WENQIAO (WAYNE) YUAN, Ph.D., Professor, University Faculty Scholar

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EDUCATION:

Degree	Date	Awarding Institute
Ph.D., Biological/Agricultural Engineering	May, 2005	University of Illinois at Urbana-Champaign (UIUC)
M.S., Mechanical (Vehicle) Engineering	March, 2000	China Agricultural University
B.S., Mechanical (Vehicle) Engineering	June, 1996	China Agricultural University

HONORS AND AWARDS:

Date	Honor/Award	Awarding Institute	Description
2017	University Faculty Scholar	North Carolina State University, Provost Office, established by the Chancellor	Recognizes and rewards emerging academic leaders who turn research into solutions to society's most pressing issues.
2016	Rain Bird Engineering Concept of the Year Award	ASABE (American Society of Agricultural and Biological Engineers)	Honors and recognizes an engineer or engineering team for a unique contribution to developing or advancing a new engineering concept. The concept selected for the 2016 award is related to value-added utilization of biochar
2015	Superior Paper Award	ASABE	Awarded to top 2.5% best papers published on ASABE publications for the paper "Wang, D., ***W. Yuan**, D. Wang, and A. Kumar. 2014. A char supported nano-NiO catalyst for biomass syngas cleanup and conditioning. *Transactions of the ASABE,* 57(1): 93-101"
2012	New Holland Young Researcher Award	ASABE	Awarded to an outstanding young researcher for his/her achievement in research and contribution to the field
2011	Fellowship	NSF	NSF Summer Institute ("Energy Manufacturing")
2010	Distinguished Service Award	Mid-central section of the ASABE	For outstanding service to the Mid-Central section of the ASABE
2010	CAREER Award	NSF	NSF's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education

2010	Fellowship	NSF	NSF Summer Institute ("Principles of and Advances in Laser Micro/Nano Manufacturing Processes")
2010	Fellowship	NSF	NSF Summer Institute ("Mechanics of Soft Materials")
2008	Making a Difference Award	KSU	Awarded to faculty who make a significant impact on women engineers and scientists
2006	Superior Paper Award	ASABE	Awarded to top 2.5% best papers published on ASABE publications for the paper "**Yuan, W.**, A. C. Hansen, M. E. Tat, J. H. Van Gerpen, and Z. Tan. 2005. Spray, ignition and combustion modeling of biodiesel fuels for investigating NOx emissions. *Transaction of the ASAE* 48(3): 933-939"
2005	Boyd-Scott Graduate Research Award 1st place (Ph.D.)	ASABE	The highest honor to a new Ph.D. for outstanding research in agricultural and biological engineering
2005	Scholarly Achievement Award	AOCABFE (Association of Overseas Chinese Agricultural, Biological, and Food Engineers, a branch of ASABE)	The highest honor to graduate students for their scholarly accomplishments and impact in Agricultural, Biological, and Food engineering
2005	Research Paper Award, 2nd place	AOCABFE	To recognize excellence in the conduct of research to build the knowledge base needed by engineers who design equipment, facilities, and processes for the sustainable operation of biological systems

PROFESSIONAL EXPERIENCE:

Date	Title	Institute	Major Duty/Accomplishment
8/2017-present	Professor	Department of Biological and Agricultural, North Carolina State University	• Conduct research in renewable energy and products ➢ Microalgae culture and bioprocessing ➢ Artificial photosynthesis ➢ Microbial fuel cell, microbial electrolysis cell, and bio-fuel cells/sensors ➢ Polyphenols from macroalgae ➢ Butanol and organic acid fermentation ➢ Biomass thermochemical conversion and co-products separation/upgrading
1/2012-8/2017	Associate Professor		

			• Teach three courses a year: ➢ BAE 302: Transport Phenomenon ➢ AES 250: Survey of Agricultural and Environmental Issues ➢ BAE 790: Bioseparations for Biofuels and Bioproducts
7/2011-12/2011 7/2006-6/2011	Associate Professor Assistant Professor	Department of Biological and Agricultural Engineering, Kansas State University	• Conducted research in renewable energy ➢ Algae production and biorefining ➢ Bio-oil production from biomass pyrolysis ➢ Syngas production from biomass gasification ➢ Bio-oil and syngas purification and conversion into high value fuels and chemicals ➢ Biodiesel quality control and utilization. ➢ Wastewater bioremediation ➢ Animal manure utilization • Taught the following courses: ➢ BAE 650: Energy and Biofuel Engineering ➢ BAE 350/351*:* Agricultural Machinery System ➢ ATM 455*:* Engines and Power Transfer
5/2005-7/2006	Project Engineer	International Truck and Engine Corporation	• Investigated the impact of using biodiesel on International fuel systems and engines • Participated in the development of high pressure common rail fuel systems for International 2007 and 2010 engines aimed at high performance and low emissions • Participated in the research of Homogeneous Charge Compression Ignition (HCCI) engines funded by U.S. Department of Energy
8/2001-5/2005	Fellow and Graduate Research Assistant	Department of Agricultural and Biological Engineering, UIUC	• Developed and experimentally validated new analytical methods for predicting the properties of biodiesel fuels • Developed new theories and conducted computational fluid dynamics (CFD) modeling in investigating the combustion and NO_x formation mechanisms of biodiesel fuels • Conducted experimental studies in steady state performance and emissions test of diesel engines fueled with oxygenated biofuels • Worked as a Teaching Assistant on homework grading, lab demonstrations and session instructions on two courses: ABE466-Engineering Off-Road Vehicles and TSM464-Engine and Tractor Power. These courses focus on engines and tractors, with particular emphasis on design features, principles of operation, and maintenance

3/2000-7/2001	Project Manager	The Great-Wall Computer Group Company, Beijing, China	• Conducted commercial computer software development • Supervised a commercial software development team
9/1997-3/2000	Graduate Research Assistant	Mechanical System Simulation Lab, Beijing, China	• Conducted research in the engaging process of conical threads
6/1996-7/1997	Instructor	Beijing Changping Vocational School, Beijing, China	• Taught the course "Internal Combustion Engines", which focused on the structure, working principles and applications of internal combustion engines. This course contained lecture and lab sections with 16 hours per week for four classes.

PROFESSIONAL SERVICE:

Title/Program	Description
Associate Editor	***Transactions of the ASABE*** and ***Applied Engineering in Agriculture*** (American Society of Agricultural and Biological Engineers publications)
Associate Editor	***International Journal of Agricultural and Biological Engineering*** • Renewable Energy System division • Power and Machinery System division
Chair (2016)	**Boyd-Scott Graduate Research Competition committee** American Society of Agricultural and Biological Engineers
Vice chair (2016) and Secretary (2015)	**The Bioprocessing Committee** American Society of Agricultural and Biological Engineers
Chair (2015, 2011, 2009)	**The Green Energy Manufacturing Symposium** of International Manufacturing Science and Engineering Conference
Chair (2014)	**The New Holland Young Researcher Award Committee** American Society of Agricultural and Biological Engineers
Conference Chair (2010) Program Chair (2009) Awards Chair (2008)	**The Mid-central conference** of American Society of Agricultural and Biological Engineers
Chair (2014) Vice chair (2013, 2009) Secretary (2012, 2008)	**Renewable Power Generation Committee** American Society of Agricultural and Biological Engineers

Panelist/Proposal Reviewer
- NSF (IGERT, GK-12, CMMI, CBET)
- The Consortium for Plant Biotechnology Research
- Oak Ridge Institute of Science and Education, Southeast Region Research Initiative
- Sun Grant North Central, Sun Grant West
- USDA
- DOE

Journal Peer Reviewer
- *Bioresource Technology*
- *Energy and Fuels*
- *Biofuels*
- *Applied biochemistry and biotechnology*
- *Transaction of the ASABE*
- *Applied Engineering in Agriculture*
- *ENERGY – the International Journal*
- *International Journal of Agricultural and Biological Engineering Fluid Phase Equilibria* and more …

Member
- American Society of Engineering Education (**ASEE**)
- American Society of Agricultural and Biological Engineers (**ASABE**)
- Society of Manufacturing Engineers (**SME**)

PUBLICATIONS:

Note: authorship order in our profession is generally in the order of most significant to the least. However, in some cases the corresponding author (indicated by "#") is placed at the end of the author list. In all cases, "*" indicates senior authorship of an article, proceedings, presentation or report where the graduate student or visiting scholar in which I served as a chair or co-chair or supervisor was granted lead authorship.

