Yi OUYANG

Ghent University, Laboratory for Chemical Technology (LCT), Technologiepark 125, 9052 Gent, Belgium.

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Google Scholar: https://scholar.google.com/citations?user=GVx-NV8AAAAJ&hl=en

PROFESSIONAL EXPERIENCE

2022 – now Assistant Professor, Ghent University (UGent), Laboratory for Chemical Technology, Belgium

2023 - 2023 Research stay, University College London, UK, collaborator: Prof. Marc-Olivier Coppens

2020 - 2023 FWO Post-doctoral researcher, UGent, Belgium, collaborator: Prof. Kevin Van Geem

2019 - 2020 Post-doctoral Researcher, UGent, Belgium, collaborator: Prof. Kevin Van Geem

2017 - 2018 Visiting Researcher, Washington University in St. Louis (WUSTL), US, promoter: Prof. Ramesh Agarwal and Prof. Milorad Dudukovic

2014 - 2019 Ph.D. in Chemical Engineering, Beijing University of Chemical Technology, China, promoter: Prof. Jian-Feng Chen

FUNDING/AWARD

2023 Francqui Start-up Grant award, Ghent University (3-year project), Belgium.

2022 Starting Grant at the Special Research Fund, Ghent University (4-year project), Belgium.

2022 International Research Collaboration grant, Ghent University, Belgium.

2020 Flanders Research Foundation - FWO Post-doctoral fellowship (3-year project), Belgium.

2018 Grant for research stay, Washington University in St. Louis, US

PROJECTS

Regional and community funding: Special Research Fund: Chemical Process Intensification by Multi-scale Computation & Modelling

Francqui Start-Up Grant

Flanders Industry Innovation Moonshot project: Intensification of CO_2 capture processes (CAPTIN-1 and CAPTIN-2)

Marie Skłodowska-Curie Action “Smart and CO2 neutral Olefin Production by arTificial Intelligence and MAchine Learning” (OPTIMAL)

Promoter of FWO PhD fellowship “A smart sustainable and stable Mars ISRU process for production of O2 and value-added chemicals”

FWO Postdoctoral Fellowship: Visualization, Modelling and Computation based Process Intensification of CO_2 Capture

TEACHING ACTIVITIES

2022-present Lecturer in charge - E052730 - Building Chemistry – Faculty of Engineering and Architecture, Ghent University, Belgium

2022-2023 Lecturer in charge - E070160 - Chemistry: Selected Topics – Faculty of Engineering and Architecture, Ghent University, Belgium

OTHER SCIENTIFIC OUTPUT AND IMPACT

2024 Guest Editors for a special issue on “High Gravity Chemical Engineering” in Current Opinion in Chemical Engineering journal

2023 I&EC Research 2023 Excellence in Review Award (one of 42 global winners out of ~6000 reviewers)

2023 Guest editor in a special issue for “MTCUE-2022” in Industrial & Engineering Chemistry Research journal

2023 Conference committee member, Third International Process Intensification Conference (IPIC3) will be held from May 28th to 31st 2024 in Beijing, China.

2022 Invited Seminar, Hong Kong University of Science and Technology. Title: Development of intensified reactors: A process intensification methodology perspective. Hongkong

2021 Invited EFCE Spotlight Talk 2021, European Federation of Chemical Engineering Spotlight Talks 2021, Title: CO2 Absorption/Capture Modelling by Computational Fluid Dynamics Validated with Experimental Data.

2021 Invited Talk, International conference on mathematics in (bio)chemical kinetics and engineering 2021 (MaCKiE 2021) Title: Process intensification in a gas-liquid vortex reactor.

2022 Session Chair of Engineering processes & products, Session: Process and Plant Design I in13th ECCE and 6th ECAB

2017 Organization of conferences: International Green Chemical Engineering Summit (IGCES 2017)

Peer reviewer for the following journals: Chemical Engineering Journal (IF: 13.3), IEEE Transactions on Neural Networks and Learning Systems (IF: 8.8), Fuel (IF: 6.6), Chemical Engineering Science (IF: 4.3), AIChE Journal (IF: 3.5), Industrial & Engineering Chemistry Research (IF: 3.7), Chemical Engineering and Processing: Process Intensification (IF: 4.2), Chemical Engineering Research and Design (IF: 3.7), Journal of Chemical & Engineering Data (IF: 2.7) and Micromachines (IF: 2.9)

