

TYLER W. JOHANNES, Ph.D., P.E.
Wellspring Assistant Professor
Curriculum Vitae

Office Address

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EDUCATION

Postdoctoral Research Fellow in Chemical Engineering July 2008

University of Illinois, Urbana-Champaign, IL
Post-doc Advisor: Professor Huimin Zhao

Doctorate of Philosophy in Chemical Engineering April 2008

University of Illinois, Urbana-Champaign, IL
Dissertation Title: Directed Evolution of Phosphite Dehydrogenase and Engineered Biosynthesis of FR-900098
Dissertation Advisor: Professor Huimin Zhao

Master of Science in Chemical Engineering May 2005

University of Illinois, Urbana-Champaign, IL
Thesis Title: Development of a Phosphite Dehydrogenase-based Nicotinamide Cofactor Regeneration System
Thesis Advisor: Professor Huimin Zhao

Bachelor of Science in Chemical Engineering, *magnum cum laude* May 2002

Oklahoma State University, Stillwater, OK

PROFESSIONAL CERTIFICATION

Licensed Professional Engineer Jan. 2011 - present

State of Oklahoma, PE#24893

PROFESSIONAL EXPERIENCE**Present Position**

Wellspring Assistant Professor Aug. 2008 - present

Department of Chemical Engineering, The University of Tulsa, Tulsa, OK

- Teaching undergraduate and graduate courses, supervising graduate and undergraduates research assistants, serving on graduate student committees, advising students on curricular and career choices, serving on departmental, college, and university committees, pursuing research on engineering microalgae for the production of fuels and natural products and on developing new molecular tools for engineering microalgae, acquiring external funding, and developing scholarly and creative activities via publication of research and presentation of technical materials, organizing outreach activities.

Post-Doctoral Research Associate April 2008 - July 2008

University of Illinois, Urbana-Champaign, IL
Advisor: Professor Huimin Zhao

- Cloned and heterologously expressed the spectinabilin gene cluster from *Streptomyces spectabilis*.

Graduate Research Assistant Aug. 2002 - April 2008

University of Illinois, Urbana-Champaign, IL
Advisor: Professor Huimin Zhao

- Used directed evolution to improve the thermostability of the enzyme phosphite dehydrogenase and characterized and engineered the FR-90098 biosynthetic pathway.

- Undergraduate Research Assistant** Aug. 2001 - July 2002
Oklahoma State University, Stillwater, OK
Advisor: Professor Randy S. Lewis
- Setup a fermentation unit for the conversion of synthesis gas into ethanol and acetic acid.
- Process Engineering Intern, Chevron Phillips Chemical Company LLC** May 2001 - Aug. 2001
Cedar Bayou Plant, Houston, TX
Supervisor: Robert Zellar
- Troubleshooted problems dealing with an ethylene drying unit and supervised the loading of activated alumina into an ethylene drying unit.
- Senior Chemical Engineering Intern, ConocoPhillips Company** May 2000 - Aug. 2000
Research and Development Center, Bartlesville, OK
Supervisor: Jeffry Burkinshaw
- Assisted in modeling heat exchangers for the S Zorb™ sulfur removal process.

AWARDS AND RECOGNITIONS

- Tau Beta Pi Teaching Excellence Award, University of Tulsa (2012)
- AIChE Advisor Honor Roll, University of Tulsa (2009, 2010, 2011, 2012)
- Mavis Future Faculty Fellowship, University of Illinois (2006)
- 1st Place in ChBE Student Symposium Poster Presentation, University of Illinois (2005, 2007)
- DuPont Fellowship, University of Illinois (2006-2008)
- Thomas J. Hanratty Travel Award, University of Illinois (2005)
- "Incomplete list of teachers ranked excellent by their students", University of Illinois (2003, 2004)
- R.N. Maddox Chemical Engineering Design Award, Oklahoma State University (2001)
- 1st Place Celanese Senior Design Competition, Oklahoma State University (2001)
- Omega Chi Epsilon Honor Society, Oklahoma State University (2001)
- Tau Beta Pi Engineering Honor Society, Oklahoma State University (1998)
- Valedictorian Scholarship, Oklahoma State University (1997-2001)
- Kerr-McGee Scholarship, Oklahoma State University (2000-2001)
- DuPont Scholarship, Oklahoma State University (1998)
- Phillips Petroleum Scholarship, Oklahoma State University (1997)

TEACHING ACTIVITY

Teaching Responsibility

The courses I teach cover a range of chemical engineering fundamentals and my research specialization area. The courses I taught were in the areas of Fluid Mechanics, Heat Transfer, Chemical Reactor Design, and Biochemical Engineering. They are offered at the second year of chemical engineering (Engineering Science Fluid Mechanics), at the junior year (Engineering Science Heat Transfer, Chemical Reactor Design), at the senior level (Biochemical Engineering), and at the graduate level (Fluid Mechanics, Biochemical Engineering).

Nature of Courses Taught

The undergraduate courses I teach include regular lectures integrated with active-learning and peer-to-peer instruction activities, and informal discussion sessions. In these courses I incorporate projects from my research activities exposing students to contemporary issues and typically require oral presentations and written technical reports. The graduate courses I teach include regular lectures, discussion sessions, and student presentations.

