

Prof. Dr.-Ing. Wolfgang Marquardt

Professor for Process Systems Engineering
RWTH Aachen University, on leave

Chairman of the Board of Directors
Forschungszentrum Jülich GmbH
52425 Jülich, Germany

born 1956 in Böblingen, Germany
married, one daughter



Education

- 1976 - 1982 Chemical Engineering at University of Stuttgart, Dipl.-Ing.
- 1988 Ph.D., advisor: Prof. E. D. Gilles at the University of Stuttgart
- 1992 Habilitation at the University of Stuttgart in the area of process dynamics and process operations

Professional Experience

- 1982 - 1988 PhD student at the Institute for System Dynamics and Control of the University of Stuttgart, Prof. E. D. Gilles
- 1988 - 1992 Research Associate (C1) at the Institute for System Dynamics and Control of the University of Stuttgart, Prof. E. D. Gilles
- 1989 - 1990 Postdoctoral fellow at the Department of Chemical Engineering, University of Wisconsin, Madison, with the group of Prof. W. H. Ray
- 1993 - 2014 Professor (C4) for Process Systems Engineering at RWTH Aachen
- 1996 Offer of ETH Zürich (Professor in Process Systems Engineering)
- 1996 Offer of Max-Planck-Institut for Dynamics of Complex Technical Systems, Magdeburg (Scientific Member and Director, Process Systems Engineering Department)
- 1999 Visiting Professor, University of Wisconsin, Madison, USA
- 2002 Co-Founder of technology transfer platform AixCAPE e.V., Aachen
- 2002 - 2014 Chairman of the Board of AixCAPE e.V., Aachen
- 2004 Visiting Professor, TU Delft, The Netherlands
- 2006 - 2011 Co-Director of Center of Computational Engineering Science (CCES), RWTH Aachen

- 2007 - 2009 Spokesperson of Aachener Verfahrenstechnik, RWTH Aachen
- 2010 Co-Founder of spin-off company S-Pact GmbH
- 2011 - 2014 Chairman of the German Council of Science and Humanities (WR)
- since 2014 Professor for Process Systems Engineering at RWTH Aachen, on leave
- since 2014 Chairman of the Board of Directors of Forschungszentrum Jülich GmbH
- since 2014 Vice-President of the Helmholtz Association

Professional Activities – Cooperative Research Centers

- 1997 - 2006 Co-Director of the Collaborative Research Center CRC 476 "Information technology support of chemical engineering design processes" at RWTH Aachen
- 1999 - 2009 Director of the Collaborative Research Center 540 "Model-based experimental analysis of kinetic phenomena in reactive fluid multi-phase systems" at RWTH Aachen
- 2006 - 2011 Member of the Steering Committee of the Graduate School AICES (Aachen Institute for Advanced Study in Computational Engineering Science)
- 2007 - 2011 Member of the Steering Committee of the Cluster of Excellence „Tailor-made Fuels from Biomass (TMFB)“

Professional Activities – Editorial Boards

- 1994 - 2008 Regional Editor (Europe, Middle East, Africa) of the "Journal of Process Control"
- 2002 - 2017 Member of the International Advisory Board of "Chemical Engineering Science"
- 2004 - 2017 Member of the Editorial Board of "Computers and Chemical Engineering"
- 2006 - 2008 Member of the International Advisory Board of "atp – Automatisierungstechnische Praxis"
- 2006 - 2009 Member of the Editorial Advisory Board of "Industrial & Engineering Chemistry Research"
- 2008 - 2014 Member of the Editorial Board of "International Journal of Process Systems Engineering"
- 2009 - 2014 Editor-in-Chief of the "Journal of Process Control"
- 2011 - 2017 Member of the Editorial Board of "Current Opinion in Chemical Engineering"
- since 2012 Member of the Advisory Board of the "Brazilian Journal of Chemical Engineering"

Professional Activities – Science Policy and Advisory Councils

- since 1998 Member of the Nordrhein-Westfälische Akademie der Wissenschaften und Künste (North-Rhine Westphalian Academy of Sciences and Arts)

