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RESEARCH INTERESTS

- Anaerobic digestion of organic waste for bioenergy and biofuel production;
- Nutrient management and recovery from digestate and livestock manure;
- Soil improvements and remediation using digestate, biochar, and hydrochar.

EDUCATION

Ph.D., Environmental Science The Ohio State University	2014 Columbus, OH
B.S., Environmental Science Wuhan University	2009 Wuhan, Hubei, China

PROFESSIONAL EXPERIENCE

2019- now	Professor, School of Human Settlements and Civil Engineering Xi'an Jiaotong University, Xi'an, Shaanxi, China
2017-2018	Research Scientist, Department of Food, Agricultural, and Biological Engineering The Ohio State University, Wooster, OH, USA
2014-2016	Postdoc, Department of Food, Agricultural, and Biological Engineering The Ohio State University, Wooster, OH, USA

RESEARCH GRANTS

1. Keener, H., **Xu, F.** (Co-PI), Wicks, M., Evaluation of the effects of changing on-farm manure management practices on reduction of dissolved phosphorus runoff. *Department of Higher Education*, \$139,272, 2/2018 – 1/2020.
2. Li, Y., **Xu, F.** (Co-PI), Ge, X., Beneficial use of flue gas desulfurization (FGD) gypsum for phosphorus removal from wastewater. *Ohio Coal Development Office* [Award No.OER-CDO-D-15-11], \$250,000, 8/2016– 8/2018.
3. Li, Y., **Xu, F.** (Co-PI), Development of an integrated system for nitrogen and phosphorus removal from animal manure. *Ohio Sea Grant*, \$100,000, 4/2015 – 12/2016.
4. **Xu, F.** (PI), Evaluation of an integrated anaerobic digestion system (iADs) for biogas production and pathogen reduction from dairy manure. *OARDC Student SEEDS Grant*, \$5000, 6/2012 – 6/2014.

PROFESSIONAL SERVICES

- **Reviewer** of more than 20 Journals, such as *Environmental Science Technology*, *Bioresource Technology*, *Waste Management*, *ChemSusChem*, *Energy and Fuels*.
- **Chair** of Student Activity Committee, Overseas Chinese Agricultural, Biological, and Food Engineers, 2014-2015.

- **Vice Chair** of Student Activity Committee, Overseas Chinese Agricultural, Biological, and Food Engineers, 2013-2014.
- **Activity Director** of Student Activity Committee, Overseas Chinese Agricultural, Biological, and Food Engineers, 2012-2013.
- **Consultant** of quasar energy group, an Ohio-based renewable energy and organics management company specializing in the deployment of sustainable technology solutions in agricultural, municipal and industrial applications.

PROFESSIONAL AFFILIATIONS

- American Society of Agricultural Biological Engineers (ASABE), member, 2010 - Present
- American Association for the Advancement of Science (AAAS), member, 2011 - 2015
- Oversea Chinese Agricultural, Biological, and Food Engineers (AOCABFE), Chair and board member of Student Activity Committee, 2011 – 2015

HONORS AND AWARDS

1. "Young Talent Support Plan" of Xi'an Jiaotong University, 2019.
2. Graduate Leadership and Service Award, Association of Oversea-Chinese Agricultural, Biological, and Food Engineers, 2015.
3. **First place, Boyd-Scott Graduate Research Award** (Ph.D. Category), American Society of Agricultural and Biological Engineers, 2014.
4. First place, Student Research Competition, Association of Oversea-Chinese Agricultural, Biological, and Food Engineers, 2014.
5. Taiganides "**Graduate Student of the Year**" Award, Department of Food, Agricultural and Biological Engineering, The Ohio State University, 2014.
6. Environmental Science Graduate Program Travel Grant, The Ohio State University, 2011, 2014.
7. **Fay Graduate Fellowship in Environmental Science**, The Ohio State University, 2010.
8. First prize, Outstanding Students Scientific Research (team leader), Wuhan University, 2008.
9. Scholarship for Outstanding Students, Wuhan University 2007, 2008.
10. First prize, Outstanding Student Summer Research and Outreach Activity, Wuhan University, 2006.
11. Outstanding Individual in Student Summer Research and Outreach Activity, 2006.
12. Freshman Scholarship for Top Ten Students, Wuhan University, 2005.