A. Book/Book Chapters (total published or in press = **4**)

1. ***Yuan, W.**, Z. Wang, and D. Keshwani. 2017. Biomass resources. Ed. J. Cheng, *Biomass to Renewable Energy Processes*, 2nd Edition, CRC Press Tyler & Francis Group.
2. ***Yuan, W.**, and F. Yang. 2017. Chemical conversion process for biodiesel production. Ed. J. Cheng, *Biomass to Renewable Energy Processes*, 2nd Edition, CRC Press Tyler & Francis Group.
3. Gan, J., and ***W. Yuan**. 2012. The Effect of Biomass on Bio-oil Production via Hydrothermal Conversion. In book "*Oil: Production, Consumption and Environmental Impact*" by Nova Science Publishers, Inc. pp. 145-160.
4. ***Yuan, W**. 2009. Build your credentials. Ed. Z.J. Pei, Tips on Getting an Academic Position, pp. 39-43, Lulu Enterprises, Inc., Raleigh, NC.

B. Peer-reviewed Journal Articles (total published/accepted = **72**; total under review = **9;** SCI/EI)

========== The following 8 manuscripts are under review ==========

1. Shen, Y., H. Li; W. Zhu; S. Ho; W. Yuan; J. Chen; Y. Xie. 2017. Microalgal-biochar immobilized complex: a novel efficient biosorbent for cadmium removal from aqueous solution. *Bioresource Technology*. Under review (submitted July 7, 2017).
2. Liu, Y., Y. Geng, Q. Zhou, and ***W. Yuan**. 2017. The effect of furfural and 5-hydroxymethyl furfural on butyric acid fermentation by *Clostridium tyrobutyricum*. *Journal of Chemical*

Technology and Biotechnology. Under review (submitted July 6, 2017).

3. Hossein A., L. Wang, A. Shahbazi, M. Bikdash, D. KC, and [#]**W. Yuan**. 2017. Mathematical modeling and experimental validation of microalgal cultivation in open raceway ponds. *Computers and Electronics in Agriculture*. Under review (submitted June 12, 2017).
4. Zhou, Q., Y. Liu, and ***W. Yuan**. 2017. Kinetic modeling of butyric acid effects on butanol fermentation by *Clostridium saccharoperbutylacetonicum. Biotechnology and Bioengineering.* Under review (submitted May 30, 2017).
5. Karimi, M., G. Khoobbakht, A. Asakereh, M. Ghadiryanfar, S. Avval, and **W. Yuan**. 2017. Desirability function approach for optimization of transesterification catalyzed by lipase immobilized on mesoporous magnetic nanoparticles. *Biomass and Bioenergy*. Under review (submitted May 26, 2017).
6. Luo, G., L. Zhang, T. Chen, Geng, Y., and ***W. Yuan**. 2017. Butyric Acid Fermentation by *Clostridium tyrobutyricum* in Sugar Mixtures and Corncob Hydrolysate Containing Arabinose. *BioResources*. Under review (submitted April 20, 2017).
7. Lu, H., ***W. Yuan**, P. Chong, and J. Zhou. 2017. The effect of culture conditions on the accumulation and activity of F_0F_1 ATP synthase in thermophilic bacteria *Bacillus PS3*. *Journal of Microbiology, Biotechnology and Food Sciences*. Under review (submitted March 1, 2016).
8. Ataie, Feraidon, K. Riding, and [#]**W. Yuan**. 2017. The impact of pretreatments and inorganic metals on thermal decomposition and ash properties of agricultural residues. *Biomass and Bioenergy*. Under review (first revision submitted Oct. 3, 2016).
9. James, A., ***W. Yuan**, M. Boyette, and D. Wang. 2017. Airflow and insulation effects on simultaneous syngas and biochar production in a top-lit updraft biomass gasifier. *Renewable Energy.* Under review (submitted Nov. 17, 2015).

========== The following 73 manuscripts are published or in press ==========

10. Chen, H., Y. Yuan, **W. Yuan**, D. Williams, J. Walker, and W. Shi. 2017. Is biochar-manure co-compost a better solution for soil health improvement and N2O emissions mitigation? *Soil Biology and Biochemistry*. 113: 14-25.
11. Liu, Y., T. Sanguanphun, ***W. Yuan**, J. Cheng, and M. Meetam. 2017. The biological responses and metal phytoaccumulation of duckweed Spirodela polyrhiza to manganese and chromium. *Environmental Science and Pollution Research*. In press (accepted June 10, 2017).
12. Yang, X., Y. Liu, and ***W. Yuan**, D. Marcellin-Little, and O. Harrysson. 2017. Immobilization of glucose oxidase on mesoporous carbon for bio- electrodes. *Transactions of the ASABE*. In press (accepted June 6, 2017).
13. Liu, X., ***W. Yuan**, R. Sharma, J. van Zanten. 2017. The Antioxidant Activity of Phlorotannins from Brown Algae. *International Journal of Agricultural and Biological Engineering*. In press (accepted Feb. 6, 2017).
14. Zhang, K., Y. Xu, L. Johnson, **W. Yuan**, Z. Pei, and D. Wang. 2017. Development of near-infrared spectroscopy models for quantitative determination of cellulose and hemicellulose contents of big bluestem. *Renewable Energy*. 109: 101-109.
15. Liu, X., ***W. Yuan**, and X. Meng. 2017. Extraction and quantification of phlorotannins from edible brown algae. *Transactions of the ASABE*. 60(1): 265-271.
16. Luo, G., L. Zhang, T. Chen, Geng, Y., and ***W. Yuan**. 2017. Butyric acid fermentation in xylose and glucose by *Clostridium tyrobutyricum*. *BioResources*. 12(2): 2930-2940.
17. Lu, H., ***W. Yuan**, J. Cheng, R. Rose, J. Classen, and O. Simmons. 2016. Modeling the growth of bacteria *Halobacterium halobium* affected by temperature and light. *Applied Biochemistry and Biotechnology* 181(3): 1080-1095.
18. Ren, X., H. Lu, J. Zhou, P. Chong, **W. Yuan**, and M. Noh. 2016. Porous PDMS as a gas-liquid

interface for microfluidic applications. *Journal of Microelectromechanical Systems* 26(1): 120-126.

