

## BBRL NEWS

**Newly granted patent:** “Combined liquid to solid-phase anaerobic digestion for biogas production from municipal and agricultural wastes” developed by Drs. Yebo Li, Jiying Zhu and Caixia Wan was granted US patent (US 8771980). The technology is also known as *iADs* and the original patent application was filed in 2009.

### Notice to Students:

The Graduate School’s forms for examinations, dissertations and theses, and graduation have been streamlined and transformed into online forms available at [www.gradforms.osu.edu](http://www.gradforms.osu.edu).

## JOURNAL CLUB UPDATE

The Journal Club had one meeting in August:

- **Juliana Vasco Correa**- “Lignin Valorization: Improving Lignin Processing in the Biorefinery”, *Science* 344 (2014): 1246843

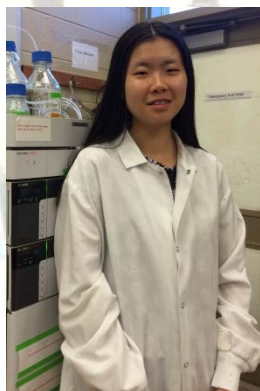
## GROUP SEMINAR

One group seminar was held in August:

- **Fuqing Xu** gave her Boyd-Scott Graduate Research Award winning presentation to new group members to highlight how she improved the talk through careful revision.

## BBRL MEMBER SPOTLIGHT

**Yu Dang-** Yu Dang – Yu joined the BBRL in August, 2014 as a PhD student. She graduated from Sichuan University with a Bachelor degree in Polymer Materials and Engineering. She is currently working with Dr. Xiaolan Luo on crude glycerol-based polyols and waterborne polyurethane coatings. She is interested in bio-based polymers and polymer composites. In the near future, her career goal is to become a faculty member and continue doing research about biopolymers. In her free time, she enjoys watching movies, hanging out with friends, and playing badminton.



### Upcoming events, deadlines, or grants

- 9/05- **Last day to add class without petition**
- 9/06- **Late course add fee (\$100 per course)**
- 9/01- **ACS Abstract submission now open!**

## BBRL RESEARCH

### 2014 Peer Reviewed Journal Publications

1. Hu, S., Li, Y. 2014. Production of polyols and waterborne polyurethane dispersions from biodiesel-derived crude glycerol. *Journal of Applied Polymer Science*. IF: 1.40
2. Li, Y. F., Nelson, M. C., Chen, P. H., Graf, J., Li, Y., Yu, Z. 2014. Comparison of the microbial communities in solid-state anaerobic digesters (SS-ADs) operated at mesophilic and thermophilic temperatures. *Applied Microbiology and Biotechnology*. In press. (IF:3.69)
3. Yang, L., Li, Y. 2014. Anaerobic digestion of giant reed for methane production. *Bioresource Technology*. IF: 5.039
4. Yang, L., Ge, Xumeng, Wan, C, Yu, F., Li, Y. 2014. Progress and perspectives in converting biogas to transportation fuels. *Renewable & Sustainable Energy Reviews*. IF: 5.51
5. Lin, Y., Ge, X., Li, Y. 2014. Solid-state anaerobic co-digestion of spent mushroom substrate with tree trimmings and wheat straw for biogas production. *Bioresource Technology* 169:468-474. IF: 5.039
6. Lin, L, Yang L., Xu, F., Michel F. C., Li, Y. 2014. Side-by-side comparison of solid-state anaerobic digestion and composting of yard trimmings with effluent from liquid anaerobic digestion. *Bioresource Technology* 169:439-446. IF: 5.039
7. Ge, X., Matsumoto, T, Li, Y. 2014. Biogas energy production from tropical biomass wastes by anaerobic digestion. *Bioresource Technology* 169:38-44. IF: 5.039
8. 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: 5.039
9. Hu, S., Li, Y. 2014. Polyols and polyurethane foams from acid-catalyzed biomass liquefaction by crude glycerol: effects of crude glycerol impurities. *Journal of Applied Polymer Science* 131(18): 9054-9062. IF: 1.40
10. Luo, X., Li, Y. 2014. Synthesis and characterization of polyols and polyurethane foams from PET waste and crude glycerol. *Journal of Polymers and the Environment* 22(3): 318-328. IF: 1.50