- since 2002 Member of Deutsche Akademie der Technikwissenschaften (German Academy of Engineering Sciences)
- 2010 - 2015 Member of the Scientific Commission of the Council of Science and Humanities (Wissenschaftsrat, WR)
- since 2014 Member of Leopoldina, the German National Academy of Sciences
- since 2014 Member of the Council for Information Infrastructures (Rat für Informationsinfrastrukturen) of the German Federal and State Governments
- 2015 - 2017 Member of the IT Summit Platform “Digitalisation in Science” (IT-Gipfel-Plattform “Digitalisierung in Bildung und Wissenschaft”) of the German Federal Government
- since 2017 Member of the LENA-Rat (Advisory Board to the BMBF on the implementation of sustainability measures in German research institutions)

Professional Activities – Scientific and other Advisory or Evaluation Boards

- 2006 - 2014 Member of the Scientific Advisory Board of “Next Infrastructure Generation Foundation”, TU Delft, The Netherlands
- 2010 - 2011 Member of the Scientific Advisory Board of “Mercator Research Center Ruhr (MERCUR)”
- since 2011 Member of the Scientific Advisory Board of DSM, Geleen, NL
- since 2013 Member of the CBME Departmental Advisory Board, Hongkong University of Science and Technology (HKUST)
- 2014 - 2015 Member of the Scientific Advisory Board of IWR, University of Heidelberg
- since 2014 Member of the Advisory Board of MINT Kolleg, Haus Overbach, Jülich
- since 2014 Member of the Advisory Board of Technologiezentrum Jülich
- since 2015 Member of the Scientific Advisory Board of the Energy Institute at Texas A&M
- 2016 - 2017 Member of Evaluation Committee of Elitenetzwerk Bayern
- since 2017 Member of the Steering Committee of the Max Planck Schools
- 2017 - 2018 Chair of the Evaluation Committee of Einstein Stiftung
- 2017 - 2018 Member of the Structure Commission Technische Universität Nürnberg
- 2018 - 2019 Chair of the Evaluation Committee of Stiftung Mercator

Professional Activities – University and Research Councils

- 1999 - 2003 External Examiner in the Master-Program "Process Systems Engineering" at Imperial College, London
- 1999 - 2008 Chairman of the Commission of the Center for Computing and Communication, RWTH Aachen University
- 2000 - 2008 Delegate of Department of Mechanical Engineering at Fakultätentag Maschinenbau und Verfahrenstechnik (the union of all mechanical and chemical engineering departments at German universities)

- 2002 Chairman of the Strategy Commission of Fakultätentag Maschinenbau und Verfahrenstechnik
- 2003 - 2004 Chairman of Fakultätentag Maschinenbau und Verfahrenstechnik
- 2005 - 2006 Vice-Chairman of Fakultätentag Maschinenbau und Verfahrenstechnik
- 2004 Member of the Research Panel „Industrial Chemistry and Chemical Engineering“ of the German Science Foundation (DFG)
- 2004 - 2010 Member of the Senate and of the Executive Committee of the German Science Foundation (DFG)
- 2006 - 2011 Elected member of reviewer panel “Chemical and Energy Engineering” of AIF (Arbeitsgemeinschaft industrieller Forschungsvereinigungen, Gruppe 2, Energie- und Verfahrenstechnik, Untergruppe 2.3, Chemische Verfahrenstechnik)
- 2007 - 2011
2014 - 2017 Member of the Strategy Board of RWTH Aachen University
- 2008 - 2011 Member of the Strategy Board of the University Hospital and the Medical Faculty of RWTH Aachen University
- 2011 - 2014 Guest Member of the Senate of Fraunhofer Gesellschaft (ex officio as Chairman of WR)
- 2011 - 2014 Guest Member of the Senate of Max Planck Society (ex officio as Chairman of WR)
- 2011 - 2014 Member of the Senate of Leibniz-Gemeinschaft (ex officio as Chairman of WR)
- 2011 - 2014 Member of the Senate of Helmholtz Association (ex officio as Chairman of WR)
- 2011 - 2014 Member of the Board of Stifterverband für die Deutsche Wissenschaft (ex officio as Chairman of WR)
- since 2018 Chairman of the Universitätsrat of Friedrich-Schiller Universität Jena