PEER REVIEWED JOURNAL ARTICLES

1. Keener, H., **Xu, F.*** (2019). Novel Mathematical Model for Predicting Performance of the Sequential Batch Anaerobic Digestion Process-Part I. Transactions of the ASABE, in press (IF=1.153)
2. G Shang, C Zhang, F Wang, L Qiu, X Guo, **F Xu*** (2019). Liquid hot water pretreatment to enhance the anaerobic digestion of wheat straw—effects of temperature and retention time. Environmental Science and Pollution Research, 1-11. (IF=2.914)
3. Wang, F., **Xu, F.***, Liu, Z., Cui, Z., Li, Y. (2019). Effects of outdoor dry bale storage conditions on corn stover and the subsequent biogas production from anaerobic digestion. *Renewable Energy*, 134: 276-283. (IF: 4.357)

4. **Xu, F.**, Li, Y., Ge, X., Yang, L., Li, Y.* (2018). Anaerobic digestion of food waste—challenges and opportunities. *Bioresource Technology*, 247: 1047-1058. (IF: 6.669, most cited paper in 2018)
5. **Xu, F.**[#], Wang F.[#], Lin L., Li Y.* (2016). Comparison of digestate from solid anaerobic digesters and dewatered effluent from liquid anaerobic digesters as inocula for solid state anaerobic digestion of yard trimmings. *Bioresource Technology*, 200: 753-760. (IF: 6.669)
6. **Xu, F.**, Wang, Z.W., Li, Y.* (2015). Mathematical modeling of solid-state anaerobic digestion. *Progress in Energy and Combustion Science*, 51: 49-66. **(IF: 26.467)**
7. **Xu, F.**, Wang, Z.W., Li, Y.* (2014). Predicting the methane yield of lignocellulosic biomass in mesophilic solid-state anaerobic digestion based on feedstock characteristics and process parameters. *Bioresource Technology*, 173: 168-176. (IF: 6.669)
8. Shi, J.,[#] **Xu, F.**[#], Wang, Z., Stiverson, J., Yu, Z., Li, Y.* (2014). Effect of microbial and non-microbial features of inoculum on biogas production and microbial community dynamics during solid-state anaerobic digestion of corn stover. *Bioresource Technology*, 157: 188-196. (IF: 6.669)
9. **Xu, F.**, Wang, Z.W., Tang, L., Li, Y.* (2014). A mass diffusion-based interpretation of the effect of total solids content on solid-state anaerobic digestion of cellulosic biomass. *Bioresource Technology*, 167: 178-185. (IF: 6.669)
10. **Xu, F.**, Shi, J., Lv, W., Yu, Z., Li, Y.* (2013). Comparison of different anaerobic digestion effluent as inocula and nitrogen sources for solid-state anaerobic digestion of corn stover. *Waste Management*, 33: 26-32. (IF: 5.431)
11. Wang, Z.[#], **Xu, F.**[#], Li, Y.* (2013). Effects of total ammonia nitrogen concentration on solid-state anaerobic digestion of corn stover. *Bioresource Technology*, 144: 281-287. (IF: 6.669)
12. **Xu, F.**, Li, Y.* (2012). Solid-state co-digestion of expired dog food and corn stover for methane production. *Bioresource Technology*, 118: 219-226. (IF: 6.669)
13. **Xu, F.**, He, W., Zheng, X., Zhang, W.*, Cai, W., Xiong, S. (2010). Inhibition on *Microcystis aeruginosa* by *Artemisia lavandulaefolia* and its three organic solvent extracts. *Acta Ecologica Sinica*, 30: 745 -750.
14. L Cao, J Wang, T Zhou, Z Li, S Xiang, **F Xu**, R Ruan, Y Liu, (2019). Evaluation of ammonia recovery from swine wastewater via a innovative spraying technology. *Bioresource technology* 272, 235-240.
15. Lin, L., **Xu, F.**, Ge, X., Li, Y., (2018). Anaerobic digestion and composting in the food-energy-water nexus: a comparative review of sustainable waste management practices. *Renewable and Sustainable Energy Reviews*, 89, 151-167. (IF: 10.556)
16. Y Li, J Lu, **F Xu**, Y Li, D Li, G Wang, S Li, H Zhang, Y Wu, A Shah, G Li, (2018). Reactor performance and economic evaluation of anaerobic co-digestion of dairy manure with corn stover and tomato residues under liquid, hemi-solid, and solid state conditions. *Bioresource technology* 270, 103-112.
17. Y Li, Y Wang, Z Yu, J Lu, D Li, G Wang, Y Li, Y Wu, S Li, **F Xu**, G Li, X Gong, (2018). Effect of inoculum and substrate/inoculum ratio on the performance and methanogenic archaeal community structure in solid state anaerobic co-digestion of tomato residues with dairy manure and corn stover. *Waste Management* 81, 117-127.
18. Li, Y., **Xu, F.**, Li., Y, Lu, J., Li, S., Shah, A., Zhang, X., Zhang, H., Gong X., Li, G.* (2018). Reactor performance and energy analysis of solid state anaerobic co-digestion of dairy manure with corn stover and tomato residues. *Waste Management*, 73, 130-139.
19. Wang, Z.W., **Xu, F.**, Manchala, K.R., Sun, Y., Li, Y.* (2016). Fractal-like kinetics of the solid-state

