

## **DR. JINWEN CHEN**

Dr. Jinwen Chen is currently the director of hydrocarbon conversion program at CanmetENERGY Devon lab, Natural Resources Canada. He joined CanmetENERGY in 1999 as a research scientist. His research areas and expertise include: biomass conversion and biocrude upgrading; co-processing biocrudes with petroleum; oil sands bitumen and heavy oil production, upgrading and processing; petroleum refining; process modeling, simulation and optimization; life cycle assessment on GHG emissions from oil and gas industry; design, modeling and simulation (including CFD simulation) of multiphase chemical reactors; novel catalysts and catalytic process development; chemical reaction engineering and reactions kinetics; thermodynamics and vapor-liquid phase equilibrium in hydroprocessing systems.

Dr. Jinwen Chen has led and accomplished numerous research projects sponsored by governments and industrial companies to advance fundamental research and new technology development. He established broad national and international collaborations with other federal and provincial government organizations, academia and industry over a wide range of research subjects. He has authored/co-authored over 160 journal and conference proceeding papers, and many industrial client reports. He has been a member of many scientific committees and expert panels to evaluate research proposals, assess centers of research excellence, and organize international conferences, symposia and workshops. Dr. Chen is a member of several journal editorial boards, and a regular reviewer for many prestigious scientific journals. He is a registered professional engineer in Alberta, Canada.

Dr. Jinwen Chen received his bachelor's, master's and Ph. D. degrees from Tianjin University, China. Before joining CanmetENERGY, he worked in Tianjin University, Washington University in St. Louis and University of Calgary as an associated professor, research associate and research scientist, respectively.

### **Selected Publication in Last 5 Years:**

1. Alvarez-Majmutov, A. and Chen, J., "Stochastic Modeling and Simulation Approach for Industrial Fixed-Bed Hydrocrackers", Ind. Engng. Chem. Research, in printing, 2017.
2. Tourvieille, J. N., Larachi, F., Duchesne, C., and Chen, J., "NIR Hyperspectral Investigation of Extraction Kinetics of Ionic-liquid Assisted Bitumen Extraction", Chem. Engng. J., 308, 1185–1199, 2017.
3. Chen, J., De. Crisci, A., and Xing, T., "Review on Catalysis Related Research at CanmetENERGY", Can. J. Chem. Engng., 94, 7-19, 2016.
4. Alvarez-Majmutov, A. and Chen, J., "Molecular-Level Modeling and Simulation of Vacuum Gas Oil Hydrocracking", Energy & Fuels, 30, 138-148, 2016.
5. Pacheco, D., MacLean H. L., Bergerson, J., Chen, J., and Alvarez-Majmutov, A., "Development and Application of a Model to Evaluate Life Cycle Greenhouse Gas Emissions of Oil Sands Upgrading Technologies" Environ. Sci. & Technol., 50 (24), 13574-13584, 2016.

