POLYTECHNIQUE MONTRÉAL
LE GÉNIE EN PREMIÈRE CLASSE

Yefeng ZHOU, PhD

- Montreal, Quebec H3T 1J8
- E-Mail: yefeng.zhou@polymtl.ca

Education

- **Zhejiang University, Hangzhou, China** (2009-2014)

Ph.D. Degree, College of Chemical and Biological Engineering
State Key Laboratory of Chemical Engineering, UNILAB Research Center for CRE
Thesis: "Realization, control and stability analysis of multiple temperature zones in liquid-containing gas-solid fluidized bed reactor"

- **Hunan University, Changsha, China** (2005-2009)

B.Sc. Degree, College of Chemistry and Chemical Engineering

Research Interests

- Process design, development, optimization and modeling
- Multi-scale and meso-scale behaviors measurement and characterization
- Multiphase flow reaction engineering and measurements
- Fluidization engineering and fluidized bed technology
- Design and optimization of bubble column reactors and stirred tanks
- Computational Fluid Dynamics and Discrete Element Method
- Energy, environmental, materials engineering related reactor technologies

Work Experience

• **Process Engineering Advanced Research Lab (PEARL)**, Polytechnique Montreal, Montreal, QC, Canada	Postdoc	2018 –
• **College of Chemical Engineering** Xiangtan University, Xiangtan, Hunan, China	Associate Professor	2016-2018

Expertise

- Process design, development and optimization in lab, pilot and industrial scales
- Experimental monitoring techniques and analyzing characterization
- Reactor design, analysis, optimization and modeling
- Multiphase flow reactors & Fluidization engineering
- G-L, G-S two-phase and G-L-S three-phase flow reactors

Research Background

- Gas-liquid novel process of fluidized bed polymerization reactors (Collaborated with SINOPEC)
- Super-condensed mode operation and process intensification of fluidized bed polymerization reactors (Collaborated with SINOPEC)
- Design and optimization of bubble column photobioreactors (Collaborated with TOTAL)
- Multi-zone circulating fluidized bed and multi-temperature zone fluidized bed reactors
- Liquid-containing gas-solid fluidized bed reactors and their applications

- Acoustic measurements and signal analyses
- Multi-scale and meso-scale measurements and characterization

Teaching Experience

• **Chemical Reaction Engineering**, Xiangtan University, Xiangtan, Hunan, China	Associate Professor	2016-2018
• **Experiments of Unit Operation**, Xiangtan University, Xiangtan, Hunan, China	Associate Professor	2016-2018

Journal Publications

- **Zhou YF***, Yang L, Lu YJ, et al. Control of pressure balance and solids circulation characteristics in DCFB reactors. ***Powder Technol***., 2018, 328: 114-121.
- **Zhou YF***, Yang L, Lu YJ, et al. Flow regime identification in gas-solid two-phase fluidization via acoustic emission technique. ***Chem Eng J***., 2018, 334 (15): 1484-1492.
- **Zhou YF**, Shi Q, Huang ZL, et al. Particle agglomeration and control of gas-solid fluidized bed reactor with liquid bridge and solid bridge coupling actions. ***Chem Eng J.***, 2017, 330 (15): 840-851.
- **Zhou YF**, Shi Q, Huang ZL, et al. Realization and control of multiple temperature zones in liquid-containing gas–solid fluidized bed reactor. ***AIChE J.***, 2016, 62(5): 1454-1466.
- **Zhou YF**, Shi Q, Huang ZL, et al. Effects of liquid action mechanisms on hydrodynamics in liquid-containing gas–solid fluidized bed reactor. ***Chem Eng J***.,2016, 285: 121-127.
- **Zhou YF**, Ren CJ, Wang JD, et al. Characterization on hydrodynamic behavior in liquid-containing gas-solid fluidized bed reactor. ***AIChE J.***, 2013, 59(4): 1056-1065.
- **Zhou YF**, Shi Q, Huang ZL, et al. Effects of interparticle forces on fluidization characteristics in liquid-containing and high-temperature fluidized beds. ***Ind. & Eng. Chem. Res***., 2013, 52(47): 16666-16674.
- **Zhou YF**, Ren CJ, Wang JD, et al. Effect of hydrodynamic behavior on electrostatic potential distribution in gas-solid fluidized bed. ***Powder Technol***., 2013, 235: 9-17.
- **Zhou YF**, Wang JD, Yang YR, et al. Modeling of the temperature profile in an ethylene polymerization fluidized-bed reactor in condensed-mode operation. ***Ind. & Eng. Chem. Res***., 2013, 52 (12): 4455-4464.
- **Zhou YF**, Huang ZL, Ren CJ, et al. Agglomeration detection in horizontal stirred bed reactor based on autoregression model by acoustic emission signals, ***Ind. & Eng. Chem. Res***., 2012, 51 (36): 11629-11635.
- **Zhou YF**, Dong KZ, Huang ZL, et al. Fault detection based on acoustic emission-early agglomeration recognition system in fluidized bed reactor. ***Ind. & Eng. Chem. Res***., 2011, 50 (14): 8476-8484