- anaerobic digestion. *Waste Management*, 53: 55-61.
20. Liu, S., **Xu, F.**, Ge, X., Li, Y.* (2016). Comparison between ensilage and fungal pretreatment for storage of giant reed and subsequent methane production. *Bioresource Technology*, 209: 246-253.
 21. Liu, S., **Xu, F.**, Liew, L., Li, Y.* (2016). Food waste addition for enhanced giant reed ensilage and methane production. *Transactions of the ASABE* 59 (3), 727-736.
 22. Liu, S., Ge, X., **Xu, F.**, Li, Y.* (2016). Effect of total solids content on giant reed ensilage and subsequent anaerobic digestion. *Process Biochemistry* 51 (1): 73-79.
 23. Ge, X., **Xu, F.**, Li, Y.* (2016). Solid-state anaerobic digestion of lignocellulosic biomass: Recent progress and perspectives. *Bioresource Technology*, 205: 239-249.
 24. Ge, X., **Xu, F.**, Vasco-Correa, J., Li, Y.* (2016). Giant reed: A competitive energy crop in comparison with miscanthus. *Renewable and Sustainable Energy Reviews*, 54: 350-362.
 25. Yang, L., **Xu, F.**, Ge, X. (2015). Challenges and strategies for solid-state anaerobic digestion of lignocellulosic biomass. *Renewable and Sustainable Energy Reviews*, 44: 824-834.
 26. Hochman, G.*, Wang, S., Li, Q., Gottlieb, P.D., **Xu, F.**, Li, Y. (2015). Cost of organic waste technologies: A case study for New Jersey. *AIMS Energy*, 3 (3): 450-462.
 27. Lin, L., Yang, L., **Xu, F.**, Frederick, M., Li, Y.* (2014). Comparison of solid-state anaerobic digestion and composting of yard trimmings with effluent from liquid anaerobic digestion. *Bioresource Technology*, 169: 439-446.
 28. Zhu, J., Zheng, Y., **Xu, F.**, Li, Y.* (2014). Solid-state anaerobic co-digestion of hay and soybean processing waste for biogas production. *Bioresource Technology*, 154: 240-247.
 29. Zheng, Y., Zhao, J., **Xu, F.**, Li, Y.* (2013). Pretreatment of lignocellulosic biomass for enhanced biogas production. *Progress in Energy and Combustion Science*, 42: 35-53. (**IF: 26.467, most downloaded paper**)
 30. Zhang, W.*, **Xu, F.**, He, W., Zheng, X., Yang, C. (2009). Inhibitive effects of three compositae plants on *Microcystis aeruginosa*. *Frontier of Environmental Science & Engineering in China*, 3: 48-55.