Courses Taught/Teaching at The University of Tulsa

Undergraduate courses (4)

1. Heat Transfer, The University of Tulsa (Fall 2008, Fall 2009, Spring 2009, Spring 2010, Fall 2011)
2. Fluid Mechanics, The University of Tulsa (Spring 2010, Spring 2011, Fall 2011, Spring 2012, Summer 2012, Fall 2012)
3. Chemical Reactor Design, The University of Tulsa (Fall 2009, Fall 2010, Spring 2011, Spring 2012, Spring 2013)
4. Biochemical Engineering (Spring 2013)

Graduate courses (2)

1. Biochemical Engineering, The University of Tulsa (Fall 2010)
2. Fluid Mechanics, The University of Tulsa (Fall 2012)

Courses Served as a Teaching Assistant at the University of Illinois**Graduate courses (1)**

1. Biomolecular Engineering, University of Illinois (Fall 2005)

Undergraduate courses (2)

1. Mass Transfer, University of Illinois (Spring 2003)
2. Fluid Mechanics, University of Illinois (Fall 2002)

Courses Served as a Teaching Assistant at Oklahoma State University**Undergraduate courses (4)**

1. Rate Operations II, Oklahoma State University (Spring 2002)
2. Fluid Mechanics, Oklahoma State University (Spring 2002)
3. Thermodynamics, Oklahoma State University (Spring 2001)
4. Introductory Chemistry, Oklahoma State University (Spring 2000, Fall 2000, Fall 2001)

Teaching Load

The percent teaching time I am assigned for instructional activities during 9 academic months is 50 percent (2 courses per semester).

Teaching Performance

Average students evaluations of my performance in the classrooms are given below on a scale from 0 to 5.0, where 5.0 represent excellent overall performance of the instructor.

<u>Semester</u>	<u>Courses Taught (Number and Name)</u>	<u>Number of Students in Class</u>	<u>Number of Forms Completed</u>	<u>Average Student Evaluations</u>
20 <u>08</u> F	ES 3073 Heat Transfer	17	17	4.6
20 <u>09</u> S	ES 3073 Heat Transfer	24	23	4.8
20 <u>09</u> F	ChE 4063 Chemical Reactor Design	23	21	4.2
20 <u>09</u> F	ES 3073 Heat Transfer	31	27	4.5
20 <u>10</u> S	ES 3003 Fluid Mechanics	32	29	4.4
20 <u>10</u> S	ES 3073 Heat Transfer	38	37	4.6
20 <u>10</u> F	ChE 4063 Chemical Reactor Design	24	23	4.3
20 <u>10</u> F	ChE 6863 Biochemical Engineering	7	6	4.8
20 <u>11</u> S	ES 3003 Fluid Mechanics	52	52	4.5
20 <u>11</u> S	ChE 4063 Chemical Reactor Design	21	21	4.3
20 <u>11</u> F	ES 3003 Fluid Mechanics	42	41	4.5
20 <u>11</u> F	ES 3073 Heat Transfer	32	32	4.7
20 <u>12</u> S	ChE 4063 Chemical Reactor Design	27	26	4.5
20 <u>12</u> S	ES 3003 Fluid Mechanics	49	45	4.7
20 <u>12</u> Su	ES 3003 Fluid Mechanics	22	21	4.8
20 <u>12</u> F	ChE 7033 Fluid Mechanics	17	17	4.4
20 <u>12</u> F	ES 3003 Fluid Mechanics	47	44	4.5
20 <u>13</u> S	ChE 4063 Chemical Reactor Design	39	39	4.6
20 <u>13</u> S	ChE 4173 Biochemical Engineering	25	22	4.6
20 <u>13</u> Su	ES 3003 Fluid Mechanics	23	20	4.5

TEACHING SERVICES**Academic Advising – Undergraduate Students at The University of Tulsa****Undergraduate students advised/currently advising (19)**

- (1) Joseph Eby, B.S. Chemical Engineering, Aug. - May 2009
- (2) Rachel Johnston, B.S. Chemical Engineering, Aug. - May 2010
- (3) Christopher Dean, B.S. Chemical Engineering, Aug. 2009 - May 2010
- (4) Anne Campbell, B.S. Chemical Engineering, TURC Awardee, May 2009 - Aug. 2009

- (5) Kelby Aten, B.S. Chemical Engineering, TURC Awardee, May 2009 - Aug. 2009
- (6) Megan Bradford, B.S. Environmental Policy, TURC Awardee, May 2009 - Aug. 2009
- (7) Ryan Fesler, B.S. Chemical Engineering, TURC Awardee, May 2009 - Aug. 2009
- (8) Kayla Kutter, B.S. Chemical Engineering, May 2010 - Aug. 2010
- (9) Maddi Laizure, B.S. Chemical Engineering, REU Awardee, TURC Awardee (2x), May 2009 - Aug. 2011
- (10) Morgan Johnson, B.S. Chemical Engineering, TURC Awardee, May 2011 - Aug. 2011
- (11) Michael Bruns, B.S. Chemical Engineering, Jan. 2011 - May 2011
- (12) Andrew Lowe, B.S. Chemical Engineering, The University of Tulsa, Jan. 2013 – May 2013
- (13) Anne Himmelberg, B.S. Chemical Engineering, TURC Awardee, May 2012 - Aug. 2012
- (14) Susie Shih, B.S. Chemical Engineering, TURC Awardee, May 2012 - present
- (15) Acille Sammur, B.S. Chemical Engineering, TURC Awardee, Jan. 2012 - present
- (16) Connor McGarity, B.S. Chemical Engineering, TURC Awardee, May 2013- present
- (17) Jasmine Rana, B.S. Chemical Engineering, TURC Awardee, Aug. 2012 - present
- (18) Brooke Hemphill, B.S. Chemical Engineering, TURC Awardee, May 2012 - present
- (19) Weston Kightlinger, B.S. Chemical Engineering, **2013 Goldwater Scholar**, May 2011 - present