11. Hu, S., Li, Y. 2014. Polyols and polyurethane foams from base-catalyzed liquefaction of lignocellulosic biomass by crude glycerol: effects of crude glycerol impurities. *Industrial Crops and Products*. 57: 188-194. IF: 3.208
  12. Hu, S, Li, Y. 2014. Polyols and polyurethane foams from two-step sequential liquefaction of lignocellulosic biomass by crude glycerol. *Bioresource Technology*. 161:410-415. IF: 5.039
  13. Zheng, Y., Zhao, J., Xu, F., Li, Y. 2014. Pretreatment of lignocellulosic biomass for enhanced biogas production. *Progress in Energy and Combustion Science*: 42:35-53. **IF: 16.909**
  14. Gómez, E.F., Luo, X., Li, C., Michel F.C., Li, Y. 2014. Biodegradability of crude glycerol-based polyurethane foams during composting, anaerobic digestion and soil incubation. *Polymer Degradation and Stability* 102:195-203. IF: 2.63
  15. Zhao, J., Ge, X. Vasco Correa J., Li, Y. 2014. Fungal pretreatment of unsterilized yard trimmings for enhanced methane production by solid-state anaerobic digestion. *Bioresource Technology* 158: 248-252. IF: 5.039.
  16. Shi J, Xu F., Wang Z., Stiverson, J. A., Yu Z. Li, Y. 2014. Effects of microbial and non-microbial factors of liquid anaerobic digestion effluent as inoculum for solid-state anaerobic digestion of corn stover. *Bioresource Technology*. 157: 188-196. IF: 5.039.
  17. Zhao, J., Zheng, Y., Li, Y. 2014. Fungal pretreatment of yard trimmings for enhancement of methane yield from solid-state anaerobic digestion. *Bioresource Technology*. 156: 176-181. IF: 5.039
  18. Hu, S., Luo, X., Li, Y. 2014. Polyols and polyurethanes from the liquefaction of lignocellulosic biomass. *ChemSusChem* 7: 66-72. IF: 7.12
  19. 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. IF: 5.039
  20. Wang, Z. W., Li, Y. 2014. A theoretical derivation of the Contois equation for kinetic modeling of the microbial degradation of insoluble substrates. *Biochemical Engineering Journal*. 82: 134-138. IF: 2.368
  21. Sheets, J., Ge, X., Park, Y. S., Li, Y. 2014. Effect of outdoor conditions on *Nannochloropsis salina* cultivation in artificial seawater using nutrients from anaerobic digestion effluent. *Bioresource Technology*. 152:154-161. IF: 5.039
  22. Ge, X., Yang, L., Sheets, J., Yu, Z.T., Li, Y. 2014. Biological conversion of methane to liquid fuels: status and opportunities. *Biotechnology Advances*. IF: 8.905
  23. Xu, F., Wang, Z. 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*. IF: 5.039.
- Under review
24. Ge, X., Matsumoto, T., Keith, L. 2014. Fungal pretreatment of albizia chips for enhanced biogas production by solid-state anaerobic digestion. *Energy and Fuel*. IF: 5.039.
  25. Yang, L., Xu, F., Ge, X, Li, Y. 2014. Solid-state anaerobic digestion of lignocellulosic biomass: challenges and strategies to resolve them. *Renewable & Sustainable Energy Reviews*. IF: 5.51
  26. Luo, X., Tong, X., Li, Y. 2014. Crude glycerol-based multi-branched polyols and waterborne polyurethane coatings. *Progress in Organic Coatings*. IF: 1.848.
  27. Li, C., Lu, X., Li, T., Tong, X., Li, Y. 2014. Polyurethane foams based on crude glycerol-derived biopolyols: one-pot preparation of biopolyols with branched fatty acid ester chains and its effects on foam formation and properties. *Polymer*.
  28. Zhu, J., Yang, L., Li, Y. 2014. Comparison of premixing methods for solid-state anaerobic digestion of corn stover. *Bioresource Technology*. IF: 5.039. Equal contribution first author.
  29. Park, S.\*, Li, Y. 2014 Integration of biological kinetics and computational fluid dynamics to model the growth of *Nannochloropsis salina* in an open channel raceway. *Biotechnology & Bioengineering* (IF: 4.164).
  30. Tong, X., Luo, X., Li, Y. 2014. Development of Blend Films from Soy Meal Protein and Crude Glycerol-Based Waterborne Polyurethane. *Industrial Crops and Products*. (IF:3.208)
- 2014 Extension Fact Sheet
1. Li, Y., Wicks, M. 2013. Fungal pretreatment of corn stover fractions for ethanol production, OSU Extension Fact Sheet, AEX 651.1-13.
  2. Li, Y., Yang, L. 2014 Converting spent wheat straw from horse stalls into methane. OSU Extension Fact Sheet, AEX 653-14.
  3. Yang, L., Li, Y. 2014. Biogas cleaning and upgrading technologies. OSU Extension Fact Sheet, AEX 653.1-14.
  4. Li, Y., Yang, L. 2014 Converting biogas to transportation fuels. OSU Extension Fact Sheet, AEX 653.2-14.