BOOK CHAPTERS

1. L Lin, **F Xu**, X Ge, Y Li. (2019). Biological treatment of organic materials for energy and nutrients production—Anaerobic digestion and composting. Elsevier.
2. **Xu, F.**, Li, Y., Wicks, M., Li, Y., Keener, H. (2018). Anaerobic Digestion of Food Waste for Biofuels Production. *Encyclopedia of Food Security and Sustainability*, Elsevier.
3. **Xu, F.**, Khalaf, A., Sheets, J., Ge, X., Keener, H., Li, Y. (2018). Phosphorus removal and recovery from anaerobic digestion residues. *Advances in Bioenergy*, Elsevier.
4. **Xu, F.**, Li, Y. (2017). Biomass digestion. *Encyclopedia of Sustainable Technologies*, Elsevier.

CONFERENCE PRESENTATIONS

1. **Xu, F.**, Cao, L., Wicks, M Keener, H. (2019). Effect of liquid livestock manure storage conditions on total and water-extractable phosphorus. The International Association for Great Lakes Research (IAGLR) 62nd annual Conference on Great Lakes Research.
2. Keener, H., **Xu, F.** (2018). A novel mathematical model for the start-up phase of sequential batch anaerobic digesters. ASABE Annual International Meeting. Detroit, MI, Jul 29-Aug 1, 2018.
3. **Xu, F.**, Khalaf, A., Li, Y. (2017). Removal of phosphorus from anaerobic digestion effluent using flue gas desulfurization gypsum. BioCycle Conference, Portland, OR, Oct 16-18, 2017.
4. **Xu, F.**, Jiang, Y., Li, Y. (2016). Comparison of anaerobic co-digestion of food waste and waste

- paper in solid and liquid media. ASABE Annual International Meeting. Orlando, FL, Jul 17-20, 2016.
5. **Xu, F.**, Li, Y., Wang, Z. (2015). Use of respirometer in the evaluation of the fractal kinetics of the solid-state anaerobic digestion of corn stover. ASABE Annual International Meeting, New Orleans, LA, Jul 26-29, 2015.
 6. **Xu, F.**, Li, Y. (2015). Emergy analysis of solid-state anaerobic digestion and liquid anaerobic digestion systems for bioenergy production and waste management. ASABE Annual International Meeting, New Orleans, LA, Jul 26-29, 2015.
 7. Jiang Y., **Xu, F.**, Liew, L. N., Li, Y. (2015). Solid-state anaerobic co-digestion of kitchen food waste and food packages. ASABE Annual International Meeting, New Orleans, LA, Jul 26-29, 2015.
 8. **Xu, F.**, Wang, Z. W., Li, Y. (2014). Mathematical modeling of solid-state anaerobic digestion for methane production. ASABE Annual International Meeting. Montreal, QC, Canada, Aug 13-16, 2014.
 9. **Xu, F.**, Li, Y. (2012). Solid-state co-digestion of expired dog food and corn stover for methane production. Poster presentation at: The University Clean Energy Alliance of Ohio (UCEAO) 6th annual conference. Columbus, OH, Apr 2-3, 2012.
 10. **Xu, F.**, Shi, J., Lv, W., Yu, Z., Li, Y. (2011). Comparison of different anaerobic digestion effluents as inocula and nitrogen sources for solid-state anaerobic digestion of corn stover. Oral presentation at: American Society of Agricultural and Biological Engineers Annual International Meeting. Louisville, KY, Aug 7-10, 2011.
 11. **Xu, F.**, Shi, J., Lv, W., Yu, Z., Li, Y. (2011). Comparison of different anaerobic digestion effluents as inocula and nitrogen sources for solid-state anaerobic digestion of corn stover. Poster presentation at: 2011 OARDC annual conference. Columbus, OH, Apr 28, 2011.

TEACHING

Guest speaker of class *Biomass to Bioenergy* (2016)

Seminar organizer, *BBRL Journal Club* (2014-2015)

Guest speaker of class *Introduction to Renewable Energy*, The Ohio State University (2014)

Guest speaker of class *Feedstock Analysis*, The Ohio State University (2014)