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Yi OUYANG

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PROFESSIONAL EXPERIENCE

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

2024 – Now Guest Professor, Faculty of Engineering Science, KU Leuven (KUL), Belgium

2023 - 2023 Visiting Research Fellow, 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 Ph.D. Fellow, 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, *Outstanding Graduate of Beijing in the Year of 2019 & Excellent Doctoral Dissertation*

PROJECTS

2023 Francqui Start-Up Grant, 3-year project

2024 FWO medium-sized research infrastructure, Ultra-high speed imaging: Opening up new horizons for the identification of dynamic phenomena in science

2022 Special Research Fund: Chemical Process Intensification by Multi-scale Computation & Modelling, 4-year project

2020 Flanders Industry Innovation Moonshot project: Intensification of CO_2 capture processes (CAPTIN-1 and CAPTIN-2), 4-year project

2022 Marie Skłodowska-Curie Action “Smart and CO2 neutral Olefin Production by arTificial Intelligence and MAchine Learning” (OPTIMAL), 4-year project

2024 Promoter of FWO PhD fellowship “A smart sustainable and stable Mars ISRU process for production of O2 and value-added chemicals”, 4-year project

2020 FWO Postdoctoral Fellowship: Visualization, Modelling and Computation based Process Intensification of CO_2 Capture, 3-year project

2022 International Research Collaboration grant, Ghent University

Commission of Trust – Editorships

2024 Editor, *Chemical Engineering Research and Design*

2024 Editorial Board member, *Chemical Engineering Journal*

2024 Early Career Advisory Board member, *Chemical Engineering and Processing - Process Intensification*

2024 Guest Editor for the special issue “AI for PI”, *Chemical Engineering and Processing - Process Intensification*

2024 Guest Editor for the special issue “High Gravity Chemical Engineering”, *Current Opinion in Chemical Engineering*

2023 Guest editor for the special issue “MTCUE-2022”, *Industrial & Engineering Chemistry Research*

GHENT UNIVERSITY LCT DRIVING CHEMICAL TECHNOLOGY

TEACHING ACTIVITIES

2024 – Now	Lecturer in charge, E071190 - Process intensification, 3 ECTS, UGent
2024 – Now	Lecturer - Guest Professor, B-KUL-H09E5A- Process intensification, 3 ECTS, KU Leuven
2022 – Now	Lecturer in charge, E052730 - Building Chemistry, 3 ECTS, UGent
2023 – Now	Co-lecturer, E040533 - Computational Fluid Dynamics in Chemical Technology, 3 ECTS, UGent
2024 – Now	Co-lecturer, E070080- Chemical Thermodynamics, 6 ECTS, UGent
2022 – 2023	Lecturer in charge, E070160 - Chemistry: Selected Topics, 3 ECTS, UGent

Professional and Scientific Societies and Activities

2025	Member of Scientific Committee, in The 9th European Process Intensification Conference (EPIC 2025), June 4th to 6th, 2025, Athens, Greece.
2025	Member of Scientific Committee, in The International Conference on Mathematics in (bio/food) Chemical Kinetics and Engineering (MaCKiE) 2025, September 3 -5, Izmir, Turkey.
2025	Keynote Speaker (upcoming), in the Future Chemical Engineering Scholar Forum, GACCE-2025, 13-18 August 2025, Queenstown & Auckland, New Zealand.
2024	Keynote speaker, Member of conference organizing committee, Session Chair in the Third International Process Intensification Conference (IPIC3), May 28th to 31st 2024, Beijing, China.
2023	Keynote speaker, The 12th International Conference on Chemical Kinetics (ICCK), June 26 to June 29, 2023, Hefei, China.
2025	Session Chair in 12th International Symposium on Catalysis in Multiphase Reactors and 11th International Symposium in Multifunctional Reactors (CAMURE 12 & ISMR 11), 8-11 September 2024, Belgium.
2022	Session Chair of Engineering processes & products, Process and Plant Design I in13th ECCE and 6th ECAB.
2024 – Now	Member of Centre for Advanced Process Technology for Urban Resource Recovery (CAPTURE), interdisciplinary collaboration UGent, VITO, UAntwerp and VUB: https://capture-resources.be
2022 – Now	Member of Centre for Sustainable Chemistry (CSC), UGent
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.
2018 – Now	Peer reviewer for the following journals: I&EC Research 2023 Excellence in Review Award, Trusted Reviewer of Springer Nature, Nature Chemical Engineering, Chemical Engineering Journal (IF: 13.3), Engineering (IF: 10.1), Current Opinion in Chemical Engineering (IF: 8.0), IEEE Transactions on Neural Networks and Learning Systems (IF: 10.2), 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), and others.

SELECTED PUBLICATIONS

1. A. Kourou, S. Chen, **Y. Ouyang***, Gas-Liquid and Liquid-Liquid Vortex Technology for Process Intensification, Curr Opin Chem Eng (2025).
2. **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.

3. A. Kourou, S. De Langhe, L. Nelis, Y. Ureel, M. Ruitenbeek, K. Biesheuvel, R. Wevers, **Y. Ouyang***, K.M. Van Geem*, Electrification pathways for sustainable syngas production: A comparative analysis for low-temperature Fischer-Tropsch technology, Int J Hydrogen Energy 81 (2024) 974–985.
4. S. Chen, X. Lang, A. Kourou, S. Dutta, K.M. Van Geem, **Y. Ouyang***, G.J. Heynderickx, Enhancing CO2 capture efficiency: Computational fluid dynamics investigation of gas-liquid vortex reactor configurations for process intensification, Chemical Engineering Journal 493 (2024).
5. S. Dutta, S. Roy, X. Lang, S. Chen, R. Kumar, C. Loha, T. Verspeelt, K.M. Van Geem, G.J. Heynderickx, **Y. Ouyang***, Process Intensification of CO2 Desorption in a Gas-Liquid Vortex Reactor, Ind Eng Chem Res (2024).
6. S. Chen, J. Verding, X. Lang, **Y. Ouyang***, G.J. Heynderickx, K.M. Van Geem, Advances in design of internals: Applications in conventional and process intensification units, Chemical Engineering and Processing - Process Intensification 201 (2024) 109806.
7. S. Chen, P. Malego, K.M. Van Geem, **Y. Ouyang***, G.J. Heynderickx, Design and Optimization of Gas-Liquid Vortex Unit Using Computational Fluid Dynamics (CFD) Simulation, Ind Eng Chem Res 62 (2023) 17068–17083.
8. 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.
9. L. Zheng, Y. Qi, H. Liao, H. Zou, **Y. Ouyang ***, Y Luo *, J.-F Chen. Liquid-liquid flow pattern and mass transfer in a rotating millimeter channel reactor. Chemical Product and Process Modeling. (2024).
10. H. Jin, H. Zhong, **Y. Ouyang**, Q. Guo, Q. Xiong, Multiphase Transportation, Conversion, & Utilization of Energy in Chemical Engineering: A Special Issue for MTCUE-2022, Ind Eng Chem Res 62 (2023) 16945–16948.
11. **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.
12. **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.
13. **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.
14. **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.
15. **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.
16. **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.
17. **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.
18. **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.
19. **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.
20. **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.

PATENTS

1. **Y. Ouyang**, K.M. Van Geem, G.J. Heynderickx. Chamber unit for swirling flow interaction. Priority patent filing with reference number EP 24210157.4. filed June 31, 2025.
2. **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. WO/2025/003397. filed June 28, 2024; priority EP 23182595.1