SELECTED PUBLICATION

1. **Y. Ouyang**, G.J. Heynderickx, K.M. Van Geem, Development of intensified reactors: A process intensification methodology perspective, Chemical Engineering and Processing-Process Intensification. 181 (2022) 109164.
2. S. Chen, P. Malego, K.M. Van Geem, **Y. Ouyang***, G.J. Heynderickx, CFD analysis on hydrodynamics and residence time distribution in a gas-liquid vortex unit, Chemical Engineering Journal. 446 (2022) 136812.
3. **Y. Ouyang**, L.A. Vandewalle, L. Chen, P.P. Plehiers, M.R. Dobbelaere, G.J. Heynderickx, G.B. Marin, K.M. Van Geem, Speeding up turbulent reactive flow simulation via a deep artificial neural network: A methodology study, Chemical Engineering Journal. 429 (2022) 132442.
4. **Y. Ouyang**, M.N. Manzano, R. Wetzels, S. Chen, X. Lang, G.J. Heynderickx, K.M. Van Geem, Liquid hydrodynamics in a gas-liquid vortex reactor, Chem Eng Sci. 246 (2021) 116970.
5. **Y. Ouyang**, M. Nunez Manzan, S. Chen, R. Wetzels, T. Verspeelt, K.M. Van Geem, G.J. Heynderickx, Chemisorption of CO2 in A Gas-Liquid Vortex Reactor: An Interphase Mass Transfer Efficiency Assessment, AIChE Journal. (2022) e17608.
6. **Y. Ouyang**, M.N. Manzano, K. Beirnaert, G.J. Heynderickx, K.M. Van Geem, Micromixing in a gas–liquid vortex reactor, AIChE Journal. 67 (2021) e17264.
7. **Y. Ouyang**, K.-L. Tang, Y. Xiang, H.-K. Zou, G.-W. Chu, R.K. Agarwal, J.-F. Chen, Evaluation of various turbulence models for numerical simulation of a multiphase system in a rotating packed bed, Comput Fluids. 194 (2019) 104296.
8. **Y. Ouyang**, Y. Xiang, X.-Y. Gao, H.-K. Zou, G.-W. Chu, R.K. Agarwal, J.-F. Chen, Micromixing efficiency optimization of the premixer of a rotating packed bed by CFD, Chemical Engineering and Processing-Process Intensification. 142 (2019) 107543.
9. **Y. Ouyang**, H.-K. Zou, X.-Y. Gao, G.-W. Chu, Y. Xiang, J.-F. Chen, Computational fluid dynamics modeling of viscous liquid flow characteristics and end effect in rotating packed bed, Chemical Engineering and Processing-Process Intensification. 123 (2018) 185–194.
10. **Y. Ouyang**, Y. Xiang, X.-Y. Gao, W.-L. Li, H.-K. Zou, G.-W. Chu, J.-F. Chen, Micromixing efficiency in a rotating packed bed with non-Newtonian fluid, Chemical Engineering Journal. 354 (2018) 162–171.
11. **Y. Ouyang**, S. Wang, Y. Xiang, Z. Zhao, J. Wang, L. Shao, CFD analyses of liquid flow characteristics in a rotor-stator reactor, Chemical Engineering Research and Design. 134 (2018) 186–197.

