Zhihua Liu

Synthetic & Systems Biology Innovation Hub (SSBiH)
Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843
Telephone: (347) 654 7745, Email: zhliu@tamu.edu

RESEARCH INTERESTS

Biomass refinery; Pretreatment; Biofuels; Bio-based products

PROFESSIONAL SKILLS

- Training and experience: ethanol fermentation, process development and optimization, pretreatment, chemical reactor design; Analytical technology: X-ray 3D microscope, XRD, TD-NMR, HPLC, GC-MS, FTIR, UV/Vis, TPA and SEM

EDUCATION

Sep. 2016 – Present	**Postdoc**, Department of Plant Pathology & Microbiology, Texas A&M University, Texas, United States
Sep. 2013 – Jun. 2016	**Ph.D.**, Biochemical Engineering, Institute of Process Engineering Chinese Academy of Sciences, Beijing, China
Sep. 2010 - Jun. 2013	**M.E.,** Biochemical Engineering, School of Chemical Engineering and Technology Tianjin University, Tianjin, China
Sep. 2006 - Jun. 2010	**B.E.,** Bioengineering, School of Chemical Engineering and Technology Tianjin University, Tianjin, China

RESEARCH EXPERIENCE

- Sep. 2013 – Jun. 2016 Ph.D., State Key Laboratory of Biochemical Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China
  Dissertation: Novel Process Intensification and Integration Technology of Lignocellulose Refinery.
- Sep. 2010 - Jul. 2013 M.E., Collaborative Innovation Center of Chemical Science and Engineering, Tianjin University, Tianjin, China
  Dissertation: Evaluation of Size Reduction and Storage Methods for the Conversion of Lignocellulosic Biomass.
- Sep. 2009 - Jul. 2010 B.E., Key Laboratory of Systems Bioengineering (Ministry of Education), Tianjin University, Tianjin, China
  Dissertation: Adsorption and Mass Transfer Behavior of a Novel Dextran-grafted Agarose Matrix.

PUBLISHED JOURNAL ARTICLES

1. **Zhi-Hua Liu**, Hong-Zhang Chen*. Periodic peristalsis enhancing the high solids enzymatic hydrolysis performance of steam exploded corn stover biomass. ***Biomass & Bioenergy,*** 2016, 93, 13-24.
2. **Zhi-Hua Liu**, Hong-Zhang Chen*. Periodic peristalsis releasing constrained water in high solids enzymatic hydrolysis of steam exploded corn stover. ***Bioresource Technology*** 2016, 205, 142-152.
3. **Zhi-Hua Liu**, Hong-Zhang Chen*. Biomass-water interaction and its correlations with enzymatic hydrolysis of steam exploded corn stover. ***ACS Sustainable Chemistry & Engineering***, 2016, 4(3), 1274-1285.
4. **Zhi-Hua Liu**, Hong-Zhang Chen*. Simultaneous saccharification and co-fermentation for improving the xylose utilization of steam exploded corn stover biomass at high solid loading. ***Bioresource Technology***, 2016, 201, 15-26.
5. **Zhi-Hua Liu** [1], Lei Qin[1], Bing-Zhi Li*, Ying-Jin Yuan. Physical and chemical characterizations of corn stover from leading pretreatment methods and the effects on enzymatic hydrolysis. ***ACS Sustainable***

Chemistry & Engineering, 2015, 3, 140-146.

6. **Zhi-Hua Liu**, Lei Qin, Jia-Qing Zhu, Bing-Zhi Li*, Ying-Jin Yuan. Simultaneous saccharification and fermentation of steam-exploded corn stover at high glucan loading and high temperature. ***Biotechnology for Biofuels***, 2014. 7, 167.
7. **Zhi-Hua Liu**, Lei Qin, Ming-Jie Jin, Feng Pang, Bing-Zhi Li*, Yong Kang, Bruce E Dale, Ying-Jin Yuan. Evaluation of storage methods for the conversion of corn stover to sugars. ***Bioresource Technology***, 2013, 132, 5-15.
8. **Zhi-Hua Liu**, Lei Qin, Feng Pang, Ming-Jie Jin, Bing-Zhi Li*, Yong Kang, Bruce E Dale, Ying-Jin Yuan. Effects of biomass particle size on steam explosion pretreatment performance for improving the enzyme digestibility of corn stover. ***Industrial Crops and Products***, 2013, 44, 176-184.

BOOK CHAPTERS

1. Gas Explosion Technology and Biomass Refinery. Springer, 2015.
   Chapter 3 Equipments of gas explosion process
2. Lignocellulose Biorefinery Engineering: Principles and Applications. Woodhead Publishing, 2015
   Chapter 1 Lignocellulose biorefinery engineering: an overview
   Chapter 4 Lignocellulose biorefinery conversion engineering
   Chapter 8 Future perspectives for lignocellulose biorefinery engineering

PATENTS

1. Ying-Jin Yuan, **Zhi-Hua Liu**. "Methods for increasing the saccharification efficiency of agricultural straw by two-step size reduction coupling steam explosion" (China 201310167638.X)
2. Ying-Jin Yuan, **Zhi-Hua Liu**, Bing-Zhi Li, Lei Qin. "Methods for increasing the saccharification efficiency of agricultural straw by dry storage coupling steam explosion" (China 201310167113.6)

INTERNATIONAL & NATIONAL MEETINGS

1. **Zhi-Hua Liu**. "Process intensification of high solids enzymatic hydrolysis and fermentation of steam exploded straw", UBC-IPE Academic Exchange Symposium, Beijing, China, May 2016
2. **Zhi-Hua Liu**. 'Steam explosion refining technology of lignocellulosic biomass for bio-based products' (Plenary Speech), AFOB Bioenergy and Biorefinery Division Annual Meeting and Bioenergy and Biorefinery Summit 2014, Ji'nan, China, July 2014
3. **Zhi-Hua Liu**. 'Research progress of steam explosion pretreatment technology for lignocellulosic ethanol'(Oral Presentation), Seminar on the Development of Bioethanol Industry in Guangdong Province, Guangzhou, Guangdong, China, May 2014
4. 2012 Sino-USA Seminar on Lignocelluloses Utilization, Tianjin University, Tianjin, China, June 2012

HONORS&AWARDS

- "Industrialized technology project of ethanol production from steam-exploded straw", Chinese Academy of Sciences, China, 2014, the fifth completed person
- Invited peer-reviewer for ***Microbial Ecology, African Journal of Biotechnology*** - Journal (2015-present)

INTERNSHIP EXPERIENCE & EXTRACURRICULAR ACTIVITIES

- 2014.05-2014.08 Technology exchange and cooperation in Sonyuan Laihe Chemical Co., Ltd., Jilin, China
- 2014.03-2014.05 Technology exchange and cooperation in Hongtai Chemical Industry Co., Ltd of Huixian County, He'nan, China

INTERESTS & SELF-EVALUATION

- Swimming; Playing basketball; Table tennis; Reading
- Willing to learn and progress; Willing to assume responsibility; Excellent problem solving and strong communication skills; Effective collaboration with colleagues to push project forward