19. Amini, H., A. Hashemisohi, L. Wang, A. Shahbazi, M. Bikdash, K.C. Dukka, and **W. Yuan**. 2016. Numerical and experimental investigation of the hydrodynamics and light transfer in open raceway ponds with different algal cell concentrations and medium depths. *Chemical Engineering Science*. 156: 11-23.
20. Wang, M., ***W. Yuan**, G. Luo, and Y. Liu. 2016. Optimization of ultrasound induced microalgal lipid recovery. *Transaction of the ASABE* 59(5): 1459-1465.
21. Jia, X., M. Wang, ***W. Yuan**, S. Shah, W. Shi, X. Ju, and B. Yang. 2016. N_2O emission and nitrogen transformation in chicken manure and biochar co-aging. *Transaction of the ASABE* 59(5): 1277-1283.
22. Jia, X., M. Wang, ***W. Yuan**, X. Ju, and B. Yang. 2016. The influence of biochar addition on chicken manure composting and associated methane and carbon dioxide emisisons. *Bioresources* 11(2): 5255-5264.
23. James, A., ***W. Yuan**, and M. Boyette. 2016. The effect of biomass physical properties on top-lit updrafe gasification of woodchips. *Energies* 9(4): 283-295.
24. Yang, X., ***W. Yuan**, D. Li, and X. Zhang. 2016. Study on an improved bio-electrode made with glucose oxidase immobilized mesoporous carbon in biofuel cells. *RSC Advances* 6: 24451-24457.
25. James, A., ***W. Yuan**, M. Boyette, D. Wang, and A. Kumar. 2016. Characterization of biochar from rice hulls and wood chips produced in a top-lit updraft biomass gasifier. *Transactions of the ASABE* 59(3): 749-756.
26. Wang, M., ***W. Yuan**, and A. Hale. 2016. Three-dimensional simulation of ultrasound-induced microalgal cell disruption. *Applied Biochemistry and Biotechnology* 178: 1184-1195. (#6 on the list of top 20 most cited articles in the domain since 2014)
27. Seepratoomrosh, J., P. Pokethitiyook, M. Meetam, K. Yokthongwattana, ***W. Yuan**, W. Pugkaew, and K. Kangvansaichol. 2016. The effect of light stress and other culture conditions on photoinhibition and growth of *Dunaliella tertiolecta*. *Applied Biochemistry and Biotechnology* 178: 396-407.
28. Chong, P., X. Ren, H. Noh, C. Kumbur, W. Yuan, and J. Zhou. 2015. Archaeal tetraether free standing lipid membranes in a PDMS and PCB based fluidic platform. *Biophysical Journal* 108(2): 485-486.
29. Wang, M., and ***W. Yuan**. 2015. Microalgal cell disruption in a high-power ultrasonic flow system. *Bioresource Technology* 193: 171-177. (#3 on the list of top 20 most cited articles in the domain since 2014)
30. Lu, H., ***W. Yuan**, J. Zhou, and P. Chong. 2015. Glucose synthesis in a protein-based artificial photosynthesis system. *Applied Biochemistry and Biotechnology* 177: 105-117.
31. Wang, M., and ***W. Yuan**. 2015. Modeling bubble dynamics and radical kinetics in ultrasound induced microalgal cell disruption. *Ultrasonic Sonochemistry* 28: 7-14. (#5 on the list of top 20 most cited articles in the domain since 2014)
32. Yan, D., X. Yang, and ***W. Yuan**. 2015. Electricity and H_2 Generation from Hemicellulose by Sequential Fermentation and Microbial Fuel/Electrolysis Cell. *Journal of Power Sources* 289: 26-33.
33. James, A., ***W. Yuan**, M. Boyette, and D. Wang. 2015. The effect of air flow rate and biomass type on the performance of an updraft biomass gasifier. *Bioresources* 10(2): 3615-3624.
34. Zhang, K., J. Loretta, **W. Yuan**, Z. Pei, [#]D. Wang. 2015. Comparison of big bluestem with other native grasses: chemical composition and biofuel yield. *Energy* 83: 358-365.
35. Jia, X., and ***W. Yuan**. 2015. Short report: effects of biochar addition on manure composting and associated N_2O emissions. *Journal of Sustainable Bioenergy Systems* 5: 56-61.
36. Qian, K., [#]A. Kumar, K. Patil, D. Bellm, **W. Yuan**, D. Wang, and M. Eastman. 2015. Physical

properties and reactivity of char obtained from downdraft gasification of sorghum and eastern red cedar. *Fuel* 143: 383-389.

37. Cui, Y., ***W. Yuan**, J. Cheng, and B. Wang. 2015. The Effects of Solid Carrier Material and Surface Roughness on Microalgal Cell Attachment. *Transactions of the ASABE* 58(1): 161-168.
38. Wang, M., and ***W. Yuan**. 2015. Microalgal cell disruption via ultrasonic nozzle spraying. *Applied Biochemistry and Biotechnology 175: 1111-1122*. (#2 on the list of top 20 most cited articles in the domain since 2014)
39. Wang, M., and ***W. Yuan**. 2014. Biological lysis of microalgal cells. *Journal of Sustainable Bioenergy Systems* 4: 243-248.
40. Ren, Xiang, K. Liu, Q. Zhang, H. Noh, E. Kumbur, **W. Yuan**, J. Zhou, and #P. Chong. 2014. Design, Fabrication and Characterization of Archaeal Tetraether Free-Standing Planar Membranes in a PDMS- and PCB-Based Fluidic Platform. *ACS Applied Materials & Interfaces* 6 (15): 12618-12628.
41. Zhang, K., L. Johnson, **W. Yuan**, ZJ Pei, and #D. Wang. 2014. Glucan yield from enzymatic hydrolysis of big bluestem as affected by ecotype and planting location along the precipitation gradient of the Great Plains. *BioEnergy Research* 7: 799-810.
42. Meng, X., and ***W. Yuan**. 2014. Can biochar couple with algae to deal with desertification? *Journal of Sustainable Bioenergy Systems* 4: 194-198.
43. James, A., ***W. Yuan**, M. Boyette, D. Wang, and A. Kumar. 2014. In-chamber thermocatalytic tar cracking in an updraft biomass gasifier. *International Journal of Agricultural and Biological Engineering* 7(6): 91-97.
44. Cui, Y., ***W. Yuan**, and J. Cheng. 2014. Understanding pH and ionic strength effects on aluminum sulfate induced microalgae flocculation. *Applied Biochemistry and Biotechnology* 173: 1692-1702.
45. Zhang, K., L. Johnson, R. Nelson, **W. Yuan**, Z.J. Pei, and #D. Wang. 2014. Thermal properties of big bluestem as affected by ecotype and planting location along the precipitation gradient of the Great Plains. *Energy* 64: 164-171.
46. Wang, D., ***W. Yuan**, D. Wang, and A. Kumar. 2014. A char supported nano-NiO catalyst for biomass syngas cleanup and conditioning. *Transactions of the ASABE,* 57(1): 93-101.
47. Wang, M., ***W. Yuan**, X. Jiang, Y. Jing, and Z. Wang. 2014. Disruption of microalgal cells using high-frequency focused ultrasound. *Bioresource Technology* 153: 315-321. (#1 on the list of top 20 most cited articles in the domain since 2014)
48. Cui, Y., ***W. Yuan**, and J. Cao. 2014. Effects of surface texturing on microalgal cell attachment to solid carriers. *International Journal of Agricultural and Biological Engineering* 6(4): 44-54.
49. Qian, K., #A. Kumar, K. Patil, D. Bellmer, D. Wang, **W. Yuan**, and R. Huhnke. 2013. Effects of biomass feedstocks and gasification condition on physiochemical properties of biochar. *Energies* 6(8): 3972-3986.
50. Cui, Y., and ***W. Yuan**. 2013. Thermodynamic modeling of algal cell-solid substrate interactions. *Applied Energy* 112: 485-492.
51. Gan, J., and ***W. Yuan**. 2013. Operating condition optimization of corncob hydrothermal conversion for bio-oil production. *Applied Energy* 103: 350-357.
52. Shen, Y., Y. Cui, and ***W. Yuan**. 2013. Flocculation optimization of microalga *Nannochloropsis oculata. Applied Biochemistry and Biotechnology* 169(7): 2049-2063.
53. Gan, J., ***W. Yuan**, L. Johnson, D. Wang, R. Nelson, and K. Zhang. 2012. Hydrothermal conversion of big bluestem for bio-oil production: the effect of ecotype and planting location. *Bioresource Technology* 116: 413-420.
54. Zhang, K., L. Johnson, R. Nelson, **W. Yuan**, Z. Pei, and #D. Wang. 2012. Chemical and elemental composition of big bluestem as affected by ecotype and planting location along the precipitation gradient of the Great Plains. *Industrial Crops and Products* 40: 210-218.