Accepted with minor/major revision

## 2014 Conference Presentation

1. Li, Y. 2014. Fungal pretreatment of lignocellulosic biomass for biofuel and bioenergy production. 2014 Institute of Biological Engineering (IBE) Annual Conference. Lexington, KY. March 6-8, 2014.
2. Luo, X., Li, Y. 2014. Synthesis and characterization of crude glycerol derived multi-armed epoxy compounds. 2014 American Chemical Society National Meeting and Exposition. Dallas, TX. March 16-20, 2014.
3. Lin, L., Yang, L., Xu, F., Li, Y. 2014. A side-by-side comparative study of solid-state anaerobic digestion and composting using yard waste and liquid anaerobic digestion effluent. 2014 OARDC Annual Conference. Wooster, OH. April 24, 2014.
4. Tong, X., Luo, X., Li, Y. 2014. Development of Waterborne Polyurethane Film from Soymeal and Crude Glycerol. 2014 OARDC Annual Conference. Wooster, OH. April 24, 2014.
5. Luo, X., Tong, X., Li, Y. 2014. Waterborne polyurethane coatings from crude glycerol-based multi-branched polyols. 2014 OARDC Annual Conference. Wooster, OH. April 24, 2014.
6. Yang, L., Zhu, J., Li, Y. 2014. Effects of premixing and recovery methods on solid-state anaerobic digestion of corn stover. 2014 OARDC Annual Conference. Wooster, OH. April 24, 2014.
7. Lin, Y., Ge, X., Li, Y. 2014. Co-digestion of spent mushroom substrate, yard waste and wheat straw for enhanced solid-state anaerobic digestion. 2014 OARDC Annual Conference. Wooster, OH. April 24, 2014.
8. Park, S., Li, Y. 2014. Integrated computational fluid dynamics model for open pond cultivation of *Nannochloropsis salina* using phase change material to increase carbon dioxide retention and thermal stability. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014.
9. Lin, Y., Ge, X., Li, Y. 2014. Co-digestion of spent mushroom compost, yard waste and wheat straw for enhanced solid-state anaerobic digestion. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014. Paper No. 141897552.
10. Lin, L., Yang, L., Li, Y. 2014. Side-by-side comparison of solid-state anaerobic digestion and composting of yard trimmings with effluent from liquid anaerobic digestion. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014. Paper No. 141897526.
11. Racharaks R., Ge, X., Li, Y. 2014. Integration of shale gas wastewater treatment with microalgae-based biofuel production. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014.
12. Xu, F., Wang, Z., Li, Y. 2014. Mathematical modeling of solid-state anaerobic digestion for methane production. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014. Paper No. 141909527
13. Vasco Correa J., Li, Y. 2014. Effect of harvest date on methane production by solid-state anaerobic digestion of *Miscanthus sinensis*. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014.
14. Zhu, J., Yang, L., Li, Y. 2014. Effects of premixing methods of feedstock and inoculum on solid-state anaerobic digestion of corn stover. 2014 Annual ASABE meeting, Montreal, QC Canada. Jul 13-16, 2014.