- Zhang Q, **Zhou YF**, Wang JD, et al. Particle Motion in Two- and Three-Phase Fluidized-Bed Reactors Determined by Pulsed Field Gradient Nuclear Magnetic Resonance. ***Chem. Eng. Technol***., 2015, 38 (7): 1269-1276.
- Lungu, M, **Zhou YF**, Wang JD, et al. A CFD study of a bi-disperse gas–solid fluidized bed: Effect of the EMMS sub grid drag correction. ***Powder Technol.,*** 2015, 280: 154-172.
- He L, **Zhou YF**, Huang ZL, et al. Acoustic Analysis of Particle–Wall Interaction and Detection of Particle Mass Flow Rate in Vertical Pneumatic Conveying. ***Ind. Eng. Chem. Res.***,2014, 53(23): 9938-9948.
- Han X, **Zhou YF**, Huang ZL, et al. Collapse process of gas-solid fluidized bed based on acoustic emission signal analysis. ***Journal of Zhejiang University***, 2014, 48 (03): 527-534. (in Chinese)
- He L, **Zhou YF**, Huang ZL, et al. An ultrasonic level measuring technique based on radiation dissipation and its industrial application. ***Flow Meas. Instrum.***,2014, 40:178-184.
- Sun JY, **Zhou YF**, Ren CJ, et al. CFD simulation and experiments of dynamic parameters in gas-solid fluidized bed. ***Chem. Eng. Sci.***, 2011, 66 (21): 4972-4982.
- Dong KZ, **Zhou YF**, Huang ZL, et al. Gas bubble behaviors in a gas–solid fluidized bed with an arch agitator. ***Powder Technol***., 2014, 266: 38-44.
- Sun JY, **Zhou YF**, Wang JD, et al. CFD simulation and time series analysis of granular temperature in gas-solids dense phase fluidized bed. ***CIESC J.***, 2011， 62 (12): 3330-3336. (in Chinese)
- Wei GY, **Zhou YF**, Liao ZW, et al. Detection of particle mass flowrate in high-speed fluidization based on acoustic emission technology. ***Acta Petrolei Sinica***, 2011, 27(5): 773-779. (in Chinese)
- Yang Y, Ge SY, **Zhou YF**, et al. Effects of DC electric fields on meso-scale structures in electrostatic gas-solid fluidized beds. ***Chem Eng J***., 2018, 332, 293-302.
- Zhang Q, Dong KZ, **Zhou YF**, et al. A comparative study of electrostatic current and pressure signals in a MSFC gas–solid fluidized bed. ***Powder Technol***., 2016, 287:292-300
- Wang YL, Zheng HJ, **Zhou YF**, et al. Information entropy of residence time distribution in stirred tank with multiple inlets. ***Journal of Zhejiang University***, 2015, 49(3):590-597. (in Chinese)

Conference Publications

- **Zhou YF**, Shi Q, Huang ZL, et al. Realization, control and stability analysis of multiple temperature zones in liquid-containing gas-solid fluidized bed reactor, ***2016 AIChE Annual Meeting***, San Francisco, CA, USA. 2016.11
- **Zhou YF**, Gu YB, Huang ZL, et al. Analysis and control of particle agglomerations in the liquid-containing gas-solid fluidized bed. ***The 9Annual Meeting of Chinese Society of Particuology,*** Chengdu, China. 2016.08
- **Zhou YF**, Shi Q, Wang JD, et al. Establishment and control of multiple temperature zones gas-solid fluidized bed reactor. ***The 8th National Fluidization Conference,*** Changsha, China. 2015.11

- **Zhou YF**, Huang ZL, Wang JD, et al. Application of passive acoustic emission measurement in fluidization processes. ***The 7th National Fluidization Conference***, Beijing, China. 2013.9. **(Selected as excellent paper)**
- **Zhou YF**, Zhou LJ, Huang ZL, et al. Industrial fluidized bed polyethylene reactor temperature modeling in condensed mode operation. ***2012 AIChE Annual Meeting***, Pittsburgh, PA, USA. 2012.11
- **Zhou YF**, Dong KZ, Huang ZL, et al. Signal analysis of acoustic emission in gas-solid fluidized bed reactor —from data to information. ***Proceedings of World Conference on Acoustic Emission–2011***, Beijing, China. 2011.08
- Dong KZ, **Zhou YF**, Zhang Q, et al. Investigation of Electrostatic Reduction in Gas-Solid Fluidized Bed By In-Situ Corona Charge Eliminator. ***2013 AIChE Annual Meeting***, San Francisco, CA, USA. 2013.11
- Sun JY, **Zhou YF**, Wang JD, et al. Kinetic Theory based CFD simulation and experiments of dynamic characteristics in gas-solid fluidized bed. ***2011 AIChE Annual Meeting***, Minneapolis, MN, USA. 2011.11

Patents and Software Copyrights

- **Zhou YF**, Yang L, et al. A method for detecting critical turbulent velocity based on acoustic emission. CN Patent: 201710342627.9.
- **Zhou YF**, Yang L, et al. A method for detecting transitional velocity from turbulent fluidization to fast fluidization. CN Patent: 201710343876.X.
- **Zhou YF**, Yang L, et al. A method for detecting transitional velocity from fast fluidization to dense phase pneumatic conveying. CN Patent: 201710343920.7.
- Hu XY, **Zhou YF**, et al. A method for purification of low-grade sepiolite. CN Patent: 201710055034.4.
- Hu XY, **Zhou YF**, et al. Preparation method and application of a sepiolite-based sorbent. CN Patent: 201710055033.X.
- Wang JD, **Zhou YF**, et al. Spouted fluidized bed reactor and its polymer preparation method. CN Patent: 201310065490.9.
- Wang JD, **Zhou YF**, et al. A spouted fluidized bed - fluidized bed compound reactor and its polymer preparation method. CN Patent: 201310065147.4.

Reviewer Responsibilities

- **Foundations and Grants:** NSFC, HN-SFC, 2011 Programs
- **Academic Journals:** AIChE J, Chem. Eng. Sci., Powd. Techno.(Outstanding Reviewer), ……