55. Shen, Y.**, W. Yuan**. 2012. Lipid extraction from microalgae *Scendesmus dimorphus* by wet-milling process using response surface approach. Advanced Materials Research, 393-395: 842-846.
56. Zhang, W., ***W. Yuan**, X. Zhang, M. Coronado. 2012. Predicting the dynamic and kinematic viscosities of biodiesel-diesel blends using mid- and near-infrared spectroscopy. *Applied Energy* 98: 122-127.
57. Shen, Y., **W. Yuan**. 2012. Comparison of biomass and oil productivity of selected microalgae in livestock wastewater. Advanced Materials Research, 393-395: 655-658.
58. Chaichalerm, S., [#]P. Pokethitiyook, ***W. Yuan**, M. Meetam, K. Sirthong, W. Pugkaew, K. Kungvansaichol, M. Kruatrachue, P. Damrongphol. 2012. Culture of microalgal strains isolated from natural habitats in Thailand in various enriched media. *Applied Energy* 89: 296-302.
59. [#]Nelson, N. O., S. C. Agudelo, **W. Yuan**, and J. Gan*. 2011. Nitrogen and phosphorus availability in biochar-amended soils. *Soil Sci* 176: 218-226.
60. Wang, D., ***W. Yuan**, and W. Ji. 2011. Char and char-supported nickel catalysts for secondary syngas cleanup and conditioning. *Applied Energy* 88: 1656-1663.
61. Gan, J., ***W. Yuan**, N. O. Nelson, and S. C. Agudelo. 2010. Hydrothermal conversion of corn cobs and crude glycerol. *Biological Engineering* 2(4): 197-210.
62. Wang, D., ***W. Yuan**, and W. Ji. 2010. Effective syngas cleanup and reforming using Ni/γ-Al_2O_3 catalysts. *International Journal of Agricultural and Biological Engineering*. 3(2): 39-45.
63. Wang, D., ***W. Yuan**, and W. Ji. 2010. Use of biomass hydrothermal conversion char as the Ni catalyst support in benzene and gasification tar removal. *Transactions of the ASABE* 53(3): 795-800.
64. Shen, Y., ***W. Yuan**, Z. Pei, and E. Mao. 2010. Heterotrophic culture of *Chlorella protothecoides* in various nitrogen sources for lipid production. *Applied Biochemistry and Biotechnology* (160): 1674-1684.
65. Cao, J, **W. Yuan**, Z.J. Pei, T. Davis, Y. Cui, and M. Beltran. 2009. A preliminary study of the effect of surface texture on algae cell attachment for a mechanical-biological energy manufacturing system. *Journal of Manufacturing Science and Engineering* 131(6): 064505-1 – 064505-4.
66. Shen, Y., ***W. Yuan**, Z. Pei, Q. Wu, and E. Mao. 2009. Microalgae mass production methods, *Transactions of the ASABE* 52(4): 1275-1287.
67. **Yuan, W.**, and A. C. Hansen. 2009. Computational investigation of the effect of biodiesel fuel properties on diesel engine NOx emissions. *International Journal of Agricultural and Biological Engineering* 2(2): 41-48.
68. **Yuan, W.**, A.C. Hansen, and Q. Zhang. 2009. Predicting the temperature dependent viscosity of biodiesel fuels. *Fuel* 88: 1120-1126.
69. Ding, Y., S. Zhang, P. Liu, **W. Yuan**, J. Liang, Z. Zhao, and Y. Zhang. 2009. Microbiological and Biochemical Changes during Processing of the Traditional Chinese Food Douzhi. *Food Control* 20(12): 1086-1091.
70. Shen, Y., ZJ Pei, ***W. Yuan**, and E. Mao. 2009. Effect of nitrogen and extraction method on algae lipid yield. *International Journal of Agricultural and Biological Engineering* 2(1): 51-57.
71. M. Coronado, ***W. Yuan**, D. Wang, and F. Dowell. 2009. Predicting the concentration and specific gravity of biodiesel-diesel blends using near-infrared spectroscopy. *Applied Engineering in Agriculture* 25(2): 217-221.
72. Gao, C., W. Xiong, Y. Zhang, **W. Yuan**, and [#]Q. Wu. 2008. Rapid quantitation of lipid in microalgae by time-domain nuclear magnetic resonance. *Journal of Microbiological Methods* 75(3): 437-440.
73. Shen, Y., ***W. Yuan**, Z. Pei, and E. Mao. 2008. Culture of microalga *Botryococcus* in livestock wastewater. *Transactions of the ASABE* 51(4) 1395-1400.

74. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2007. Computational modeling of NO_x emissions from biodiesel combustion based on accurate fuel properties. *International Journal of Vehicle Design* 45(1/2): 12-32.
75. Tan, Z., X. Cheng, R. Tay, and **W. Yuan**. 2006. Air Quality in Transportation Cabins – Part I: How Much Do We Know about It? *American Society of Heating, Refrigerating and Air-Conditioning Engineers Transaction* 112(2): 505-517.
76. Hansen, A. C., M. R. Gratton, and **W. Yuan**. 2006. Diesel engine performance and NOx emissions from oxygenated biofuels and blends with diesel fuel. *Transactions of the ASABE*. 49(3): 589-595.
77. **Yuan, W.**, A. C. Hansen, Q. Zhang, and Z. Tan. 2005. Temperature dependent kinematic viscosity of biodiesel fuels and blends. *Journal of American Oil Chemists Society* 82(3):195-199.
78. **Yuan, W.**, A. C. Hansen, M. E. Tat, J. H. Van Gerpen, and Z. Tan. 2005. Spray, ignition and combustion modeling of biodiesel fuels for investigating NOx emissions. *Transaction of the ASAE* 48(3): 933-939.
79. **Yuan, W.**, A. C. Hansen, and Q. Zhang, 2005. Vapor pressure and normal boiling point prediction for pure methyl esters and biodiesel fuels. *Fuel*. 84(7-8): 943-950.
80. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2004. The specific gravity of biodiesel fuels and their blends with diesel fuel. Agricultural Engineering International: The CIGR Journal of Scientific Research and Development. Vol. VI: Manuscript EE 04 004.
81. **Yuan, W.**, A. C. Hansen, and Q. Zhang, 2003. Predicting the physical properties of biodiesel for combustion modeling. *Transactions of the ASAE*. 46(6): 1487-1493.
82. **Yuan, W.**, E. Mao, and Y. Su. 2001. The application of visualization technology in the field of virtual gauge for conical thread. *Journal of China Agricultural University*. 5(2): 83-86.

C. Peer-reviewed Conference Papers/Presentations (total = **12;** Some **EI** indexed)

1. Ren, X., **W. Yuan**, J. Zhou, P. Chong, and M. Noh. 2017. Cell-free artificial photosynthesis system. *Proceedings of Transducers 2017*, June 18-22, 2017, Haohsiung, Taiwan.
2. Wang, M., and ***W. Yuan**. 2014. Biological lysis of microalgal cells. Paper number 1CV.4.64, *Proceedings of the 22nd European Biomass Conference and Exhibition*, June 23-27, 2014.
3. Zhou, Q., and ***W. Yuan**. 2014. Butanol production from xylose. Paper number 3AO.3.2, *Proceedings of the 22nd European Biomass Conference and Exhibition*, June 23-27, 2014.
4. Gan, J., ***W. Yuan**, L. Johnson, D. Wang, R. Nelson, and K. Zhang. 2012. Hydrothermal conversion of big bluestem for bio-oil production. *Proceedings of the 2012 Sun Grant Initiative National Conference.*
5. ***Yuan, W**., D. Wang, and D. Wang. 2012. Char-based Ni catalysts for syngas cleanup and conditioning in biomass gasification. *Proceedings of the 2012 Sun Grant Initiative National Conference*.
6. Zhang, K., L. Johnson, R. Nelson, **W. Yuan**, Z. Pei, and #D. Wang. Chemical and elemental composition of big bluestem as affected by ecotype and planting location along the precipitation gradient of the Great Plains. *Proceedings of the 2012 Sun Grant Initiative National Conference.*
7. ***Yuan, W.**, Y. Cui, Z. Pei, and Y. Shen. 2012. Thermodynamic modeling of algal cell-solid substrate interactions. Paper number 3-B4-4, *Proceedings of the 2012 International Conference of Applied Energy.*
8. Shen, Y., and ***W. Yuan**. 2012. Optimization of flocculation with selected microalgae species. Paper number 3-B4-1, *Proceedings of the 2012 International Conference of Applied Energy.*
9. Cui, Y., ***W. Yuan**, and Z. Pei. 2010. Effects of carrier material and design on microalgae attachment for biofuel manufacturing: a literature review. *Proceedings of the ASME 2010 IMSEC* 1: 525-540.