Academic Advising – Graduate Students at The University of Tulsa

Graduate students advised/currently advising (10)

Ph.D. students advised/currently advising (3)

- (1) Samaneh Noor-Mohammadi, Ph.D., "Developing molecular tools for *Chlamydomonas reinhardtii*" (2012)
- (2) Azadeh Mohamed Pourmir, Ph.D., anticipated 2014
- (3) Yang He, Ph.D., co-advised with Dr. Daniel Crunkleton and Dr. Michael Keller, anticipated 2015

M.S. students advised/currently advising (4)

- (1) Samaneh Noor-Mohammadi, M.S., "Method to assemble biosynthetic pathways in microalgae" (2010)
- (2) Azadeh Mohamad Pourmir, M.S., "Engineering microalgae for xylose utilization" (2011)
- (3) Samuel Odewale, M.S., "Genetically engineering the microalgae strain *Chlamydomonas reinhardtii* to increase carotenoid levels" (2012)
- (4) Kai Chen, M.S., co-advised with Dr. Daniel Crunkleton and Dr. Geoffrey Price, "Effects of algae extract on the growth and metabolism of bacteria and yeast" (2012)

M.E. students advised/currently advising (3)

- (1) Chong Hong, M.E., "Engineering microalgae for resveratrol production" (2011)
- (2) Adrienne Sandoval, M.E., "Expression of a prolyl endoprotease in microalgae" (2011)
- (3) Di Huang, M.E., "Cloning and expression of *ADH1* in *Chlamydomonas reinhardtii*" (2013)

HONORS AND AWARDS BY STUDENTS

Weston Kightlinger

- 2013 Goldwater Scholar
- Honorable Mention in National Student Paper Competition, AIChE Annual Student Conference in Pittsburg, PA, November 2012
- 1st place in Paper Competition, AIChE Mid-America Regional Conference at Washington University in St. Louis, MO, April 2012

Azadeh Pourmir

- 3rd place in Paper Competition, 86th Regional Meeting of the American Association for the Advancement of Science Southwestern and Rocky Mountain Division, Tulsa, OK, April 2012

PROFESSIONAL SERVICE TO TEACHING

Committee Memberships Related to Teaching at The University of Tulsa

Ph.D. and M.S. Graduate Faculty Committees (8)

- (1) Samaneh Noor-Mohammadi, M.S., Chemical Engineering, April 2010
- (2) Azadeh Mohamad Pourmir, M.S., Chemical Engineering, April 2011
- (3) Kai Chen, M.S., Chemical Engineering, March 2012
- (4) Samuel Odewale, M.S., Chemical Engineering, April 2012
- (5) Mark Vaccari, Ph.D., Chemical Engineering, Feb. 2012
- (6) Samaneh Noor-Mohammadi, Ph.D., July 2012
- (7) Hualin Zhang, M.S., Chemistry, Nov. 2012

(8) Kate Key, Ph.D., Chemical Engineering, March 2013

Self-Improvement Activities (7)

I attended the following workshops and meetings:

- ASEE (American Society for Engineering Education) Summer School for Chemical Engineering Faculty, University of Maine, Orono, ME, July 21-27, 2012
- University of Tulsa Annual All Faculty Meeting, "Mind the Gap: Understanding and Responding to Disconnects in Teaching and Learning" by John Immerwahr (Villanova University), Tulsa, OK, January 5, 2012
- University of Tulsa First Friday Faculty Forum, "Fostering Deep Learning" by Ken Bain (Montclair University), Tulsa, OK, August 26, 2011
- University of Tulsa Annual All Faculty Meeting, "Memorization vs. Understanding: Are we asking the right questions?" by Eric Mazur (Harvard University), Tulsa, OK, January 6, 2011
- University of Tulsa First Friday Faculty Forum, "Brilliant and Sometimes Befuddled: Teaching on the Edge of Your Expertise and Inspiring Lifelong Learners", Tulsa, OK, August 27, 2010
- University of Tulsa Annual All Faculty Meeting, "Fostering the Intellectual and Personal Development of our Students" by Jeanette Norden (Vanderbilt University), Tulsa, OK, January 7, 2010
- Sunday Workshop: Career Planning for Prospective Faculty by Dr. Geoffrey Prentice (NSF) and Dr. Tim Anderson (University of Florida), Salt Lake City, UT, November 12, 2008

Student Organizations Advised (1)

- Faculty advisor of the American Institute of Chemical Engineers (AIChE) Student Chapter at The University of Tulsa, (January 2009 – present)

AIChE Student Chapter Awards (10)

