processes: challenges and opportunities, *Proceedings of the 7th International Conference on Dynamics and Control of Process Systems*.
29. **Wang J.**, Qin S.J., Bode C., & Purdy M. (2003), Recursive least squares estimation and its application to shallow trench isolation, *Proceedings of SPIE's International Symposium on advanced microelectronic manufacturing*, Vol. 5044, 109-120.

30. **Wang J.** & Qin S. J. (2001). Principal component analysis for errors-in-variables subspace identification, *Proceedings of the 40th IEEE Conference on Decision and Control*, vol. 4, 3936-3941.
31. Liu Z., **Wang J.**, Feng S., Shen Z., Ding F. & Yuan N. (1997). Recent development in multichannel flow electrophoresis, *Proceedings of the Second Sino-American Conference On Chemical Engineering*, 1075-1078, April 1997, Beijing, P.R. China.
32. Du J., **Wang J.**, Hu H., Zhu D., Ding F. & Yuan N. (1994). Characterization of gas distribution zone in a bubble column. *Proceedings of the 7th National Conference on Chemical Engineering (Chin.)*, 982-986, July 1994, Beijing, P. R. China.
33. Du J., **Wang J.**, Zhu D., Ding F. & Yuan N. (1994). Characterization of transition from gas distribution zone to steady zone in a bubble column. *Proceedings of the 7th national Conference on Chemical Engineering (Chinese)*, 987-990.
34. Liu Z., Zhu D., **Wang J.**, Ding F. & Yuan N. (1994). pH model for a new chromatography electrophoresis process. *Proceedings of the 7th National Conference on Chemical Engineering (Chinese)*, 1405-1408.

### Invited Seminars & Lectures

1. **Wang J.** (2014), Systems engineering approaches to the study of biological systems and industrial processes, Invited Seminar, Department of Chemical and Biomolecular Engineering, Vanderbilt University
2. **Wang J.** (2014), Systems engineering approaches to the study of microbes, Invited Seminar, Prof. Lidstrom's group, University of Washington.
3. **Wang J.** (2013), Systems engineering approaches to the study of industrial processes and biological systems, Invited Seminar, Department of Chemical Engineering, University of Pittsburgh
4. **Wang J.** (2013), Systems engineering approaches to the study of industrial processes and biological systems, Invited Seminar, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology
5. **Wang J.** (2013), Experimental and In Silico Fermentation of Mixed Sugars for Lignocellulosic Ethanol Production, Invited Seminar, Dave C. Swalm School of Chemical Engineering, Mississippi State University
6. **Wang J.** (2012), Data-Driven Systems Engineering Approaches and Their Applications in Industrial Processes, Invited Seminar, Department of Chemical Engineering, The University of Texas at Austin.
7. **Wang J.** (2012), Experimental and *In Silico* Fermentation of Mixed Sugars for Lignocellulosic Ethanol Production, Invited Seminar, School of Life Science and Technology, Dalian University of Technology, P.R. China
8. **Wang J.** (2012), Data-Driven Systems Engineering Approaches and Their Applications in Industrial Processes, Invited Seminar, School of Control Science and Engineering, Dalian University of Technology, P.R. China
9. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Department of Chemical Engineering, Massachusetts Institute of Technology
10. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Mork Family Department of Chemical Engineering and Material Science, University of Southern California
11. **Wang J.** (2006), Closed-loop Subspace Identification using the Parity Space, Invited Seminar, Department of Chemical Engineering, Auburn University

## Presentations at National and International Meetings

1. 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
2. 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
3. Stone K., He Q.P. and **Wang J.**, Biological conversion of methane: a comprehensive review, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
4. 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
5. Wang Z., He Q.P. and **Wang J.**, New criteria for evaluating variable selection performance, AIChE Annual Meeting, Nov. 16 - 21, 2014, Atlanta, GA
6. 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
7. 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
8. 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
9. **Wang J.**, He Q.P. and Edgar T., Non-threaded Run-to-Run Control, 14<sup>th</sup> European Advanced Process Control and Manufacturing Conference, Apr. 7-9, 2014, Rome, Italy
10. He Q.P. and **Wang J.**, A New Virtual Metrology Approach for Semiconductor Manufacturing Processes, 14<sup>th</sup> European Advanced Process Control and Manufacturing Conference, Apr. 7-9, 2014, Rome, Italy
11. Liu J, Damiani A, **Wang J.**, *In silico* characterization of fermentative metabolism in recombinant *S. cerevisiae*. AIChE Southern Regional Conference; Mar 21-23, 2014; Mayaguez, Puerto Rico.
12. Liu J, Gupta P, Damiani A, **Wang J.**, An improved genome-scale metabolic network model of *Scheffersomyces stipitis*. Nov. 3-8, 2013, San Francisco, CA.
13. Damiani A., Kim M.H., Liang M., and **Wang J.**, A modified dynamic method for measuring  $k_L a$ , AIChE Annual Meeting, Nov. 3-8, 2013, San Francisco, CA
14. 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
15. 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
16. 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
17. **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
18. 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
19. 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
20. 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, Apr 29 – May 2, 2013, Portland, OR.
  21. 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.
  22. **Wang J.**, He Q.P. & Edgar T.F., Improved state estimation for high-mix semiconductor manufacturing, AIChE annual meeting, 2012, Pittsburgh, PA.
  23. He Q.P. & **Wang J.**, A semi-physical valve stiction model and its application for stiction quantification, AIChE annual meeting, 2012, Pittsburgh, PA.
  24. 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.
  25. 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.
  26. 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.
  27. 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.
  28. 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
  29. 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
  30. Galicia H.J., He Q.P. & **Wang J.**, Fault detection and diagnosis in the Statistics Pattern Analysis framework. AIChE annual meeting, 2011, Minneapolis, MN.
  31. Galicia H.J., He Q.P. & **Wang J.**, Online outlier detection with a Bayesian supervisory approach for recursive soft sensor update. AIChE annual meeting, 2011, Minneapolis, MN.
  32. 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.
  33. He Q.P. & **Wang J.**, Multivariate statistical analysis based statistics pattern analysis, AIChE annual meeting, 2010, Salt Lake City, UT
  34. Galicia H.J., He Q.P., **Wang J.**, Hodges R., Krishnagopalan G., Cullinan H., Outlier detection and process monitoring with application to a recursive soft sensor update for digester control, AIChE annual meeting, 2010, Salt Lake City, UT
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