10. **Yuan, W**., and Y. Cui. 2010. Microalgae biofuel manufacturing: current status and a new approach. *Proceedings of the 2010 International Conference on Biomass Energy Technologies*, K-1b-6, August 20-23, 2010, Beijing, China.
11. **Yuan, W**., and J. Gan. 2010. Bio-oils from biomass hydrothermal conversion. *Proceedings of the 2010 International Conference on Biomass Energy Technologies*, O-3b-1, August 20-23, 2010, Beijing, China.
12. **Yuan, W**., Y. Cui, and Z. Pei. 2009. Algal cell-surface interaction: an overview and preliminary test. *Proceedings of the ASME 2009 IMSEC* 1: 33-41.

D. Non-refereed Conference Papers/Presentations (total = **95;** Some **EI** indexed)

1. Liu, Y., and ***W. Yuan**. 2017. The biological responses and metal phytoaccumulation of duckweed Spirodela to manganese and chromium. Presented in the 2017 ASABE Annual International Meeting, July 16-19, 2017, Spokane, Washington. ASABE paper No. 1700393.
2. Zhou, Q., and ***W. Yuan**. 2017. Kinetic modeling and sensitivity analysis of butanol production by Clostridium Saccharoperbutylacetonicum with furfural inhibition. Presented in the 2017 ASABE Annual International Meeting, July 16-19, 2017, Spokane, Washington. ASABE paper No. 1700232.
3. Liu, X., and ***W. Yuan**. 2016. The Antioxidant Activity of Phlorotannins from Edible Brown Algae. 2016. Presented in the 2016 ASABE Annual International Meeting, July 17-20, 2016, Orlando, Florida. ASABE paper No. 162460189.
4. Zhou, Q., and ***W. Yuan**. 2016. Kinetic modeling and sensitivity analysis of butanol production from xylose by *Clostridium Saccharoperbutylacetonicum.* Presented in the 2016 ASABE Annual International Meeting, July 17-20, 2016, Orlando, Florida. ASABE paper No. 162459473.
5. Seepratoomrosh, J., P. Pokethitiyook, M. Meetam, K. Yokthongwattana, ***W. Yuan**, W. Pugkaew, and K. Kangvansaichol. 2016. The effect of light stress and other culture conditions on photoinhibition and growth of *Dunaliella tertiolecta*. Presented in the RGJ-Ph.D. Congress XVII, June 8-11, 2016, Pattaya, Thailand.
6. Pugkaew, W., P. Pokethitiyook, M. Meetam, K. Kangvansaichon, M. Kruatrachue, and ***W. Yuan**. 2016. Nitrogen concentration in culture medium affects lipid content, composition, and productivity of microalgae *Tetraselmis sp*. Presented in the RGJ-Ph.D. Congress XVII, June 8-11, 2016, Pattaya, Thailand.
7. Chen, H., Y. Yuan, **W. Yuan**, D. Williams, J. Walker, and W. Shi. 2016. Application of biochar and manure on soil microbial sources of nitrous oxide. Presented in the Soil Science Society of North Carolina annual meeting, January 19-20, 2016, Raleigh, NC.
8. **Yuan, W.** 2015. Additive manufacturing of an artificial photosynthesis device and bio-fuel cell. Presented in the workshop "Finding Pathways from NSF-Funded Basic Research to DOE-Funded Applied Research on Additive Manufacturing". June 3, 2015, Oak Ridge National Laboratories, Oak Ridge, Tennessee.
9. Chong, P., X. Ren, C. Kumbur, **W. Yuan**, and J. Zhou. 2015. ARCHAEAL TETRAETHER FREE-STANDING PLANAR MEMBRANES IN A PDMS- AND PCB-BASED FLUIDIC PLATFORM. Presented in the Biophysical Society Meeting, 2/7 – 2/11, 2015, Baltimore, Maryland.
10. Geng, Y., and ***W. Yuan**. 2015. The effect of potential inhibitors on butyric acid fermentation by *Clostridium tyrobutyricum*. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152189847.
11. Lu, H., ***W. Yuan,** J. Zhou, and P. Chong. 2015. Effects of culture conditions on F_0F_1 ATP synthase accumulation and activity of thermophilic bacteria *Bacillius* PS3. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE. paper No.152188580.

12. Liu, X., and ***W. Yuan**. 2015. Extraction of Polyphenols from Brown Algae. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152190049.
13. Wang, M., and ***W. Yuan**. 2015. Modeling bubble dynamics and radical kinetics in ultrasound induced microalgal cell disruption. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152189269.
14. Zhou, Q., and ***W. Yuan**. 2015. The Influence of Glucose and Arabinose in Xylose Medium on Butanol Fermentation by*Clostridium Saccharoperbutylacetonicum*. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152153281.
15. Yang, X., Y. Yin, and ***W. Yuan**. 2015. Optimizing enzyme immobilization and biocatalytical activity of a micro-structured biofuel-cell for electricity generation. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152189963.
16. James, A., and ***W. Yuan**. 2015. Top-lit updraft gasification – characterization of biochar from a low bulk density biomass. Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152187923.
17. Zhang, K., L. Johnson, P. Prasad, Z. Pei, W. Yuan, and D. Wang. 2015. The potential of big bluestem and other native grasses for bioethanol production. . Presented in the 2015 ASABE Annual International Meeting, 7/26 - 7/29, 2015, New Orleans, Louisiana. ASABE paper No. 152187499.
18. Lu, H., ***W. Yuan,** J. Zhou, and P. Chong. 2014. Optimization of reaction conditions for glucose synthesis via artificial photosynthesis. Presented in the 2014 ASABE Annual International Meeting, 7/13 - 7/16, 2014, Montreal, Canada. ASABE paper No. 1910482.
19. Wang, M., and ***W. Yuan**. 2014. Microalgal cell disruption using ultrasonic nuzzle spraying system. Presented in the 2014 ASABE Annual International Meeting, 7/13 -7/16, 2014, Montreal, Canada. ASABE paper No. 1911411.
20. Geng, Y., and ***W. Yuan**. 2014. The effect of inhibitors on butyric acid fermentation by Clostridium tyrobutyricum. Presented in the 2014 ASABE Annual International Meeting, 7/13 - 7/16, 2014, Montreal, Canada. ASABE paper No. 1908696.
21. Zhou, Q., and ***W. Yuan**. 2014. Butanol fermentation from xylose by Clostridium Saccharoperbutylacetonicum. Presented in the 2014 ASABE Annual International Meeting, 7/13 - 7/16, 2014, Montreal, Canada. ASABE paper No. 1900170.
22. James, A., and ***W. Yuan**. 2014. A novel and efficient method to produce biochar from low-bulk density Biomass. Presented in the 2014 ASABE Annual International Meeting, 7/13 -7/16, 2014, Montreal, Canada. ASABE paper No. 1907902.
23. Coronado, M., ***W. Yuan**, and D. Wang. 2014. Quantifying biodiesel impurities using Fourier-transformed near-infrared spectroscopy. Accepted to present in the 2014 ASABE Annual International Meeting, 7/13 -7/16, 2014, Montreal, Canada. ASABE paper No. 1888206.
24. Wang, M., and ***W. Yuan**. 2013. Biological lysis of microalgal cells. Presented in the 2013 ASABE Annual International Meeting, 7/21 -7/24, 2013, Kansas City, MO. ASABE paper No. 1598113.
25. Lu, H., and ***W. Yuan**. 2013. ATP synthesis via artificial photosynthesis. Presented in the 2013 ASABE Annual International Meeting, 7/21 -7/24, 2013, Kansas City, MO. ASABE paper No. 1630900.
26. James, A., and ***W. Yuan**. 2013. Evaluation of operating condition and biomass type effects on an updraft biomass gasifier. Presented in the 2013 ASABE Annual International Meeting, 7/21 -7/24, 2013, Kansas City, MO. ASABE paper No. 1610317.

