Curriculum Vitae - Guy B. Marin

Short Bio

Guy B. Marin is founding member of the Laboratory for Chemical Technology (LCT) and the Center of Sustainable Chemistry (CSC) at Ghent University. Prior to that, after a stay as Fulbright fellow at Stanford University and its spin-off Catalytica Associates, he has been teaching at the Department of Chemical Engineering and Chemistry of Eindhoven University of Technology. His research on chemical kinetics and engineering, aimed at the modeling and design of chemical processes and products all the way from molecular up to industrial scale, led in 2015 to a spinoff company. In that year he was also elected as member of the Royal Flemish Academy of Belgium for Sciences and Arts. He co-authored two books, "Kinetics of Chemical Reactions: Decoding Complexity" and "Advanced Data Analysis and Modelling in Chemical Engineering", as well as more than 700 papers in high impact journals and is co-inventor in 6 filed patents. He is executive co-editor of the "Chemical Engineering Journal" (with highest impact factor of the core chemical engineering journals) and co-editor-in-chief of "Current Opinion in Chemical Engineering". He has ample experience as member of International Scientific Advisory Boards and is "Master" of the 111 project of the Chinese Government for overseas collaborations in his field. His ERC Advanced grant on "Multiscale Analysis and Design for Process Intensification and Innovation" paved the way towards transdisciplinary collaborations in the context of the transition from a linear to a circular economy.

Personal Information

Name	Professor Dr Guy B. Marin
Address:	Rector's office Sint-Pietersnieuwstraat 25, 9000 Ghent, Belgium
E-mail:	Guy.Marin@UGent.be
Website:	https://www.lct.ugent.be/people/guy-b-marin
ORCID ID	0000-0002-6733-1213

Current Positions

'20-	Special Advisor to the Rector on "Sustainable Chemistry and Sustainable Ports" at Ghent University
'19-	Professor Emeritus in Chemical Reaction Engineering at Ghent University
'15-	Director of AVGI, a Ghent University spinoff company

Previous Positions

‘97 – ‘19 Full Professor in Chemical Engineering and Director of the Laboratory for Chemical Technology (LCT), Ghent University

‘88 – ‘97 Full Professor in Chemical Technology, Eindhoven University of Technology (TU/e), the Netherlands

‘86 –‘ 88 Tenured Assistant Professor, Laboratorium voor Petrochemische Techniek (LPT) at Rijksuniversiteit Gent (now Ghent University)

‘81 – ‘85 Tenure-track Assistant Professor, LPT at Rijksuniversiteit Gent (now Ghent University)

‘80 - ‘81 Research Fellow at Catalytica Associates/ Post-doctoral Fulbright fellow at Stanford University, USA

Education

1981 Post-doctoral Student at Stanford University, USA

1980 Ph.D. in Chemical Engineering, summa cum laude at Rijksuniversiteit Gent (now Ghent University)

1976 Master in Chemical Engineering, magna cum laude at Rijksuniversiteit Gent (now Ghent University)

Contract research for the European Union (selection of recent years)

‘19-‘20 “Energy-X: Transformative Chemistry for a Sustainable Future” € 73.000, H2020

‘18-‘21 “Plastic waste over SYngas to CHEmicals“ (PSYCHE) € 620.000, Interreg Frankrijk/Wallonië/Vlaanderen

‘17-‘20 “Turning industrial waste gases (mixed CO/CO2 streams) into intermediates for polyurethane plastics for rigid foams/building insulation and coatings” (CARBON4PUR) € 807.000, H2020

’15-‘19 “Adaptable Reactors for Resource- and Energy-Efficient Methane Valorisation” (ADREM) € 670.000, H2020

‘14-‘18 “FAST industrialisation by Catalysts R&D” (FASTCARD) € 800.000 (total budget € 10.000.000), FP7

‘12-‘14 “Model-based optimization & control for process-intensification in chemical and biopharmaceutical systems” (OPTICO) € 288.000, FP7

‘09-‘13 “Multiscale Modeling of Chemical and Biochemical Systems” (MULTIMOD) € 315.000, Seventh Framework Programme, FP7

‘09-‘14 “Oxidative Coupling of Methane followed by Oligomerization to Liquids” (OCMOL) € 830.000 (total budget € 7.593.000), coordinator, FP7

Contract research with industry

Recent years (selection)

‘17-‘21 “Generation of calibrated kinetic models for steam cracking using an improved version of the network generation software 'Genesys”, Total

‘17-‘19 “TAP reactor study for methane conversion”, Shell

‘16-‘20 “Process analysis of oxidative coupling of methane based on microkinetic modelling”, Total

‘16-‘20 “Automatic generation of kinetic models for the pyrolysis of hetero atomic systems”, DOW