- 1st Place in the Chem-E-Car Competition at the AIChE Mid-America Regional Conference, University of Oklahoma, Norman, OK, April 19-20, 2013
- Most Creative Vehicle Drive Train in the Chem-E-Car Competition at the AIChE Mid-America Regional Conference, University of Oklahoma, Norman, OK, April 19-20, 2013
- 1st Place in the Chem-E-Car Competition at the AIChE Mid-America Regional Conference, Washington University in St. Louis, St. Louis, MO, March 30-31, 2012
- 3rd Place in the Chem-E-Car Poster Competition at the AIChE Mid-America Regional Conference, Washington University in St. Louis, St. Louis, MO, March 30-31, 2012
- AIChE Donald F. and Mildred Topp Othmer National Scholarship Award to John Eason, July 2011
- 2nd Place in the Chem-E-Car Competition at the AIChE Mid-America Regional Conference, Iowa State University, Ames, IA, April 9-10, 2010
- 3rd Place in the Chem-E-Car Poster Competition at the AIChE Mid-America Regional Conference, Iowa State University, Ames, IA, April 9-10, 2010
- Most Creative Design in the Chem-E-Car Competition at the AIChE Mid-America Regional Conference, University of Missouri, Columbia, MO, April 3-4, 2009
- 3rd Place in Chem-E-Car Poster Competition at the AIChE Mid-America Regional Conference, University of Missouri, Columbia, MO, April 3-4, 2009
- Awarded Best AIChE Student Chapter Website, May 2009

Other Service to Teaching (8)

- Faculty Judge for the Undergraduate Poster Session at the 2012 AIChE Annual Meeting in Pittsburg, PA, October 28-November 2, 2012
- Faculty Judge for the Undergraduate Poster Session at the 2011 AIChE Annual Meeting in Minneapolis, MN, October 16-21, 2011
- Safety Judge for Chem-E-Car Competition at the AIChE Mid-America Regional Conference, University of Arkansas, Fayetteville, AR, April 8-9, 2011
- Faculty Judge for the Undergraduate Poster Session at the 2010 AIChE Annual Meeting in Salt Lake City, UT, November 7-12, 2010
- Faculty Judge for the Undergraduate Poster Session at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009
- Safety Judge for Chem-E-Car Competition at the AIChE Mid-America Regional Conference, Iowa State University, Ames, IA, April 9-10, 2010

- Poster Judge of the Chem-E-Car Competition at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009
- Safety Judge of the Chem-E-Car Competition at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009

RESEARCH ACTIVITY

Research Responsibility

My primary research responsibility is to develop and maintain an active research program. More specifically, this includes writing proposals, securing external research funds, training research assistants, maintaining a wet laboratory, and developing scholarly activities via publications, preferably in peer-reviewed venues, and presenting technical materials at national and international conferences and meetings.

Percent Research Time

The percent research time I am assigned for scholarship and creative activity during 9 academic months is 25 percent.

Summary of Sponsored Research

Total Funded (PI and co-PI)	\$1,204,864
Total Funded (Senior Personnel)	\$1,124,496
Total	\$2,329,360

Creative Sponsored Research

- Co-Principal Investigator, May 2010 – May 2013, "Acquisition of a High-Resolution, Accurate Mass, Benchtop LC-MS with Cyber Outreach Capabilities", Sponsor: National Science Foundation (\$362,165)
- Principal Investigator, Nov. 2012 - Sept. 2013, "Manipulating the Mechanical Properties of Microalgae", Sponsor: The University of Tulsa Faculty Research Grant (\$1,000)
- Co-Principal Investigator, Sept. 2010 – Aug. 2012, "Green Fuels from Algae", Sponsor: Department of Energy (\$729,000)
- Principal Investigator, July 2010 - July 2011, "Artificial Control of Protein Expression in Microalgae", Sponsor: Oklahoma Center for the Advancement of Science & Technology - Health Science (\$45,000)
- Principal Investigator, July 2010 - July 2011, "Production of Resveratrol in Genetically Engineered Algae", Sponsor: The University of Tulsa Faculty Summer Fellowship Award (\$9,469)
- Principal Investigator, May 2010 - August 2010, "Genetic Engineering of Algae to Produce Biofuels", Sponsor: Oklahoma EPSCoR (\$5,000)
- Principal Investigator, Jan. 2010 - Dec. 2010, "Engineering Pentose Sugar Utilization in Microalgae for Biofuel Production", Sponsor: The University of Tulsa Faculty Summer Fellowship Award (\$9,222)
- Principal Investigator, Sept. 2009 - Aug. 2010, "Engineering Pentose Sugar Utilization in Microalgae for Biofuel Production", Sponsor: University of Oklahoma Health Science Center (Prime: National Science Foundation) (\$34,786)
- Senior Personnel, May 2009 - April 2013, "Acquisition of a High-Resolution Environmental Scanning Electron Microscope and Focused Ion-Beam Milling System", Sponsor: National Science Foundation (\$1,124,496)
- Principal Investigator, Jan. 2009 - Dec. 2009, "Genetic Engineering of Algae for Biofuel Production", Sponsor: The University of Tulsa Faculty Summer Fellowship Award (\$9,222)

Participation in Organizations as Proposal Referee (18)

I participated as research proposal referee and reviewer for the following organizations:

- ACS Petroleum Research Fund (December 2008)
- DOE - Demonstration of Integrated Biorefinery Operations (September 2009)
- DOE - Development of Algal /Advanced Biofuels Consortia (November 2009)
- DOE & USDA - Biomass Research and Development Initiative (August 2010)
- DOE - Biodiesel from Low-Impact Crops (October 2010)
- USDA - Biomass Research and Development Initiative (February 2011)
- EPA - P3/Phase II Competition (April 2011)
- USDA & DOE - Biomass Research and Development Initiative (July 2011)
- USDA - Biomass Research and Development Initiative (January 2012)
- EPA - P3/Phase II Competition (April 2012)