27. Zhou, Q., and ***W. Yuan**. 2013. Influence of weak acids on butanol fermentation by Clostridium Saccharoperbutylacetonicum. Presented in the 2013 ASABE Annual International Meeting, 7/21 - 7/24, 2013, Kansas City, MO. ASABE paper No. 1618079.
28. Yan, D., and ***W. Yuan**. 2013. Hydrogen production by microbial electrolysis cells. Presented in the 2013 ASABE Annual International Meeting, 7/21 -7/24, 2013, Kansas City, MO. ASABE paper No. 1618201.
29. Chaichalerm, S., [#]P. Pokethitiyook, M. Meetam, K. Kungvansaichol, ***W. Yuan**, and M. Kruatrachue. 2012. Large scale production of Chlorococcum humicola in raceway pond and flat panel photobioreactor for biodiesel production. Presented in the AOAIS Thailand 2012 Conference, Bangkok, Thailand, September 3-4, 2012.
30. **Yuan, W.**, and Arthur James. 2012. In-situ thermo-catalytic tar cracking and syngas reforming in an updraft biomass gasifier. Presented in the 2012 ASABE Annual International Meeting, 6/29 - 7/1, 2012, Dallas, TX. ASABE paper No.121336834.
31. **Yuan, W.**, and Marcelo Coronado. 2012. Biodiesel impurities detection using Fourier transformed infrared spectroscopy. Presented in the 2012 ASABE Annual International Meeting, 6/29 -7/1, 2012, Dallas, TX. ASABE paper No.121338385.
32. Cui, Y., and ***W. Yuan**. 2012. Investigations into flocculation of microalgae. Presented in the 2012 ASABE Annual International Meeting, 6/29 -7/1, 2012, Dallas, TX. ASABE paper No.121338384.
33. **Yuan, W.**, and Jing Gan. 2012. Hydrothermal conversion of cellulose, hemicellulose and lignin: influence of operating conditions and their interactions. Presented in the 2012 ASABE Annual International Meeting, 6/29 -7/1, 2012, Dallas, TX. ASABE paper No. 121338383.
34. Zhang, K., L. Johnson, R. Nelson, **W. Yuan**, ZJ. Pei, and [#]D. Wang. 2012. Chemical and elemental composition of big bluestem as affected by ecotype and planting location along the precipitation gradient of the Great Plains. Presented in the 2012 ASABE Annual International Meeting, 6/29 -7/1, 2012, Dallas, TX. ASABE Paper No.121338462.
35. Zhang, L., and ***W. Yuan**. 2011. Docosahexaenoic acid production from pentose using a two-step twomicroorganism fermentation method. ASABE paper number 1110960. St. Joseph, Mich.: ASABE.
36. Arthur, J., and ***W. Yuan**. 2011. Performance evaluation of an updraft biomass gasifier. ASABE paper number 1110593. St. Joseph, Mich.: ASABE.
37. Cui, Y., ***W. Yuan,** and Z. Pei. 2011. The application of DLVO theory in understanding algal attachment to solid materials. ASABE paper number 1110954. St. Joseph, Mich.: ASABE.
38. Coronado, M., W. Zhang, D. Wang, and ***W. Yuan**. 2011. Biodiesel impurities detection using mid- and near-infrared spectroscopy. ASABE paper number 1110594. St. Joseph, Mich.: ASABE.
39. Gan, J., and ***W. Yuan**. 2011. Effect of biomass chemical composition on bio-oil production from hydrothermal conversion. ASABE paper number 1110692. St. Joseph, Mich.: ASABE.
40. Gan, J., K. Linnebur, and *W. Yuan. 2011. Hydrothermal conversion of big bluestem for bio-oil production. Mid-Central Conference of ASABE paper number MC11-12, March 4-5, 2012, St. Joseph, MO.
41. Zhang, L., Y. Qiu, and *W. Yuan. 2011. Organic acids production from pentose by using Clostridium Tyrobutyricum. Mid-Central Conference of ASABE paper number MC11-15, March 4-5, 2012, St. Joseph, MO.
42. Cui, Y., ***W. Yuan,** and Z. Pei. 2011. A thermodynamic approach to understand algal cell attachment to solid carriers. Proceedings of 2011 NSF Engineering Research and Innovation Conference, January 4-7, 2011, Atlanta, GA.
43. Cui, Y., and ***W. Yuan.** 2011. Application of DLVO theory to study algal cell attachment to solid carriers. Presented in 2011 NSF Engineering Research and Innovation Conference, January 4-7, 2011, Atlanta, GA.

44. Cui, Y., and ***W. Yuan**. 2010. Algae Attachment Techniques and Theories for biofuel production. Proceedings of the 2010 annual meeting of the USDA S-1041.
45. Wang, D., and ***W. Yuan**. 2010. Biomass gasification tar removal and syngas conditioning using novel catalysts. Proceedings of the 2010 annual meeting of the USDA S-1041.
46. Coronado, M, ***W. Yuan**, and D. Wang. 2010. Determination of fatty acid profile of biodiesel using mid-infrared spectroscopy. ASABE paper number 1008808. St. Joseph, Mich.: ASABE.
47. Gan, J., and ***W. Yuan**. 2010. Hydrothermal conversion of cellulose and Lignin. ASABE paper number 1008669. St. Joseph, Mich.: ASABE.
48. Wang, D., and ***W. Yuan**. 2010. Tar removal performance of nickel/alumina catalyst in a downdraft biomass gasifier. ASABE paper number 1008861. St. Joseph, Mich.: ASABE.
49. Cui, Y., ***W. Yuan**, and Z. Pei. 2010. Interaction effects between algae cells and solid carriers. ASABE paper number 1009139. St. Joseph, Mich.: ASABE.
50. Wang, D., and ***W. Yuan**. 2010. Catalytic reforming of biomass gasification syngas. Mid-Central Conference of ASABE paper number MC10-507.
51. Gan, J., and ***W. Yuan**. 2010. Optimize the Hydrothermal Conversion of Corn Stalk. Mid-Central Conference of ASABE paper number MC10-504.
52. Coronado, M., ***W. Yuan**, and D. Wang. 2010. Predicting the fatty acid composition of biodiesel using near infrared spectroscopy and chemometrics methods. Mid-Central Conference of ASABE paper number MC10-501.
53. Cui, Y., ***W. Yuan**, and Z. Pei. 2010. A preliminary study on algae attachment to solid carriers. Mid-Central Conference of ASABE paper number MC10-403.
54. **Yuan, W.,** Y. Cui, and Z. Pei. 2009. Immobilized algae culture for biofuel manufacturing: an overview and progress report. Proceedings of 2009 NSF Engineering Research and Innovation Conference, June 22-25, 2009, Honolulu, Hawaii.
55. Tan, Z., **W. Yuan**. 2009. Review of Cattle Manure Management Technologies. International Symposium on Air Quality and Manure Management for Agriculture. ASABE.
56. Cao, J, **W. Yuan**, Z.J. Pei, T. Davis, Y. Cui, and M. Beltran. 2009. Effect of Surface Texture on Algae Growth. The 59th CIRP General Assembly. Aug. 23-29, 2009. Boston, MA.
57. Agudelo, S., $^{\#}$N. O. Nelson, J. Gan, and **W. Yuan**. 2009. Biochar effects on fertilizer N and P availability in soil. ASA-CSSA-SSSA International Annual Meeting. Nov. 1-5 2009. Pittsburg, PA.
58. Preston, E. D., $^{\#}$N. O. Nelson, M. Hu, D. Wang, and **W. Yuan**. 2009. Nutrient supply from soil-applied gasification ash. ASA-CSSA-SSSA International Annual Meeting. Nov. 1-5 2009. Pittsburg, PA.
59. Reed, R., Q. Gao, L. Liu, L. Pei, G. Wang, J. Weiss, L. Erickson, ***W. Yuan**, and Z. Pei. 2009. Growth of algae using nitrogen and phosphorus in wastewater. The Fourth Annual Dialog on Sustainability, July 23, 2009, Manhattan, KS.
60. **Yuan, W**., Q. Gao, L. Liu, L. Pei, G. Wang, J. Weiss, and Z. Pei. 2009. Growth analysis of microalgae in photobioreactors. Presented in the Bioenergy Engineering Conference, October 11-14, 2009, Bellevue, WA.
61. Cui, Y., J. Gan, and ***W. Yuan**. 2009. The effect of crude glycerol on corn stover hydrothermal pyrolysis: bio-oil yield and quality. The Center for Sustainable Energy Annual Meeting, May 5, 2009, Manhattan, KS.
62. Gan, J., and ***W. Yuan**. 2009. A novel catalytic hydrothermal pyrolysis of corn cobs for bio-oil production. ASABE paper number 096436. St. Joseph, Mich.: ASABE.
63. Hu, M., and ***W. Yuan**. 2009. The effect of operating parameters on syngas quality and energy balance of a downdraft gasifier. ASABE paper number 096442. St. Joseph, Mich.: ASABE.
64. Coronado, M., ***W. Yuan**, D. Wetzel, and D. Wang. 2009. Predicting the fatty acid composition of biodiesel using near- and mid-infrared spectroscopy. ASABE paper number 096024. St. Joseph,

Mich.: ASABE.