Professional Activities – Professional Boards and Organizations

- 1992 - 2014 Member of ProcessNet Working Group Process Simulation and Synthesis
- 1994 - 2014 Member of ProcessNet Working Group Process and Plant Engineering
- 1994 - 2008 Member of the Technical Committee 'Chemical Process Control' of the International Federation of Automatic Control (IFAC)
- 1998 - 2010 Member of ProcessNet Working Group Computer-Aided Plant Engineering
- 1999 - 2006 Member of the Board of VDI-Gesellschaft Verfahrenstechnik und Chemie-Ingenieurwesen GVC
- 2002 - 2008 Chairman of the Technical Committee Chemical Process Control of the International Federation of Automatic Control (IFAC)
- 2003 - 2006 Member of the Board of Gesellschaft Deutscher Ärzte und Naturforscher e.V.
- 2004 - 2006 Member of the IFAC Awards Committee

- 2006 - 2007 Member of the Board of Ce-Des, Center for Seawater Desalination, Duisburg, Germany
- 2006 - 2010 Member of the Executive Committee of VDI-Gesellschaft Verfahrenstechnik und Chemie- Ingenieurwesen (GVC)
- 2006 - 2010 Member of the Board of ProcessNet, a joint activity of VDI-GVC and Dechema
- 2006 - 2011 Member of the Executive Board of International Symposium Series on Process Systems Engineering
- 2009 - 2014 Member of the Publications Committee of the International Federation of Automatic Control (IFAC)
- since 2019 Member of the Board of Dechema e.V.

Professional Activities – Member of Award Juries

- 1997 - 2002 Member of the Jury of the She-Study-Award of Deutsche Shell
- 2001 - 2010 Member of the Jury for the Friedrich Wilhelm Award of RWTH Aachen
- 2011 - 2014 Member of the Jury for the Gottfried Wilhelm Leibniz Award of DFG
- 2013 - 2018 Member of the Jury for the Innovationspreis and Zukunftspreis of the Berthold Leibinger Stiftung
- since 2014 Member of the Jury of the Minvera-Preis, Jülich
- since 2014 Member of the Jury for the AC² Gründungswettbewerb of Gründer Region Aachen
- since 2015 Member of Members of the Selection Committee for the Allocation of the Alexander von Humboldt Professorship - International Award for Research in Germany, Alexander von Humboldt Association

Honors and Awards

- 1979 Book award of VDI-Gesellschaft Verfahrenstechnik und Chemie-Ingenieurwesen (GVC) for Vordiplom in Chemical Engineering
- 1988 Preis der Vereinigung von Freunden der Universität Stuttgart e.V. (for dissertation)
- 1989 NATO fellowship for post-doctoral research
- 1990 Arnold-Eucken-Preis of VDI-Gesellschaft Verfahrenstechnik und Chemie-Ingenieurwesen (GVC)
- 1997 Best Paper Award, Int. Conf. on Distillation & Absorption, Maastricht
- 1999 Olaf A. Hougen Visiting Professor at the Department of Chemical Engineering, University of Wisconsin, Madison
- 2001 Leibniz-Preis der Deutschen Forschungsgemeinschaft (DFG)
- 2003 Best Paper Award, Int. Conf. Foundations of Process Operations, 2003
- 2004 Best Paper Award, Int. Conf. on Foundations of Process Design, 2004

2004	11th Roger Sargent Lecture, December 12, 2004, Imperial College London
2005	Best Paper Award, Escape-15, 2005
2006	Best Poster Award, Adchem 2006
2007	Fellow of the International Federation of Automatic Control (IFAC Fellow)
2007	Engineering Applications of Artificial Intelligence, Top Cited Article during 2005-2010
2008	Danckwerts Lecture 2008, AIChE and IChemE, AIChE Annual Meeting, Philadelphia
2009	Best Poster Award, Int. Conf. Process Systems Engineering, PSE 2009
2010	atp Award, Automationskongress, Baden-Baden, 2010
2011	Best Paper Award, Computers and Chemical Engineering
2012	Honorary Professor of Dalian University of Technology, China
2015	Annual Award "Tools" 2014 of Automatisierungstechnik (for paper D. Elixmann et al., at – Automatisierungstechnik, 62 (2014), 150-161)
2016	Nordic Process Control Award

