GHENT UNIVERSITY
GLOBAL CAMPUS

Prof. Dr. ir. Philippe M. Heynderickx
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Ghent University Global Campus
Environmental and Energy Research Center

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Short Biographie

Philippe M. Heynderickx obtained in 2004 his degree of Civil Chemical Engineer (Chemical Technology) magna cum laude. He did his engineers' thesis at the Faculty of Engineering and Architecture (Ghent University) where he focused on selective and total oxidation reactions of hydrocarbons over metal oxide catalysts. After completion of his studies, he started his PhD studies (ibidem) in the field of catalysis. In 2009 he obtained his PhD with a dissertation that dealt with mechanistic insights in heterogeneous catalysis using metal oxide catalysts.

After his PhD, he worked at the Department of Environmental Organic Chemistry and Technology (Faculty of Bioscience Engineering, Ghent University) from 2010 to 2014. The main focus was on (modeling and mathematical description of) heterogeneous photocatalysis processes, biofilters, compound release in micelle utilization and mass spectrometry applications in odor de-tection and fragrance release. From February 2015 on, being a professor at Ghent University Global Campus, his research takes care of modeling of chemical and physical processes and mathematical treatment of experi-mental data. His field mainly focuses on heterogeneous catalysis, kinetics, modeling and characterization of catalyst materials. During these activities, he is affiliated with the Faculty of Bioscience Engineering, Ghent University.

In his research, the main driving force is the mathematical description of physical and chemical processes, i.e., modeling of physical and chemical processes from engineering point of view: towards a better understanding going back to the fundamental basics.

The long-term strategy is the development, construction and implementation of intrinsic kinetic models describing catalytic reactions for daily relevant ap-plications. Especially environmental applications in 'green chemistry' conversion, environmental sensors, catalysis and energy storage applications are envisaged.

Nowadays, he is working on the prediction of catalyst material behavior with respect to conversion and selectivities, e.g., in transesterification and oxidation reactions on MOFs and exploration of industrial relevant reactions using nanomaterials.

He is (co-)author of several publications in high-impact journal and he has presented his research on both national and international important conferences.
He received the Young Scientist Award on the 14th International Congress on Catalysis (ICC) in Seoul, Korea (2008).

Research Area

· Catalysis
· Kinetic studies
· Modelling
· Engineering

Education

(2004) Msc. Chemical Engineering (option Chemical Technology), Laboratory for Chemical Technology (LCT), Department of Chemical Engineering and Technical Chemistry, Faculty of Engineering and Architecture, Ghent University)

(2009) PhD Chemical Engineering (option Chemical Technology, field: catalysis, simulation and modeling), Laboratory for Chemical Technology (LCT), Department of Chemical Engineering and Technical Chemistry, Faculty of Engineering and Architecture, Ghent University

Experience

(2010-2014) Postdoctoral researcher, Department of Environmental Organic Chemistry and Technology (EnVOC), Faculty of Bioscience Engineering, Ghent University

(2015 – now) Professor Environmental Sciences at Ghent University Global Campus (GUGC)

Top 5 Selected Publications

Chaemchuem S., Heynderickx P. M. (co-first author), Verpoort F. Kinetic modeling of oleic acid esterification with UiO-66: from intrinsic experimental data to kinetics via elementary reaction steps, **Chem. Eng. J.** (**IF = 10.652**), 394, 124816 (2020).

Chakraborty J., Nath I., Song, S., Sharmarke M., Heynderickx P. M., Verpoort F. Semiconducting porous organic polymers: visible-light-responsive catalysts for organic transformations. **J. Photoch. Photobio. C.** (**IF = 11.952**), 41, 100319 (2019).

Heynderickx P. M. Dynamic headspace analysis using online measurements: modeling of average and initial concentration. **Talanta** (**IF = 5.339**), 198, 573-584 (2019).

Nath I., Chakraborty J., Heynderickx P. M., Verpoort F. Engineered synthesis of hierarchical porous organic polymers for visible light and natural sunlight induced rapid degradation of azo, thiazine and fluorescein based dyes in a unique mechanistic pathway, **Appl. Catal. B: Environ.** (**IF = 16.683**), 227, 102-113 (2018).

Chakraborty J., Nath I., Jabbour C., Aljammal N., Song S., Kao C.-M., Heynderickx P. M., Verpoort F. Novel rapid room temperature synthesis of conjugated microporous polymer for metal-free photocatalytic degradation of fluoroquinolones. **J. Hazard. Mater.** (**IF = 9.038**), 122928 (2020).

Full Bibliography URL Link

https://biblio.ugent.be/publication?text=Philippe+Heynderickx

Patent / Projects

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Research Field of Interests

· Catalysis
· Kinetic studies
· Modelling
· Engineering

Organization of Interests

visiting, research collaboration, networking, etc.

Gwangju Institute of Science and Technology (GIST)