- DOE - ARPA-E Concept Papers (May 2012)
- DOE - Advancements in Sustainable Algal Production (June 2012)
- EPA - SBIR Green Building (August 2012)
- DOE - Innovative Biosynthetic Pathways to Advanced Biofuels (August 2012)
- USDA - Biomass Research and Development Initiative (August 2012)
- AAAS - King Abdulaziz City for Science and Technology (KACST) Research Competitiveness Program - Biofuels (August 2012)
- EPA - P3/Phase II Competition (April 2013)
- DOE - Advancements in Algal Biomass Yield (ABY) (May 2013)

PROFESSIONAL COMMUNICATIONS

Peer-reviewed Journal Articles (Total 15):

1. Key, K., Sublette, K.L., **Johannes, T.W.**, Ogles, D., Baldwin, B., and Biernacki, A., Assessing BTEX Bioremediation Potential Using Molecular Biological Tools. *Ground Water Monitoring and Remediation* (in press)
2. Key, K., Sublette, K.L., **Johannes, T.W.**, Raes, E., Sullivan, E., Ogles, D., Baldwin, B., and Biernacki, A., An *In Situ* Bioreactor for the Treatment of Petroleum Hydrocarbons in Groundwater. *Remediation Journal* 23 (3), 55-84 (2013)
3. Pourmir, A., Noor, S., and **Johannes, T.W.**, Production of Xylitol in Recombinant Microalgae. *Journal of Biotechnology* 165, 178-183 (2013)
4. Pourmir, A. and **Johannes, T.W.** Directed Evolution: Selection of the Host Organism. *Computational and Structural Biotechnology Journal* 2 (3), 1-7 (2012)
5. Noor, S., Pourmir, A., and **Johannes, T.W.**, Method to Assemble Biosynthetic Pathways in Chloroplast Genome of the Microalgae *Chlamydomonas reinhardtii*. *Biotechnology and Bioengineering* 109 (11), 2896-2903 (2012) [Spotlighted in issue by editors]
6. Zou, Y., Zhang, H., Brunzelle, J.S., **Johannes, T.W.**, Woodyer, R.D., Hung, J.E., Nair, N., van der Donk, W.A., Zhao, H., and Nair, S.K. Crystal Structures of Phosphite Dehydrogenase Provide Insights into Nicotinamide Cofactor Regeneration. *Biochemistry* 51 (21), 4262-4270 (2012)
7. Hung, J.E., Fogle, E.J., Relyea, H.A., Christman, H.D., **Johannes, T.W.**, Zhao, H., Metcalf, W.W., and van der Donk, W.A. Investigation of the Role of Arg301 Identified in the X-ray Structure of Phosphite Dehydrogenase. *Biochemistry* 51 (21), 4254-4262 (2012)
8. **Johannes, T.W.**, DeSieno, M.A., Griffin, B.M., Thomas, P.M., Kelleher, N.L., Metcalf, W.W., and Zhao, H. Deciphering the Late Biosynthetic Steps of Antimalarial Compound FR-900098. *Chemistry and Biology* 17, 57-64 (2010)
9. Choi, Y., **Johannes, T.W.**, Simurdiak, M., Shao, Z., Lu, H., and Zhao, H. Cloning and Heterologous Expression of the Spectinabilin Biosynthetic Gene Cluster from *Streptomyces spectabilis*. *Molecular BioSystems* 6, 336-338 (2010)
10. Nair, N.U., Shao, Z., DeSieno, M., **Johannes, T.W.**, Zhao, H., Lee, T., Sullivan, R.P., McLachlan, M., Zhao, H. Towards the Cost-effective Production of Antimalarial Drug FR-900098 and Butanol. Proceedings of Foundations of Systems Biology (FOSBE), Denver, CO (2009)
11. Eliot, A.C., Griffin, B.M., Thomas, P.M., **Johannes, T.W.**, Kelleher, N.L., Zhao, H., and Metcalf, W.W. Cloning, expression, and biochemical characterization of *Streptomyces rubellomurinus* genes required for biosynthesis of antimalarial compound FR900098. *Chemistry and Biology* 15, 765-770 (2008)
12. McLachlan, M., **Johannes, T.W.**, and Zhao, H. Further Improvement of Phosphite Dehydrogenase Thermostability by Saturation Mutagenesis. *Biotechnology and Bioengineering* 99, 268-274 (2008)
13. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. Efficient Regeneration of NADPH Using an Engineered Phosphite Dehydrogenase. *Biotechnology and Bioengineering* 96, 18-26 (2007)
14. **Johannes, T.W.** and Zhao, H. Directed Evolution of Enzymes and Biosynthetic Pathways. *Current Opinion in Microbiology* 9, 1-7 (2006)
15. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. Directed Evolution of a Thermostable Phosphite Dehydrogenase for NAD(P)H Regeneration. *Applied and Environmental Microbiology* 71, 5728-5734 (2005)

Peer-reviewed Book chapters (3)

1. **Johannes, T.W.**, Woodyer, R.D. and Zhao, H. "High Throughput Screening Methods for Oxidoreductases." In *Enzyme Assays: High-throughput Screening, Genetic Selection and Fingerprinting*, (J.L Reymond, Ed.) Wiley VCH-Verlag GmbH, Weinheim, Germany, Chapter 3, pp. 77-93 (2006)