65. **Yuan, W**., ZJ Pei, and Y. Cui. 2009. Exploratory research on algae ocean farming for biofuel production. ASABE paper number 096433. St. Joseph, Mich.: ASABE.
66. Shen, Y., ***W. Yuan**, ZJ Pei. 2009. Optimizing the wet-milling process for lipid extraction of microalgae Scendesmus dimorphus. ASABE paper number 096005. St. Joseph, Mich.: ASABE.
67. Shen, Y., M. Ty, Z. Pei, and ***W. Yuan**. 2009. The effect of growth medium on biomass and lipid yield of microalgae *Nanochloropsis*. Mid-Central Conference of ASABE paper number MC09-507.
68. Shen, Y., M. Anderson, M. Ty, Z. Pei, and ***W. Yuan**. 2009. Growing algae in photobioreactors for lipid production. Mid-Central Conference of ASABE paper number MC09-506.
69. Hu, M., and ***W. Yuan**. 2009. Optimizing operating parameters of corn stover gasification. Mid-Central Conference of ASABE paper number MC09-504.
70. Gan, J., and ***W. Yuan**. 2009. Crude glycerol assisted hydrothermal pyrolysis of corn stover for bio-oil production. Mid-Central Conference of ASABE paper number MC09-503.
71. **Yuan, W.**, Y. Shen. 2008. Culture of microalgae Botryococcus in livestock wastewater. Presented in ASABE mid-central meeting. April 4-5, 2008, Lincoln, NE.
72. Shen, Y., ***W. Yuan**, and E. Mao. 2008. Comparison of biomass and oil productivity of selected algae in wastewater. ASABE paper number 08356. St. Joseph, Mich.: ASABE.
73. Gan, J. and ***W. Yuan**. 2008. Hydrothermal pyrolysis of corn cobs into bio-oil: effects of operating parameters and crude glycerol on oil yield. Sustainability of Biofuels Symposium. September 16, 2008, Manhattan, KS.
74. Hu, M. and ***W. Yuan**. 2008. Downdraft gasifier biomass gasification and its tar Sampling and analysis system. Sustainability of Biofuels Symposium. September 16, 2008, Manhattan, KS.
75. Coronado, M., ***W. Yuan**, D. Wang, and F. Dowell. 2008. Developing a prediction model for the blending level and properties of biodiesel-diesel blends using near-infrared spectroscopy method. ASABE paper number 084269. St. Joseph, Mich.: ASABE.
76. Hu, M. and ***W. Yuan**. 2008. Development of a unique downdraft gasifier system for low bulk density biomass materials. ASABE paper number 083774. St. Joseph, Mich.: ASABE.
77. Gan, J. and ***W. Yuan**. 2008. Thermochemical conversion of mixed biomass and crude glycerol to produce bio-oil. ASABE paper number 083719. St. Joseph, Mich.: ASABE.
78. **Yuan, W.** A. C. Hansen and Z. Tan. 2007. Computational Investigation to Specify the Effect of Biodiesel Fuel Properties on Nitrogen Oxides Emissions. ASABE Paper 076094. Presented at ASABE 2007 Annual International Meeting, June 17-20, Minneapolis, MN.
79. **Yuan, W.** 2007. Growing biofuels from algae using animal wastes. ASABE paper number 076004. St. Joseph, Mich.: ASABE.
80. Hansen, A. C., S. Wenzel, **W. Yuan,** and Q. Zhang. 2006. Exhaust gas recirculation to reduce NOx emissions from biodiesel fuel. Presented at the IFAC Workshop on Bio-Robotics, Information Technology and Intelligent Control for Bioproduction Systems. September 9-10, 2006, Sapporo, Japan.
81. Wenzel, S. J., [#]A. C. Hansen, and **W. Yuan.** 2006. Combined impact of biodiesel and exhaust gas recirculation on NOx emissions**.** ASABE paper number 066136. St. Joseph, Mich.: ASABE.
82. Hansen, A. C. and **W. Yuan**. 2005. Computational investigation of the effect of biodiesel fuel properties on NOx emissions. Presented at the 2005 International Chemical Congress of Pacific Basin Societies (Pacifichem) conference, December 15-20, 2005, Honolulu, Hawaii.
83. Hansen, A. C. and **W. Yuan.** 2005. Computation and analysis of biodiesel physical properties for combustion modeling. Presented at the 2005 International Chemical Congress of Pacific Basin Societies (Pacifichem) conference, December 15-20, 2005, Honolulu, Hawaii.

84. **Yuan, W**. Computational Modeling of NO_x Emissions from Biodiesel Combustion Based on Accurate Fuel Properties. Presented at ASAE 2005 Annual International Meeting, July 17-20, 2005, Tampa, Florida.
85. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2005. Modeling of NOx emissions of Biodiesel Fuels. ASAE paper number 056116. St. Joseph, Mich.: ASABE.
86. **Yuan, W.** M.R. Gratton. Hansen, A.C. 2005. Parametric investigation of NOx emissions from biofuels for compression-ignition engines. ASAE paper number 056115. St. Joseph, Mich.: ASABE.
87. Hansen, A. C., M. R. Gratton, and **W. Yuan.** 2005. Steady state diesel engine performance and NOx emissions with selected biofuels. ASAE paper number 056119. St. Joseph, Mich.: ASABE.
88. Tan, Z. and **W. Yuan**. 2005. Development and Evaluation of A Cost-Effective Real-Time Submicron Particle Sizer. Paper to be presented at the 8th International Conference on Circulating Fluidized Bed, May 10-13, 2005, Hangzhou, China.
89. **Yuan, W.** and A. C. Hansen. 2004. Computational modeling of biodiesel fuel properties effect on NOx emissions from a DI diesel engine. Presented at the 36th ACS Great Lakes Regional Meeting, October 17-20, 2004, Peoria, IL.
90. **Yuan, W.**, A. C. Hansen, and Q. Zhang, 2004. An analysis of the relationships between biodiesel physical properties. CIGR Paper 20-029A. Proceedings of 2004 CIGR International Conference, October 11-14, Beijing, China.
91. Rathore, S., **W. Yuan**, M. R. Paulsen, and A. C. Hansen. 2004. Prediction of soybean oil properties for biodiesel fuel using a Fourier-Transform Near Infrared (FT-NIR) spectrometer. Presented at American Society of Cereal Chemists 2004 Annual International meeting, September 19-22, 2004, San Diego, CA.
92. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2004. Prediction of biodiesel fuel properties based on fatty acid composition. ASAE paper number 046086. St. Joseph, Mich.: ASABE.
93. **Yuan, W.**, A. C. Hansen, and X. Wang. 2004. Spray, ignition and combustion modeling of biodiesel. ASAE paper number 046087. St. Joseph, Mich.: ASABE.
94. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2003. Computational study of biodiesel ignition in a direct injection engine. ASAE paper number 036035. St. Joseph, Mich.: ASABE.
95. **Yuan, W.**, A. C. Hansen, and Q. Zhang. 2002. Combustion optimization of biodiesel for diesel engines with the aid of Kiva-3 code. ASAE paper number 026083. St. Joseph, Mich.: ASABE.
96. **Yuan, W.** and A. C. Hansen. 2002. A numerical analysis of the spray characteristics of biodiesel blended with diesel fuel. Poster paper presented at 15th Annual Conference of Liquid Atomization and Spray System, May 14-17, 2002, Madison, WI.4

E. Invited international/national presentations (total = **26**)

1. **Yuan, W.** 2017. Transdisciplinary research and education at the interface of mechanical, biological, and agricultural systems. March 19-20, 2017 in the Global Scientist Forum, Shenzhen, China.
2. **Yuan, W.**, and X. Meng. 2016. The strategic planning of biochar and green agriculture integration and development. Plenary Speech. December 24, 2016 in the Press Conference of Saving Bees by the Agriculture Daily of China, Beijing, China.
3. Shi, W., Y. Yuan, H. Chen, and **W. Yuan**. 2016. Impacts of biochar-manure composts on soil nitrogen retention and N2O emission mitigation. The symposium: "Soil Organic Amendments and N Cycling: Strategies to Improve Nitrogen Use Efficiency, Reduce Synthetic Fertilizer Input, Nitrate Leaching, and Nitrous Oxide Emissions" at the Soil Science Society of America meeting, November 6-9, 2016 in Phoenix, AZ.
4. **Yuan, W.** 2016. Phlorotannins from Edible Brown Algae. Plenary Speech. June 9, 2016 in RGJ-Ph.D. Congress XVII, Pattaya, Thailand.