Selected Invited Keynote Lectures

1991	Int. Conf. Chemical Process Control, CPC IV, South Padre Is. TX, USA (K)
1994	Int. Conf. Process Systems Engineering, PSE 1994, Korea (P)
1995	Int. Conf. Intelligent Systems in Process Engineering, Snowmass, CO, USA (K)
1997	IFAC Symposium on Advances in Chemical Process Control, ADCHEM-94, Banff, CA, USA (K)
1998	Inf. Conf. Foundations of Computer-Aided Process Operations, Snowbird, Utah, USA (K)
1999	Int. Conf. Foundations of Computer-Aided Process Design, Breckenridge, CO, USA (K)
2001	Int. Conf. Chemical Process Control, CPC-6, Tucson, AZ, USA (K)
2002	European Symposium on Computer Applications, ESCAPE-12, The Hague , NL (P)
2003	Int. Conf. Process Systems Engineering, PSE 2003, Kunming, China (P)
2004	European Symposium on Computer Applications, ESCAPE-14, Lisbon, P (P)
2004	Int. Conf. Foundations of Computer-Aided Process Design, Princeton, NJ, USA (K)
2005	10th World Congress of Chemical Engineering, Glasgow, Scotland, UK (K)
2006	Advances in Process Analytics and Control, APACT 2006, Oxford, UK (K)
2006	Green Solvents in Processes 2006, Friedrichshafen, D (P)
2006	Coloquio Anual de Engenharia Quimica 2006, PEQ, COPPE, UFRJ, Brazil (P)

- 2007 European Symposium on Computer Applications, ESCAPE-17, Bukarest, Rumania (P)
- 2007 Int. Symp. on Sustainable Chemical Product and Process Engineering, Guangzhou, China (P)
- 2008 Fifth International Conference on Automatic Differentiation, AD 2008, Bonn, D (K)
- 2008 1st Europ. Conf. on Process Analytics & Control Technology, EUROPACT 2008, Frankfurt (P)
- 2009 Int. Conf. Process Systems Engineering, PSE 2009, Salvador, Bahia, Brazil (P)
- 2010 Int. Symp. on Sustainable Chemical Product and Process Engineering, Hangzhou, China (P)
- 2010 23rd Int. Conf. on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2010, Lausanne, Switzerland (P)
- 2010 Distillation & Absorption DA2010, Eindhoven, NL (P)
- 2011 Int. Conf. Membranes and Membrane Processes, ICOM' 11, Amsterdam, NL (P)
- 2012 Int. Conf. Process Systems Engineering, PSE 2012, Singapore (P)
- 2012 23rd China Process Control Conference (CPCC) (P)
- 2013 12th World Congress of Chemical Engineering, Seoul, Korea (P)
- 2014 ProcessNet, Aachen (P)
- 2017 Int. Conference on National Science and Innovation Centers, Huariou, Beijing, China (K)

Conference Assessment Plenaries

- 2008 European Symposium on Computer Applications, ESCAPE-18, Lyon, 2008
- 2008 Int. Conf. Foundations of Computer-Aided Process Operations, Cambridge, MA, 2008

Selected Review and Evaluation Activities

- Journals
- Applied Numerical Mathematics
 - Applied Spectroscopy
 - Automatica
 - AIChE Journal
 - Biomass & Bioenergy
 - BioSystems
 - Bioresource Technology
 - Canadian Journal of Chemical Engineering
 - Chem. Biochem. Eng.. Q. Journal
 - Chemical Engineering Communications
 - Chemical Engineering Journal
 - Chemical Engineering Science