‘16-‘20 “Inductive alloy heating”, Schmidt+Clemens

‘14-‘18 “Improving cracking furnace availability by evaluating anti-coking technologies, improved operational protocols and modelling and by investigating coke-metal furnace interactions (ICrA)”, Total

‘13-‘17 “Simulation and design of novel steam cracking reactors and furnaces using Computational Fluid Dynamics”, BASF

Exhaustive list of industrial partners

Air Liquide, Akzo-Nobel, AlbeMarle, Amoco, Aramco, BASF, BP Oil, Bekaert, Borealis, British Gas, CPChem, CRI, Cirmac, Degussa, Demkolec, Dow, DSM, Dupont de Nemours, Enigas, Enirecherche, Elf Acquitaine, Eurokin, Fina Research, Gastec N.V., Gasunie, Gaz de France, GE Global Research, General Electric Power and water, IFP, ICI Katalco, Ineos, Indaver, Ingenero, ISTEMA, Johnson Matthey, LG Petrochemicals, Linde A.G., Lubrizol, Manoir, Neste Oil, Proviron Fine Chemicals, SABIC Petrochemicals, Sastech, Saudi Polymer , Saybolt , Shaw Energy & Chemicals International Inc., Shaw Stone and Webster, Shell, Statoil, Stork Comprimo, Syntroleum, Technip Benelux, Total, Total Petrochemicals, UCB, Union Carbide, UOP-Honeywell, VTT.

Bibliometric Analysis

WOS 19274 citations (excl. self-citations), h-index = 73, 737 publications.

Quantitative summary of scientific activities and collaborations

More than 600 contributions to international congresses, editorship of more than 40 special issues, advisor of 105 PhD theses, more than 50 projects with budget higher than € 250.000 of which 7 EC and 16 bilateral with companies,6 patents filed,1 Proof of Concept ERC grant.

Books and publications (selection)

- *Kinetics of Chemical Reactions: Decoding Complexity*. G.B.Marin, G. Yablonsky and D. Constales (Wiley-VCH, 2nd edition 2019)
- *Advanced Data Analysis and Modelling in Chemical Engineering.* D. Constales, G. Yablonsky, D. D'hooge, J.Thybaut, G.B. Marin (Elsevier, 2017)
- *The reaction mechanism of the partial oxidation of methane to synthesis gas: a transient kinetic study over rhodium and a comparison with platinum*. E.P.J. Mallens, J.H.B.J. Hoebink, G.B. Marin (Journal of Catalysis, 167, 43-56, 1997)
- *Design of adiabatic fixed-bed reactors for the partial oxidation of methane to synthesis gas. Application to production of methanol and hydrogen-for-fuel-cells.* C.R.H. de Smet, M.H.J.M. de Croon, R.J..Berger, G.B. Marin, J.C. Schouten (Chemical Engineering Science, 56, 4849-4861, 2001)
- *Understanding the failure of direct C-C coupling in the zeolite-catalyzed Methanol-to-Olefin Process.* D. Lesthaeghe, V.V. Speybroeck, G.B. Marin, M. Waroquier Angewandte (Chemie International Edition, Very Important Paper (VIP), 45, 1714-1719, 2006)
- *Simulation of Heterogeneously MgO-Catalyzed Transesterification for Fine-Chemical and Biodiesel Industrial Production.* T.F. Dossin, M.-F. Reyniers, R.J. Berger, G.B. Marin (Appl. Cat. B Environmental, 67, 136-148, 2006)
- *Comprehensive Reaction Mechanism for n-Butanol Pyrolysis and Combustion.* Harper, M.R.; Van Geem, K.M.; Pyl, S.P.; Marin, G.B.; Green, W.H. (Combustion and Flame, 158, 1, 16-41, 2011)
- *Linear Gradient Quality of ATRP Copolymers.* Van Steenberge, P.; D'hooge, D.R.; Wang, Y.; Zhong, M.; Reyniers, M.-F.; Konkolewicz, D.; Matyjaszewski, K.; Marin, G.B. (Macromolecules, 45 (21), 8519-8531, 2012)
- *Super-dry reforming of methane intensifies CO2 utilization via Le Chatelier's Principle.* Buelens, L.C.; Galvita, V.V.; Poelman, H.; Detavernier, C.; Marin, G.B. (Science, 354 (6311), 449-452, 2016)
- *The Chemical Route to a Carbon Dioxide Neutral World.* Martens, J.; Bogaerts, A.; De Kimpe, N.; Jacobs, P.; Marin, G.B.; Rabaey, K.; Saeys, M.; Verhelst, S. (ChemSusChem, 10, 1-18, 2017)
- *New Trends in Olefin Production.* Amghizar, I.; Vandewalle, L.A.; Van Geem, K.M.; Marin, G.B. (Engineering, 3 (2), 171-178, 2017)
- *Upgrading the value of anaerobic digestion via chemical production from grid injected biomethane.* Verbeeck, K.; Buelens, L.C.; Galvita, V.V.; Marin, G.B.; Van Geem, K.M.; Rabaey, K. (Energy & Environmental Science, 11 (7), 1788-1802, 2018)
- *Making chemicals with electricity.* Van Geem, K.M.; Galvita, V.V.; Marin, G.B. (Science, 364 (6442), 734-735, 2019 Perspective paper)