5. **Yuan, W.** 2016. Phlorotannins from Edible Brown Algae. June 6, 2016 in Mahidol University, Bangkok, Thailand.
6. **Yuan, W.** 2016. Nanotechnology for Bioenergy Manufacturing. June 3, 2016 in North Western Agricultural and Forestry University, Yangling, China.
7. **Yuan, W.** 2016. Research Advances in Biofuels and Biosensors for Vehicles and Mobile Electronics. May 27, 2016 in Beijing Forestry University, Beijing, China.
8. **Yuan, W.** 2015. Multi-parameter multi-dimensional modeling of ultrasonic algal cell disruption. June 26, 2015 in Peking University Shenzhen Graduate School, Shenzhen, China.
9. **Yuan, W.** 2015. Recent advances in cultivation and bioprocessing of energy microalgae. June 29, 2015 in Gansu Agricultural University, Lanzhou, Gansu, China.
10. **Yuan, W.** 2015. From biochar production to applications: what is missing. June 29, 2015 in Lanzhou Jiaotong University, Lanzhou, Gansu, China.
11. **Yuan, W.** 2015. Recent advances in cultivation and bioprocessing of energy microalgae. July 1, 2015 in Hexi College, Zhangye, Gansu, China.
12. **Yuan, W**. 2014. Advanced biochemical conversion of xylose. June 24, 2014 in the Institute of Bioprocess and Biosystems Engineering, Hamburg University of Technology, Hamburg, Germany.
13. **Yuan, W**. 2014. New approaches in microalgae processing. Keynote Speech in the International Symposium on Microalgae and Application, June 13, 2014 in Shenzhen, China.
14. **Yuan, W**. 2014. Advanced bioenergy and bioproducts research at NCSU. June 16, 2014 in the School of Energy Research, Xiamen University, Xiamen, China.
15. **Yuan, W.** 2013. Algae culture systems: engineering design and practices. September 17, 2013 in Mahidol University, Bangkok, Thailand.
16. **Yuan, W.** 2013. Advanced microalgae cultivation and bioprocessing. September 17, 2013 in Mahidol University, Bangkok, Thailand.
17. **Yuan, W.** 2013.Bioenergy and bioproducts. September 18, 2013 in Phetchaburi Rajabhat University, Phetchauri, Thailand.
18. **Yuan, W.** 2013. Nanotechnology in Biomass Gasification and Artificial Photosynthesis. November 15, 2013 in North Carolina State A&T University.
19. **Yuan, W**. 2012. Advances in immobilized microalgae culture. July 4, 2012 in Fuzhou University, Fuzhou, Fujian, China.
20. **Yuan, W**. 2012. Predicting the fatty acid profile of biodiesel using vibrational spectroscopy. June 28, 2012 in Henan Technological University, Zhengzhou, Henan, China.
21. **Yuan, W.** 2011. Energy harvesting and conversion for renewable fuels and products. August 1, 2011 in Mahidol University, Bangkok, Thailand.
22. **Yuan, W.** 2011. Energy harvesting and conversion for renewable fuels and products. August 2, 2011 in Kasetsart University, Bangkok, Thailand.
23. **Yuan, W.** 2010. Algae Biofuels. January 11, 2010 in Tsinghua University, Beijing, China.
24. **Yuan, W.** 2010. The biofuels opportunity and KSU research activities. January 3, 2010 in China Agricultural University, Beijing, China.
25. **Yuan, W.** and ZJ Pei. 2009. Algae biofuel manufacturing: a new approach. Energy Manufacturing Workshop at the 2009 NSF CMMI Grantees Conference, Honolulu, HI.
26. **Yuan, W.** and ZJ Pei. 2008. Manufacturing Algae Biofuels in the Ocean: Potentials and Challenges. College of Engineering Advisory Council meeting. Kansas State University, Manhattan, KS.

INVENTIONS:

1. **Yuan, W**., and D. Wang. Char supported catalysts for syngas cleanup and conditioning. US Patent #: US 8,506,846 B2. August 13, 2013.
2. **Yuan, W**. and A.C. Hansen. 2004. BDProp 1.0 – a software for biodiesel property prediction. License #: TF04186. University of Illinois, Urbana, IL.

INSTRUCTIONAL AND MENTORING ACTIVITIES:

I currently teach three courses each year at NCSU: "BAE 302 - Transport Phenomenon" (3 hours with 3 lab sessions, average enrollment ~60 students) in the fall, and "AES 250 - Survey of Agricultural and Environmental Issues" (3 hours, average enrollment ~15 students) and "BAE 790 - Bioseparations for Biofuels and Bioproducts" (3 hours, open to graduate students only) in the spring.

Prior to joining NCSU, I taught 4 different courses at KSU with 2-3 courses per year, including "BAE 350 – Agricultural Machinery Systems" (2 hrs, average enrollment ~30 students), "BAE 351 – Ag Machinery Systems Lab" (1 hr with 2 lab sessions, average enrollment ~20 students), "ATM 455 – Engines and Power Transfer" (3 hrs, average enrollment ~20 students), and "BAE 650 – Energy and Biofuel Engineering" (3 hrs, average enrollment ~20 students).

An important part of my undergraduate and graduate teaching comes through supervising research. Since 2006, 15 Ph.D. students, 8 M.S. students, and more than 30 undergraduate students and scholars have worked in my labs (shown below).

In addition, I have also actively participated in undergraduate advising, summarized as follows:

a. Undergraduate academic advisor for 14 students in 2012 – 2013; 13 students in 2013-2014, 16 students in 2014-2015; and 13 students in 2015-2016;
b. Sponsored/co-sponsored senior design teams for the capstone course BAE 451/452 - Engineering Design: two teams in 2012/2013 – (1) "*Microbial Fuel Cell: Biohydrogen Production"* (5 students) and (2) "*Microbial Fuel Cell: Electricity Generation"* (5 students); three teams in 2013/2014 – (1) *"Developing a microalgae system for nutrient and VOC removal in animal waste"* (6 students); (2) "*Ammonium recovery and electricity generation from animal waste by a microbial fuel cell*" (6 students); and (3) "*Cultivation of an oleaginous fungus for microbial lipid production and characterization*" (6 students); one team in 2014/2015 – "*Gasification tar collection system*" (6 students); and one team in 2015/2016 – "*Vertical algal turf system*" (5 students).
c. Senior Adviser - student branch of ASABE (Spring 2010 – Fall 2011 at KSU). Under my advising, the BAE Student ASABE Club received the 2011 AEM Trophy Award, 1st Place, and 2010 AEM Trophy Award, 3rd Place, in the "Student Engineering Branch Participation".
d. BAE 620 (Problem study in Agricultural Engineering) – Summer 2010: I advised a BAE undergraduate student who worked on genetic modification of microalgae. Under my direction, the student won first place in the Student Paper Competition at the 2010 ASABE Mid-Central conference.
e. CHE 571 (Chemical Engineering Design II) – Fall 2010 at KSU: A group of students were co-advised by Dr. Larry Erickson and me. The team designed a process to reduce nitrogen and phosphorus in the waste stream from a commercial feedlot by using the excess nutrients to grow algae. The final design won 2nd place in the Chemical Engineering Design contest.