Chemical Engineering and Processing
 Chemical Engineering Research and Design
 Computers and Chemical Engineering
 Desalination
 Engineering Applications of Artificial Intelligence
 Green Chemistry
 Heat and Mass Transfer
 Holzforschung
 Industrial Engineering Chemistry Research
 International Journal of Heat and Mass Transfer
 International Journal of Robust and Nonlinear Control
 International Journal of Thermal Sciences
 Journal of Chemometrics
 Journal of Process Control
 Journal of Membrane Science
 Mathematics and Computer Modelling
 Mathematical and Computer Modelling of Dynamical Systems
 Optimization in Engineering
 SIAM Journal of Scientific Computing

Research	ACS Petroleum Fund (USA) AIF (Arbeitsgemeinschaft Industrieller Forschungsvereinigungen, D) BMBF (German Ministry of Education and Research, D) DFG (German Science Foundation, D) EPSRC (UK) ERC (EU) FWF (Austria) IWT, Institute for the Promotion of Innovation by Science and Technology in Flanders (B) Middle East Desalination Center (UAE) Volkswagen Foundation (D) Netherlands Organization for Scientific Research, NWO (NL) National Science Foundation (USA) Research Council of Norway (N) Schweizerischer Nationalfonds (CH) Mercator Foundation (D) Swedish Research Council (S)
Institutions	Stuttgart University (D): Departments of Mechanical Engineering and Aerospace Engineering Oulu University (FL): Faculty of Engineering Engineering Faculties of the Otto-von-Guericke University, Magdeburg, D
Education	Imperial College, London (UK): MSc in Sustainable Energy Futures
Scholarships	Deutscher Akademischer Austauschdienst – DAAD (D) Studienstiftung des deutschen Volkes (D) Alexander von Humboldt Foundation (D)
Dissertations	Berlin Technical University (D) Chalmers University, Göteborg, (S)

Danish Technical University, Lyngby (DK)
Delft Technical University (NL)
Dortmund Technical University (D)
Eindhoven Technical University (NL)
EPFL, Lausanne (CH)
Imperial College, London (UK)
Lund Institute of Technology, Lund (S)
McMaster University, Hamilton, Ontario (CA)
NTNU, Trondheim (N)
RWTH Aachen University (D)
Stuttgart University (D)
UMIST, Manchester (UK)
University Otto-von-Guericke Magdeburg (D)

Habilitations Université Pierre-et-Marie-Curie, Paris 6

Research Areas (until 2014)

Research is focused on the development and application of model-based methods in process systems engineering including modeling and analysis of chemical process systems, process synthesis, process operations and control, product design, model-based experimental analysis of chemical process systems, numerical methods (simulation, inverse problems, dynamic optimization), and information technology (methods and tools) for the support of model-based design processes. Advances in methods-oriented research areas are benchmarked and applied to various application problems including biorenewables processing, polymerization, seawater desalination and wastewater treatment, biofuel design, design of hybrid separations (rectification, extraction, absorption, membrane processes, crystallization), design of reactor systems, real-time optimization of chemical process systems, identification of meso-scale kinetics such as reaction kinetics and transport phenomena, calibration of high-resolution measurement devices (spectroscopy, chromatography, FBRM, etc.).

Teaching Activities (until 2012)

Mandatory Course, Mechanical Engineering (B.Sc.)
Simulation Techniques
Mandatory Course, Mechanical Engineering, (B.Sc.), major in Chemical Engineering
Conceptual Chemical Process Design
Mandatory Course, Chemical Engineering (M.Sc.) Modeling and Analysis of Technical Systems
Elective Course, Mechanical Engineering (B.Sc.), major in Chemical Engineering
Computer-Aided Process Design
Elective Courses, Chemical Engineering (M.Sc.), Computational Engineering Science (M.Sc.), Simulation Sciences (M.Sc.)
Plantwide Process Control
Applied Numerical Optimization
Mandatory Courses, Computational Engineering Science (B.Sc.)
Simulation Techniques I - Introduction
Simulation Techniques II – Fundamentals
Model-based Experimental Analysis