Current Commissions of Trust (selection)

’21-‘25	Member of the Scientific Council of Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA), France
’21-	Member of selection panels of the European Research Council (ERC) and the European Innovation Council (EIC)
’21-’23	Co-editor-in-chief of “Current Opinion in Chemical Engineering”
’19-‘22	Member of the Scientific Advisory Board (WAR, Wetenschappelijke Advies Raad) Flanders Innovation Moonshot Programme, Belgium
’19-‘22	Member of Stevin Prize selection committee Dutch Research Council (NWO), The Netherlands
’18-‘24	Vice-Chair of the Scientific Advisory Board of Advanced Research Center for Chemical Building Blocks Consortium (ARC CBBC), The Netherlands
’16-‘22	Member of VILLUM FOUNDATION working group for Technical and Natural Sciences Research (TNF) Danish major funding organization, Denmark
’07-‘23	Co-editor of “Chemical Engineering Journal”, section “Chemical Reaction Engineering”

Previous Commissions of Trust /Last 10 years (selection)

’08-‘21	Founding Member of the Board of Directors of the European Research Institute for Catalysis (ERIC)
’04-‘20	Editor-in-Chief of the series “Advances in Chemical Engineering”
’98-‘19	Founding member of the Steering Committee of EUROKIN, a consortium of corporate R&D and top academic groups aimed at the study and application of kinetics of heterogeneously-catalysed reactions
’17-’18	Member of the International Review Committee for Chemical Engineering and Biotechnology, University of Cambridge, United Kingdom
’17-’18	Chair of the evaluation Panel for R&D Units of the area "Chemical and Biological Engineering, and Environmentally Sustainable Chemistry” FCT, Portugal

’14-’18 Co-opted member of the Scientific Advisory Board of the Centre National de la Recherche Scientifique, CNRS, France

’14-’18 Co-opted member of the Scientific Advisory Board of the “Institut des Sciences de l'Ingénierie et des Systèmes (CSI INSIS)”, CNRS, France

’12-’15 Member of the Scientific Committee for Engineering Sciences of Science Europe (ENGITECH)

’14 Remote Member of Advanced and Consolidator Grant evaluation panels "PE8 Products and Processes Engineering", European Research Council (ERC)

’14 Member of panel “Benchmarking the International Competitiveness of Chemical Engineering Research in the UK”, Engineering and Physical Sciences Research Council (EPSRC), United Kingdom

’14-’16 Member of Panel of International Experts of the VILLUM FOUNDATION Jubilee Initiative 2016 awarding 20 million EUR to create a “VILLUM Center for the Science of Sustainable Fuels and Chemicals”, Denmark

’13 Chair of Consolidator Grant evaluation panel PE8 “Products and Processes Engineering”, European Research Council (ERC)

’11 Shadow Chair of Starting Grant evaluation panel PE8 “Products and process engineering”, European Research Council (ERC)

’11-’17 Chair of the Working Party on Chemical Reaction Engineering of the European Federation of Chemical Engineering (EFCE)

’10 Member of the Vici commission 2010 of the Division Chemical Sciences of the Dutch research foundation NWO, Utrecht, The Netherlands

‘10 Member of the evaluation committee of the “Laboratoire de Génie des Procédés Catalytiques” CNRS/CPE (AERES), Lyon, France

‘08-‘18 Member of the Scientific Council of IFP-Energies Nouvelles (IFPEN), France

’05-’17 Chair of the department of Chemical Engineering Ghent University, Belgium

’05-‘10 Founding Member of the Governing Board of IDECAT (Integrated Design of Catalytic Nanomaterials for a Sustainable Production), European Network of Excellence

During tenure at Eindhoven TU/e (selection)

'95-'97 Chair of the Department of Process Technology of the Faculty of Chemical Engineering and Chemistry, Eindhoven TU/e, The Netherlands

'95-'97 University Council of the Eindhoven University of Technology, Eindhoven
Board of Directors of the Graduate School Process Engineering of the Dutch universities (OSPT), The Netherlands