12. **Y. Ouyang**, Y. Xiang, H. Zou, G. Chu, J. Chen, Flow characteristics and micromixing modeling in a microporous tube-in-tube microchannel reactor by CFD, Chemical Engineering Journal. 321 (2017) 533–545.
13. **Y. Ouyang**, Q. Xu, Y. Xiang, W. Liu, J. Du, Degradation of simulated organic wastewater by advanced oxidation with oxidants generated from oxygen reduction, Chin J Chem Eng. 27 (2019) 850–856.
14. **Y. Ouyang**, S. Chen, T. Verspeelt, K.M. Van Geem, G.J. Heynderickx. A chamber unit for a fluidfluid vortex contactor and a reactor comprising such a unit. Priority patent filing with reference number EP23182595.1
15. K.-L. Tang, **Y. Ouyang***, R.K. Agarwal, J.-M. Chen, Y. Xiang, J.-F. Chen, Computation of gas-liquid flow in a square bubble column with Wray-Agarwal one-equation turbulence model, Chem Eng Sci. 218 (2020) 115551.
16. H. Luo, X. Wang, X. Liu, L. Yi, X. Wu, X. Yu, **Y. Ouyang**, W. Liu, Q. Xiong, Machine learning based prediction of biomass pyrolysis with detailed reaction kinetics for thermally-thick particles: from 1D to 0D, Chem Eng Sci. 280 (2023) 119060.
17. X. Lang, **Y. Ouyang**, S. Dutta, S. Chen, L. Li, G. Heynderickx, K.M. Van Geem, Hydrodynamic study of the operating window of a stator-rotor vortex chamber reactor, Powder Technol. (2023) 118749.
18. Y. Ureel, M.R. Dobbelaere, **Y. Ouyang**, K. De Ras, M.K. Sabbe, G.B. Marin, K.M. Van Geem, Active Machine Learning for Chemical Engineers: A Bright Future Lies Ahead!, Engineering. (2023).
19. H. Zhong, Z. Wei, Y. Man, S. Pan, J. Zhang, B. Niu, X. Yu, **Y. Ouyang**, Q. Xiong, Prediction of instantaneous yield of bio-oil in fluidized biomass pyrolysis using long short-term memory network based on computational fluid dynamics data, J Clean Prod. 391 (2023) 136192.
20. Y.-C. Yang, S.-X. Chen, Z.-T. Wang, **Y. Ouyang**, X.-Q. Zhang, B.-D. Zheng, N. Zhang, J. Ye, M.-T. Xiao, Gas-liquid flow regimes and effective interfacial area in a solid foam block stirred tank, Chemical Engineering and Processing-Process Intensification. 184 (2023) 109267.
21. G. Gecim, **Y. Ouyang**, S. Roy, G.J. Heynderickx, K.M. Van Geem, Process intensification of CO2 desorption, Ind Eng Chem Res. (2022).
22. X. Lang, **Y. Ouyang**, L.A. Vandewalle, B. Goshayeshi, S. Chen, S. Madanikashani, P. Perreault, K.M. Van Geem, Gas-solid hydrodynamics in a stator-rotor vortex chamber reactor, Chemical Engineering Journal. 446 (2022) 137323.
23. H.-L. Liao, **Y. Ouyang**, J.-P. Zhang, H.-K. Zou, G.-W. Chu, Y. Luo, Numerical Studies of a Liquid Droplet Impacting on Single-Layer Hydrophilic and Hydrophobic Wire Meshes, Ind Eng Chem Res. 61 (2022) 7154–7162.
24. S. Chen, **Y. Ouyang**, L.A. Vandewalle, G.J. Heynderickx, K.M. Van Geem, CFD analysis on hydrodynamics and residence time distribution in a gas-liquid vortex unit, Chemical Engineering Journal. 446 (2022) 136812.
25. Y.-C. Yang, S.-S. Zeng, **Y. Ouyang**, L. Sang, S.-Y. Yang, X.-Q. Zhang, Y.-Y. Huang, J. Ye, M.-T. Xiao, N. Zhang, An intensified ozonation system in a tank reactor with foam block stirrer: Synthetic textile wastewater treatment and mass transfer modeling, Sep Purif Technol. 257 (2021) 117909.
26. J.-Q. Wang, **Y. Ouyang**, W.-L. Li, A. Esmaeili, Y. Xiang, J.-F. Chen, CFD analysis of gas flow characteristics in a rotating packed bed with randomly arranged spherical packing, Chemical Engineering Journal. 385 (2020) 123812.
27. L. Cai, **Y. Ouyang**, W. Liang, Z. Gao, Z. Cai, Flow and Surface Renewal of the Viscous Filaments in a High-Speed Disperser, Ind Eng Chem Res. 58 (2019) 22427–22439.
28. W.-L. Li, X.-Y. Gao, **Y. Ouyang**, J.-Q. Wang, G.-W. Chu, H.-K. Zou, Y. Xiang, J.-F. Chen, CFD analysis of gas flow characteristics and residence time distribution in a rotating spherical packing bed, Ind Eng Chem Res. 58 (2019) 21717–21729.
29. Y. Yang, **Y. Ouyang**, X. Yu, Q. Yu, J. Liu, S. Yang, M. Arowo, Micromixing efficiency in a rotating foam stirrer reactor with various reactor configurations and liquid viscosities, Journal of Chemical Technology & Biotechnology. 94 (2019) 2651–2660.
30. Y. Yang, **Y. Ouyang**, N. Zhang, Q. Yu, M. Arowo, A review on computational fluid dynamic simulation for rotating packed beds, Journal of Chemical Technology & Biotechnology. 94 (2019) 1017–1031.
31. W.-L. Li, **Y. Ouyang**, X.-Y. Gao, C.-Y. Wang, L. Shao, Y. Xiang, CFD analysis of gas–liquid flow characteristics in a microporous tube-in-tube microchannel reactor, Comput Fluids. 170 (2018) 13–23.
32. X.-Y. Gao, G.-W. Chu, **Y. Ouyang**, H.-K. Zou, Y. Luo, Y. Xiang, J.-F. Chen, Gas flow characteristics in a rotating packed bed by particle image velocimetry measurement, Ind Eng Chem Res. 56 (2017) 14350–14361.