6. Wang, H., Farooqi, H., and Chen, J., "Co-hydrotreating of Light Cycle Oil - Canola Oil Blends", *Frontiers of Chem. Sci. Engng.*, 9(1), 64-76, 2015.
7. Wei, Q., Chen, J., Song, C., and Li, G., "HDS of Dibenzothiophene and Hydrogenation of Tetralin over a SiO<sub>2</sub> Supported Ni-Mo-S Catalyst", *Frontiers of Chem. Sci. Engng.*, 9(3), 336-348, 2015.
8. Alvarez-Majmutov, A. Gieleciak, R., and Chen, J., "Deriving the Molecular Composition of Vacuum Distillates by Integrating Statistical Modeling and Detailed Hydrocarbon Characterization", *Energy & Fuels*, 29, 7931-7940, 2015.
9. Alvarez-Majmutov, A., Chen, J., Gieleciak R., Hager, D., Heshka, N., and Salmon, S., "Deriving the Molecular Composition of Middle Distillates by Integrating Statistical Modeling with Advanced Hydrocarbon Characterization", *Energy & Fuels*, 28 (12), 7385-7393, 2014.
10. Alvarez-Majmutov, A. and Chen, J., "Modeling and Simulation of a Multi-Bed Industrial Hydrotreater with Vapor-Liquid Equilibrium", *Ind. Engng. Chem. Research*, 53, 10566-10675, 2014.
11. Alvarez-Majmutov, A. and Chen, J., "Analyzing the Energy Intensity and GHG Emission of Canadian Oil Sands Crude Upgrading through Process Modeling and Simulation", *Frontiers of Chem. Sci. Engng.*, 8(2), 212-218, 2014.
12. Chen, J., Farooqi, H., and Fairbridge, C., "Experimental Study on Co-hydroprocessing Canola Oil and Heavy Vacuum Gas Oil Blends" *Energy Fuels*, 27, 3306-3315, 2013.
13. Alvarez-Majmutov, A., Chen, J., and Munteanu, M., "Simulation of Bitumen Upgrading Processes", *Petrol. Technol. Quarterly (PTQ)*, Q2, 31-35. 2013.
14. Hamidipour, M., Chen, J., and Larachi, F., "CFD Study and Experimental Validation of Trickle Bed Hydrodynamics under Gas, Liquid and Gas/Liquid Alternating Cyclic Operations", *Chem. Engng. Sci.*, 89, 158-170, 2013.
15. Mondal, D., Villemure, G., Li, G., Song, C., Zhang, J., Hui, R., Chen, J., and Fairbridge, C., "Synthesis, Characterization and Evaluation of Unsupported Porous NiS<sub>2</sub> Sub-micrometer Spheres as a Potential Hydrodesulfurization Catalyst", *Appl. Catal. A: Gen.*, 450, 230-236, 2013.
16. Wang, Y., Chen, J., and Larachi, F., "Modeling and Simulation of Trickle-Bed Reactors Using Computational Fluid Dynamics: A State-of-the-Art Review", *Can. J. Chem. Engng.*, 91, 136-180, 2013.
17. Al-Sabawi, M., Chen, J., and Ng, S., "Fluid Catalytic Cracking of Biomass-Derived Oils and Their Blends with Petroleum Feedstocks: A Review", *Energy & Fuels*, 26, 5355-5372, 2012.
18. Al-Sabawi M. and Chen, J., "Hydroprocessing of Biomass-Derived Oils and Their Blends with Petroleum Feedstocks: A Review", *Energy & Fuels*, 26, 5373-5399, 2012.
19. Shi, Y., Chen, J., Chen, J., Macleod, R. A., and Malac, M., "Preparation and Evaluation of Hydrotreating Catalysts Based on Activated Carbon Derived from Oil Sand Petroleum Coke", *Appl. Catal. A: Gen.*, 441-442, 97-107, 2012.
20. Hamidipour, M., Chen, J., and Larachi, F., "CFD Study on Hydrodynamics in Three-Phase Fluidized Beds – Application of Turbulence Models and Experimental Validation", *Chem. Engng. Sci.*, 78, 167-180, 2012.

21. Munteanu, M. and Chen, J., "Vapor-Liquid Equilibrium (VLE)-Based Modeling for the Prediction of Operating Regimes in a Heavy Gas Oil Hydrotreater Energy & Fuels", 26, 1230–1236, 2012.
22. Chen, S., Chen, J., Gieleciak, R., and Fairbridge, C., "Reactivity Characteristics of Pt-Encapsulated Zeolite Catalysts for Hydrogenation and Hydrodesulphurization", Appl. Catal. A: Gen., 415-416, 70-79, 2012.
23. Yao, S., Song, C., Nan, F., Botton, G. A., Chen, J., Fairbridge, C., Hui, R., and Zhang, J. J., "Synthesis of Hierarchical Structured Porous MoS<sub>2</sub>/SiO<sub>2</sub> Microspheres by Ultrasonic Spray Pyrolysis", Can. J. Chem. Engng., 90, 330-335, 2012.