'94-'97 Member of the Board of directors of the Netherlands Institute for Chemical Engineering Research (OSPT), The Netherlands

'92-'97 Member of the Board of directors of the Netherlands Institute for Catalysis Research (NIOK), The Netherlands

'91-'09 Founding Member of the Board of directors of the Flemish Institute for Technological Research (VITO), Belgium

'91-'95 Chair of the Faculty Council of the Faculty of Chemical Engineering and Chemistry, Eindhoven TU/e, The Netherlands

Other services to the scientific community

Member of the editorial board of

Current Opinion in Chemical Engineering, Industrial & Engineering Chemistry Research Journal (I&EC Research), Canadian Journal of Chemical Engineering, Applied Catalysis A: General, Transactions IchemE part A: Chemical Engineering Research and Design, Official journal of the European Federation of Chemical Engineering, Encyclopedia of Catalysis (J.Wiley & Sons)

Reviewer of research proposals for

Interdisciplinary Circular Economy Centres Call of European Science Foundation (UKRI), Swiss National Science Foundation (CH), Office of Basic Energy Sciences within the Department of Energy Office of Science (USA), Council for Natural Sciences and Engineering (FI), The Royal Society (UK), Swedish Research Council (SE), American Chemical Society Petroleum Research Fund (USA), European Research Foundation, Israel Science Foundation (IL), Deutsche Forschungs Gemeinschaft (DE), Agence Nationale de la Recherche (FR), Agence de la Transition Ecologique (FR), Russian Science Foundation (RU), King Abdullah University of Science and Technology (SA), Natural Sciences and Engineering Research Council of Canada (CA)

Examining board for Ph.D. theses or Habilitations (excl Netherlands and Belgium)

Paris (FR), Trondheim (NO), Villeurbanne (FR), Solaize (FR), Cape Town (ZA), Poitiers (FR), Lyon (FR), Lille (FR), Chennai (IN), Turku (FI), Manchester (UK), Toulouse (FR), Caen (FR), Magdeburg (DE), Aalto (FI), Shanghai (CN), Copenhagen (DK)

Evaluator of applications for internal promotion or awards for
University of Cambridge (UK), Washington University in St.Louis (USA), Purdue University (USA), Chinese University of Hong Kong Shenzen (CN), Princeton University (USA), University of Houston (USA), ETH Zurich (CH), University of California Los Angeles (USA), University of Aberdeen (UK), Ben Gurion Univ. of the Negev (IL), King Fahd University of Petroleum & Minerals (SA), King Abdullah University of Science and Technology (SA), Kiev Polytechnic Institute (UA), Ecole Centrale de Lille (FR), Aalto University (FI), Michel Boudart Award for the Advancement of Catalysis by the North American Catalysis Society and the European Federation of Catalysis Societies (EFCAT), Koç University (Istanbul,Turkey)

MaCKiE Conferences: "Mathematics in (bio)Chemical Kinetics and Engineering"
This series of topical conferences was launched in 2002 at Ghent University. Since then, it has been held regularly with Ghent as home basis but also in Houston (2007), Heidelberg (2009), Chennai (2013), Budapest (2017) and Shanghai (2021).

Awards and Honours

'21	Dieter Behrens Medal 2021 from the European Federation of Chemical Engineering for "outstanding contributions to the multi-scale modelling and design of catalytic, thermal and polymerization processes, reactors and products, combining fundamental understanding with industrial practice"
'20-'21	Professor Mikhail Slin'ko Honorary Lecture «Chemical reaction and reactor engineering: a key discipline for process optimization, innovation and intensification» at the XXIV International Conference on Chemical Reactors ChemReactor-24 in Milan
'18	Guest Professor at Aalto University
'17-	Honorary Professor of Tianjin University
'15-	Elected member of Technical Sciences Section of the Royal Flemish Academy of Belgium for Sciences and Arts (KVAB)
'12-'17	Advanced Grant "Multiscale Analysis and Design for Process Intensification and Innovation" (MADPII), European Research Council (ERC)
'12	P.V. Danckwerts Memorial Lecture Chemical Engineering and Kinetics: A "Pas de Deux" of Theory And Experiment, by the American Institute of Chemical Engineers (AIChE, US), the Institution of Chemical Engineers (IChE, UK) and the European Federation of Chemical Engineering (EFCE) in Pittsburgh (US)
'09-'19	"Methuselah" Endowed Chair "Multi-scale Modeling and design of chemical Reactions and Reactors" (M2dcR2) by the Flemish Government

‘08-‘24 “Master” of the “111” project in the field of “Chemical Reaction Engineering” by the Ministry of Education of the People's Republic of China -State Administration of Foreign Experts Affairs. This programme selects 10 overseas experts for each field in science and engineering with one of them as “master”.