

LU FENG, PhD

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I am a research scientist working for Norwegian Institute of Bioeconomy Research. My previous research works primarily aim to strengthen anaerobic digestion based circular economy, the role of anaerobic digestion process on organic farming, its effect on recycling and relocating the macronutrients, and impact on soil fertility and GHG emission. Currently, I have interests on developing innovative biotechnologies for converting organic residues, to bioenergy, organic acids, protein, biomethanation and syngas fermentation.

Education

2016-2019 PhD in Biological and Chemical Engineering, Aarhus University Denmark.
2018 Guest PhD in Microbiology of anaerobic system, Helmholtz-Centre for Environmental Research- UFZ, Germany.
2010-2013 M.E in Environmental Engineering and Science, Beijing University of Chemical Technology, China.
2002-2006 B.E in Environmental Engineering, Taiyuan University of Technology, China.

Language skills

Chinese (Native), English (Proficient), Norwegian (Basic), Danish (Basic)

Professional Experiences

2021.07 until now. Researcher Scientist, Department of Bioresource and Recycle Technology. Norwegian Institute of Bioeconomy Research (NIBIO).

- ✓ Novel process for bioenergy/organic acids production from organic residue
- ✓ In-situ/ex-situ biomethanation, and syngas fermentation
- ✓ Circular bioeconomy (green and blue), GHG monitoring and controlling
- ✓ Degradation of antibiotics and antibiotics resistance gene
- ✓ Funding application, scientific communication, supervision of PhD and Master project

2019.06 to 2021.06. Postdoctoral Researcher. Department of Biological and Chemical Engineering, Aarhus University, Denmark.

- ✓ Exploration of lignocellulosic biomass for biogas/bioenergy
- ✓ GHG emission monitoring and controlling from biogas process
- ✓ Scientific communication, supervision of Master projects

2015.08 to 2016.05. Research Assistant. Department of Engineering, Aarhus University, Denmark.

- ✓ Anaerobic digestion of animal slurry and sewage sludge using lab- and pilot-scale reactors
- ✓ Pretreatment of lignocellulosic biomass for biogas/bioenergy production.

2013.07 to 2015.05. Research Assistant. Institute of Bioenergy and Bioprocess, Chinese Academy of Science, China.

- ✓ Iron-carbon (Fe-C) micro-electrolysis coupling with anaerobic process for wastewater

- ✓ Anaerobic degradation of environmental pollutants

2006.07 to 2010.06. Process Engineer, Shanxi Lanhua Fertilizer Company, China.

Funding application and project management

2021-2025. Next generation Biogas production through the Synergetic Integration of Gasification. 22.7 million NOK funded by Norwegian Research Council. WP leader.

2022-2024. Bio4Fuels, A Centre for Environment-friendly Energy Research (FME). Funded by Norwegian Research Council. WP leader.

2021-2022. Microalgae for concentrating dissolved nutrients in liquid bio-residue to produce biostimulants. 0.75 million NOK funded by Regional Foundation MIDT Norge. Project manager.

2021-2022. Production of organic acids from fish sludge. 0.35 million NOK funded by green development funding. Project Leader

Student supervision and teaching

2 PhD students, joint co-supervision with Norwegian Life Science University (NMBU) (2022-2024) and Aarhus University/Bangladesh Agricultural University (2018-2019);

4 MSc students, co-supervision, Aarhus University, Denmark.

MSc course, Reactor technology and separation (2019-2020) and Environmental biotechnology (2017) at Aarhus University, Denmark. funded by Norwegian Research Council.

BSc course, Introduction of biotechnology at Aarhus University, Denmark (2016)

Special issue (SI) editor, report and relevant works

2021. Topic Editor - Frontier in Energy Research, Recent Advances in Biogas-Based Circular Economy and Its Environmental Impact. 2021 until now.

2021. Revise the international standard ISO/DIS 19388. Sludge recovery, recycling, treatment and disposal - Guidelines for the operation of anaerobic digestion facilities

2021. Concept note to Vietnam Ambassador to Norway, Bioenergy and nutrients (as by-products) from biowaste/waste from fisheries: a practical approach towards circular bioeconomy.

Research output

Total numbers of publication: 38 peer-reviewed publication, total citation 1028, high-index=16, 11 conference papers.

Selective publication

1. Li, Y., Liu Y., Wang, X., Luo, S., Su, D., Jiang, H., Zhou, H., Pan, J., **Feng, L***. 2021.

Biomethanation of syngas at high CO concentration in a continuous mode. (2021). *Bioresource Technology*, 126407

2. **Feng, L***, Ambye-Jensen, M., Ward, A. J., & Møller, H. B. (2021). Pilot-scale anaerobic digestion of by-product liquid (brown juice) from grass protein extraction using an un-heated anaerobic filter.

Process Safety and Environmental Protection, 146, 886-892

3. Li, Y., Jing, Z., Pan, J., Luo, G., **Feng, L.**, Jiang, H., Liu, H. 2022. Multi-omics joint analysis of the effect of temperature on microbial communities, metabolism, and genetics in full-scale biogas reactors with food waste. *Renewable and Sustainable Energy Reviews*, 160, 112261.

4. **Feng, L***, Perschke, Y. M. L., Fontaine, D., Nikolausz, M., Ward, A. J., da Rocha, U. N., & Møller, H. B. (2020). Anaerobic digestion of co-ensiled cover crop and barley straw: Effect of co-

ensiling ratios, manure addition and impact on microbial community structure. *Industrial Crops and Products*, 144, 112025.

5. **Feng, L***, Perschke, Y. M. L., Fontaine, D., Ward, A. J., Sørensen, P., Eriksen, J., Møller, H. B. (2019). Co-ensiling of cover crops and barley straw for biogas production. *Renewable Energy*, 142, 677-683.

6. **Feng, L***, Ward, A. J., Moset, V., & Møller, H. B. (2018). Methane emission during on-site pre-storage of animal manure prior to anaerobic digestion at biogas plant: Effect of storage temperature and addition of food waste. *Journal of Environmental Management*, 225, 272-279.

7. **Feng, L.**, Casas, M. E., Ottosen, L. D. M., Møller, H. B., & Bester, K*. (2017). Removal of antibiotics during the anaerobic digestion of pig manure. *Science of the Total Environment*, 603, 219-225.

8. **Feng, L***, Moset, V., Li, W.W, Chen, C., Møller, H. B. (2017) In-situ injection of potassium hydroxide into briquetted wheat straw and meadow grass – Effect on biomethane production, *Bioresource Technology*, 239, 258-265.

9. Li, L., **Feng, L.**, Zhang, R., He, Y., Wang, W., Chen, C., & Liu, G. (2015). Anaerobic digestion performance of vinegar residue in continuously stirred tank reactor. *Bioresource technology*, 186, 338-342. (**Joint-first author**)

10. **Feng, L.**, Li, Y., Chen, C., Liu, X., Xiao, X., Ma, X., & Liu, G. (2013). Biochemical methane potential (BMP) of vinegar residue and the influence of feed to inoculum ratios on biogas production. *Bioresources*, 8(2), 2487-2498.