2. **Johannes, T.W.**, Simurdiak, M. and Zhao, H. "Biocatalysis." In Encyclopedia of Chemical Processing, (S. Lee, ed.) Marcel Dekker, Inc., New York, NY, pp. 101-110 (2006)
3. Woodyer, R.D., **Johannes, T.W.**, and Zhao, H. "Cofactor Regeneration for Biocatalytic Applications." In Enzyme Technology, (A. Pandey, C. Webb, C. S. Soccol, and C. Larroche, Eds.) Chapter 5, pp. 83-101, Asiatech Publishers, Inc., New Delhi, India (2004)

Patents (1)

1. Zhao, H., van der Donk, W.A., Metcalf, W.W., **Johannes, T.W.**, Woodyer, R.D. "Phosphite Dehydrogenase Mutants for Nicotinamide Cofactor Regeneration" US Patent 7,402,419 (2008)

Presentations – General Invited (15)

1. **Johannes, T.W.**, Colorado School of Mines, Departmental Seminar Series - Department of Chemical and Biological Engineering, Golden, CO, "Using Synthetic Biology to Engineer Microalgae", September 7, 2012
2. **Johannes, T.W.**, Oklahoma State Center for Health Sciences, Departmental Seminar Series - School of Biomedical Sciences, Tulsa, OK, "Engineering Microalgae for Fuels and Natural Products", October 7, 2011
3. **Johannes, T.W.**, Kansas State University, Departmental Seminar Series - Department of Chemical Engineering, Manhattan, KS, "Using Synthetic Biology to Genetically Engineer Microalgae", March 15, 2011
4. **Johannes, T.W.**, Brigham Young University, Departmental Seminar Series - Department of Chemical Engineering, Provo, UT, "Using Synthetic Biology to Genetically Engineer Microalgae", March 3, 2011
5. **Johannes, T.W.**, University of Arkansas, Department Seminar Series – Ralph E. Martin Department of Chemical Engineering, Fayetteville, AR, "Using Synthetic Biology to Engineer Microalgae", October 7, 2010
6. **Johannes, T.W.**, Oklahoma State University, Department Seminar Series – Department of Biosystems and Agricultural Engineering, Stillwater, OK, "Using Synthetic Biology to Engineer Microalgae", September 16, 2010
7. **Johannes, T.W.**, University of Tulsa, Department Seminar Series –Department of Biological Science, Tulsa, OK, "Pathway Engineering in Microalgae for Biofuel Production", April 8, 2010
8. **Johannes, T.W.**, University of Oklahoma, Department Seminar Series – School of Chemical, Biological and Materials Engineering, Oklahoma City, OK, "Pathway Engineering in Microalgae for Biofuel Production", February 18, 2010
9. **Johannes, T.W.**, Oklahoma State University, Department Seminar Series – School of Chemical Engineering, Stillwater, OK, "Engineering Enzymes and Pathways for Biocatalysis", February 17, 2009
10. **Johannes, T.W.**, University of Washington, Department Seminar Series – Department of Chemical Engineering, Seattle, WA, "Directed Evolution of Enzymes and Biosynthetic Pathways", March 10, 2008
11. **Johannes, T.W.**, University of Tulsa, Department Seminar Series – Department of Chemical Engineering, Tulsa, OK, "Directed Evolution of Enzymes and Biosynthetic Pathways", February 11, 2008
12. **Johannes, T.W.**, Colorado State University, Department Seminar Series – Department of Chemical Engineering, Fort Collins, CO, "Characterization and Engineering of Enzymes and Pathways for Biocatalysis", February 7, 2008
13. **Johannes, T.W.**, University of Tennessee, Department Seminar Series – Department of Chemical Engineering, Knoxville, TN, "Characterization and Engineering of Enzymes and Pathways for Biocatalysis", February 5, 2008
14. **Johannes, T.W.**, University of Iowa, Department Seminar Series – Department of Chemical Engineering, Iowa City, IA, "Characterization and Engineering of Enzymes and Pathways for Biocatalysis", January 31, 2008
15. **Johannes, T.W.**, University of Georgia, Department Seminar Series – Department of Biological and Agricultural Engineering, Athens, GA, "Characterization and Engineering of Enzymes and Pathways for Biocatalysis", January 22, 2008

Presentations – National and International Conferences (12)

1. **Pourmir, A.** and Johannes, T.W. "Xylitol production in the chloroplast of microalgae strain *Chlamydomonas reinhardtii*", 19th Annual International Petroleum and Biofuels Environmental Conference (IPEC), Denver, CO, October 2012
2. **Kightlinger, W.**, Chen, K., Crunkleton, D., Price, G., and Johannes, T.W. "Effects of Algae Extract On the Growth and Metabolism of Various Microorganisms", AIChE Annual Meeting, Pittsburgh, PA, October 2012

