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Title: Professor

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**Education:**

PhD: Chongqing University

MS: Chongqing University

BS: Shanghai Jiao Tong University

**General Areas of Expertise:**

energy conversion and upgrading by microorganism, multiphase flow and heat and mass transfer in microscale geometries involving in bio/electro/chemical reactions, flow and heat transfer related to energy saving and emission reduction

**Short Bio:**

Dr. Xun Zhu is a professor in College of Power Engineering and vice-director of Institute of Engineering Thermophysics at Chongqing University, China. She is the Winner of National Science Fund for Distinguished Young Scholars, the chief scientist of the National Key R&D Program of China, the Winner of Education Ministry's New Century Excellent Talents Supporting Plan and the "Bayu" Distinguished Professor of Chongqing. She also serves as the associate director of the professional committee of the multiphase flow branch, the professional committee member of the Heat and Mass Transfer branch and the Heat Pipe branch of the Chinese Society of Engineering Thermophysics (CSETP). She has chaired more than 10 research projects funded by National Natural Science Foundation of China and Ministry of Science and Technology of China etc. She authored and co-authored more than 200 papers in international journals, holds 20 Chinese patents and contributed two chapter to books published by Springer and CRC Press, respectively.

**Five Representative Publications:**

1. Yang Yang, Tianyu Liu, Xun Zhu\*, Feng Zhang, Dingding Ye, Qiang Liao, Yat Li\*, Boosting Power Density of Microbial Fuel Cells with 3D Nitrogen-doped Graphene Aerogel Electrode, *Advance Science*, vol.3, issue 8, 1600097, 2016.
2. Liang Zhang, Xun Zhu\*, Hiroyuki Kashima, Jun Li, Ding-ding Ye, Qiang Liao, John M. Regan. Anolyte recirculation effects in buffered and unbuffered single-chamber air-cathode microbial fuel cells. *Bioresource Technology*. Volume 179, pp. 26-34, 2015.
3. Xun Zhu\*, Biao Zhang, Ding-Ding Ye, Jun Li, Qiang Liao, Air-breathing direct formic acid microfluidic fuel cell with an array of cylinderanodes, *Journal of Power Sources*, Vol.247, pp. 346-353, 2014.
4. Rui Wu, Xun Zhu\*, Qiang Liao, Rong Chen, Guo-Ming Cui, Liquid and oxygen transport in defective bilayer gas diffusion material of proton exchange membrane fuel cell, *International Journal of Hydrogen Energy*, Vol. 38, No. 10, pp. 4067-4078, 2013.
5. Xun Zhu\*, Cheng-Long Guo, Yong-Zhong Wang, Qiang Liao, Rong Chen, A feasibility study on unsaturated flow bioreactor using optical fiber illumination for photo-hydrogen production, *International Journal of Hydrogen Energy*, Vol. 37, Issue 20, pp. 15686-15671, 2012.

**FEWSTERN Symposium 2017 Presentation Title and Abstract:**

Process intensification of Microalgae energy conversion  
Microalgae, as a kind of unicellular organism, can use CO2 in flue gas as substrate, nitrogen and phosphorus in wastewater as nutrients and use light as energy source to synthesize bio-oil through photosynthesis. It can realize carbon mitigation, wastewater treatment, and bioenergy production at the same time. However, up to now, a poor economic efficiency of biofuel production from microalgae throughout the whole process hinders its practical applications. Therefore, efforts have been devoted to explore the transport and conversion mechanisms in the microalgae cultivation and refining. Based on the understanding of the transfer of carbon, light and nutrients, high-efficient photobioreactors, easy and low-cost harvesting method as well as a novel technical route by direct conversion of wet microalgae sludge with high moisture content have been proposed.