3. **Noor, S.** and Johannes, T.W. "Engineering Phosphite Utilization in Microalgae", 18th Annual International Petroleum and Biofuels Environmental Conference (IPEC), Houston, TX, November 2011
4. **Pourmir, A.** and Johannes, T.W. "Utilization of Pentose Sugars in Microalgae for Biofuel Production", AIChE National Meeting, Minneapolis, MN, October 2011
5. **Johannes, T.W.** "Green Fuels from Algae", 57th International Instrumentation Symposium, St. Louis, MO, June 2011
6. **Laizure, M.** and Johannes, T.W. "Genetic Engineering of Algae to Produce Biofuels", AIChE National Meeting, Salt Lake City, UT, November 2010
7. **Noor, S.** and Johannes, T.W. "Method to Assemble Biosynthetic Pathways in Microalgae", AIChE National Meeting, Salt Lake City, UT, November 2010
8. **Noor, S.** and Johannes, T.W. "Method to Assemble Biosynthetic Pathways in Microalgae", 17th Annual International Petroleum and Biofuels Environmental Conference (IPEC), San Antonio, TX, August 2010
9. **Johannes, T.W.** "Assembly of Biosynthetic Pathways in Microalgae", International Symposium and Annual Meeting of the Korean Society for Microbiology and Biotechnology, Seoul, South Korea, June 2010
10. **Noor, S.** and Johannes, T.W. "Pathway Engineering in Microalgae", 16th Annual International Petroleum and Biofuels Environmental Conference (IPEC), Houston, TX, November 2009
11. **Johannes, T.W.** and Zhao, H. "Heterologous Production of the Antimalarial Drug FR-900098 in *E. coli*", AIChE National Meeting, Salt Lake City, UT, November 2007
12. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Directed Evolution of a Thermostable PTDH for NAD(P)H Regeneration", AIChE Annual Meeting, Cincinnati, OH, November 2005

Presentations – Regional Conferences (22)

1. **He, Y.**, Crunkleton, D., Keller, M., and Johannes, T.W. "Measuring the Mechanical Properties of Microalgae by Direct Microcompression", The 16th Annual TU Student Research Colloquium, Tulsa, OK, April 2013
2. **Pourmir, A.**, and Johannes, T.W., "Engineering the Microalgae Strain *Chlamydomonas reinhardtii* for Xylose Utilization", 86th Regional Meeting of the American Association for the Advancement of Science Southwestern and Rocky Mountain Division, Tulsa, OK, April 2012
3. **Kightlinger, W.**, Chen, K., Crunkleton, D., Price, G., and Johannes, T.W. "Effects of Algae Extract On the Growth and Metabolism of Various Microorganisms", AIChE Mid-America Regional Conference, Washington University in St. Louis, St. Louis, MO, April 2012
4. **Pourmir, A.** and Johannes, T.W. "Improved Xylitol Production in the Chloroplast of *Chlamydomonas reinhardtii* through Codon Optimization and Fusion of 16S Promoter to the 5' atpA UTR", OK EPSCOR Annual Conference, Stillwater, OK, April 2012
5. **Oldewale, S.** and Johannes, T.W. "Study of Carotenoid Production by Over-expressing Non-Mevalonate and Isoprenoid Biosynthetic Enzymes in *Chlamydomonas reinhardtii*", The 15th Annual TU Student Research Colloquium, Tulsa, OK, March 2012
6. **Kightlinger, W.**, Chen, K., Crunkleton, D., Price, G., and Johannes, T.W. "Effects of Algae Extract On the Growth and Metabolism of Various Microorganisms", The 15th Annual TU Student Research Colloquium, Tulsa, OK, March 2012
7. **Laizure, M.** and Johannes, T.W. "Genetic Engineering of Algae to Produce Biofuels", Saint Francis Hospital (Genetics Group), Tulsa, OK, July 2011
8. **Noor, S.** and Johannes, T.W. "Assembly of Biosynthetic Pathways in Microalgae", Joint Meeting of the 14th Annual TU Student Research Colloquium and the 9th Annual OU-Tulsa Research Forum, Tulsa, OK, March 2011
9. **Laizure, M.** and Johannes, T.W. "Genetic Engineering of Algae to Produce Biofuels", Oklahoma EPSCOR 16th Annual Research Day at the Capitol, Oklahoma City, OK, March 2011
10. **Pourmir, A.** and Johannes, T.W. "Utilization of Pentose Sugars in Microalgae for Biofuel Production", 14th Annual TU Student Research Colloquium, Tulsa, OK, March 2011
11. **Johannes, T.W.** "Current Status of Biofuel Technology in Oklahoma", Heartland Energy Conference, Rogers State University, Claremore, OK, September 2010
12. **Noor, S.** and Johannes, T.W. "Method to Assemble Biosynthetic Pathways in Microalgae", ConocoPhillips Company, Bartlesville, OK, July 2010
13. **Kutter, K.** and Johannes, T.W. "Developing a Controllable Protein Expression System in Microalgae", AIChE Mid-America Regional Conference, Iowa State University, Ames, IA, April 2010
14. **Noor, S.**, Pourmir, A., and Johannes, T.W. "Method to Assemble Biosynthetic Pathways in Microalgae", OK EPSCoR Annual State Conference-Focus on Bioenergy Research, Norman, OK, April 2010

15. **Noor, S.** and Johannes, T.W. "Method to Assemble Biosynthetic Pathways in Microalgae", 13th Annual TU Student Research Colloquium, Tulsa, OK, March 2010
16. **Johannes, T.W.**, DeSieno, M., and Zhao, H. "Heterologous Production of the Antimalarial Drug FR-900098 in *E. coli*", 2nd Annual Institute for Genomic Biology Fellows Symposium – Synthetic Biology, Urbana, IL, April 2008
17. **Johannes, T.W.**, DeSieno, M., and Zhao, H. "Heterologous Production of the Antimalarial Drug FR-900098 in *E. coli*", The 6th Annual ChBE Graduate Student Symposium, Urbana, IL, October 2007
18. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Development of a Phosphite Dehydrogenase-Based Nicotinamide Cofactor Regeneration System", The 5th Annual ChBE Graduate Student Symposium, Urbana, IL, October 2006
19. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Development of a Novel Phosphite Dehydrogenase-Based NAD(P)H Regeneration System for Industrial Biocatalysis", Graduate Seminar in the Applied Chemical Sciences, Urbana, IL, May 2006
20. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Development of a Phosphite Dehydrogenase-based Nicotinamide Cofactor Regeneration System", The 18th Annual Cell & Molecular Biology/ Molecular Biophysics Training Grant Research Symposium, Urbana, IL, October 2005
21. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Development of a Phosphite Dehydrogenase-based NAD(P)H Regeneration System", The 4th Annual ChBE Graduate Student Symposium, Urbana, IL, October 2005
22. **Johannes, T.W.**, Woodyer, R.D., and Zhao, H. "Directed evolution of a Thermostable Phosphite Dehydrogenase", The 17th Annual Cell & Molecular Biology/ Molecular Biophysics Training Grant Research Symposium, Urbana, IL, November 2004

Participation in Journals, Conferences, and Proceedings as Referee (21)

I participated as referee and reviewer of the following journals and conferences:

- ACS Catalysis
- Advanced Synthesis and Catalysis
- Applied Microbiology and Biotechnology
- Bioorganic & Medicinal Chemistry Letters
- Bioresource Technology
- Biotechnology Advances
- Biotechnology and Bioengineering
- Biotechnology Progress
- Computational and Structural Biotechnology Journal
- Environmental Progress
- Enzyme and Microbial Technology
- FEMS Microbiology
- Future Medicinal Chemistry
- Journal of Biomedicine and Biotechnology
- Journal of Industrial Microbiology & Biotechnology
- Process Biochemistry
- Research in Pharmaceutical Biotechnology
- 2009 AIChE Annual Meeting, Food, Pharmaceutical & Bioengineering Division, Area 15C
- 2010 AIChE Annual Meeting, Food, Pharmaceutical & Bioengineering Division, Area 15C
- 2011 AIChE Annual Meeting, Food, Pharmaceutical & Bioengineering Division, Area 15C
- 2012 AIChE Annual Meeting, Food, Pharmaceutical & Bioengineering Division, Area 15C

Self-Improvement Activities Related to Research (2)

I attended the following workshops

- *NSF Grants Workshop* by Oklahoma EPSCOR, Stillwater, OK, May 21, 2009
- *NSF Workshop I & II* by Robert Wellek, William B. Krantz and Vijay T. John, Salt Lake City, UT, November 18, 2008

SERVICE ACTIVITY

Consulting Service (1)

- Sullivan and Company, LLC, Tulsa, OK, May-Aug. 2012

Professional Organizations (1)

- Senior member of the American Institute of Chemical Engineers (AIChE) (Jun. 2009 - present)
- Member of the American Institute of Chemical Engineers (AIChE) (Oct. 2005 - Jun. 2009)

Service to Disciplinary and Professional Societies (11)

- Co-Chair of the "Meet the Faculty Candidate Poster Session" at the 2013 AIChE Annual Meeting in San Francisco, CA, November 3-8, 2013
- Chair of the technical session "Advances in Biocatalysis and Biosynthesis" at the 2012 AIChE Annual Meeting in Pittsburg, PA, October 28-November 2, 2012
- Chair of the "Meet the Faculty Candidate Poster Session" at the 2012 AIChE Annual Meeting in Pittsburg, PA, October 28-November 2, 2012
- Co-Chair of the "Meet the Faculty Candidate Poster Session" at the 2011 AIChE Annual Meeting in Minneapolis, MN, October 16-21, 2011
- Chair of the technical session "Advances in Biocatalysis and Biosynthesis" at the 2011 AIChE Annual Meeting in Minneapolis, MN, October 16-21, 2011
- Chair of the technical session "Biobased Fuels and Chemicals" at the 2010 AIChE Annual Meeting in Salt Lake City, UT, November 7-12, 2010
- Chair of the "Meet the Faculty Candidate Poster Session" at the 2010 AIChE Annual Meeting in Salt Lake City, UT, November 7-12, 2010
- Co-Chair of the technical session "Biobased Fuels and Chemicals" at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009
- Co-Chair of the "Meet the Faculty Candidate Poster Session" at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009
- Poster Judge of the Chem-E-Car Competition at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009
- Safety Judge of the Chem-E-Car Competition at the 2009 AIChE Annual Meeting in Nashville, TN, November 8-14, 2009

University Service (6)

- ENS classroom committee for Keplinger Renovation, The University of Tulsa, March 2013 - present
- Faculty judge for the 16th Annual Student Research Colloquium, The University of Tulsa, April 1-6, 2013
- Faculty judge for the 15th Annual Student Research Colloquium and the 86th Annual AAAS-SWARM Conference, The University of Tulsa, March 31-April 4, 2012
- Faculty judge for the 14th Annual Student Research Colloquium, The University of Tulsa, March 28-31, 2011
- Faculty judge for the 13th Annual Student Research Colloquium and the 84th Annual AAAS-SWARM Conference, The University of Tulsa, March 29-April 2, 2010
- Faculty judge for the 12th Annual Student Research Colloquium, The University of Tulsa, March 30-April 3, 2009