

Professor Meihong Wang

Fellow of European Academy of Sciences; Fellow of European Academy of Sciences and Arts, FIET, CEng, PhD

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1. Research areas and topics

Process Systems Engineering: Process modeling\simulation, control, and optimization (with new efforts in molecular simulation), big data and artificial intelligence (AI)

Energy & Environment: Power plants, Carbon capture, utilisation and storage (CCUS), energy storage, bio-energy

2. Employment

09/2016-Present	Professor of Process and Energy Systems Engineering School of Chemical, Material and Biological Engineering, University of Sheffield, UK
08/2014-09/2016	Professor in Process and Energy Systems Engineering & CCS School of Engineering, University of Hull, UK
10/2012-07/2014	Reader in Process and Energy Systems Engineering & CCS School of Engineering, University of Hull, UK
09/2006-09/2012	Lecturer in PSE and MSc Course Director for CCT Process Systems Engineering (PSE) Group, School of Engineering, Cranfield University, UK
06/2004-09/2006	Senior R&D Engineer Dept of Process Controls & Software, ALSTOM Power Technology Centre, Leicester, UK.
03/2003-05/2004	Postdoctoral Research Fellow School of Engineering, University of Plymouth, UK
01/1999-03/2003	Research Assistant and then Postdoctoral Research Associate Centre for Process Systems Engineering, Imperial College London
07/1995-12/1998	Lecturer in Process Control and Instrumentation Department of Process Automation, Beijing University of Chemical Technology
08/1988-08/1992	Technician and then Assistant Engineer in Process Control and Instrumentation, Jiangsu Chemical Fertilizer (ammonia synthesis) Plant, Jiangsu, China

3. Education

01/1999-01/2002	PhD Centre for PSE, University College London , UK
09/1992-07/1995	MSc East China University of Science and Technology (ECUST), Shanghai
09/1985-07/1988	Diploma Nanjing Normal University (formerly <i>Nanjing Chem. Eng. Power College</i>), China

4. Selected Research Grants

- 03/2024 to 05/2025: Principal Investigator (PI), *Intensified carbon capture using RPB for offshore NGCC power plants*, total budget, £183,934, funded by company in France.
- 09/2022 to 02/2023: Co-I, *End-to-end system for generation and use of green hydrogen for fuel switching in ceramics manufacturing (PRO-GREEN H₂)*, led by CPI, total budget £369,883, funded by Dept of Business, Energy and Industrial Strategy (BEIS).
- 08/2021 to 12/2025: Project Coordinator, *Smart and CO₂ neutral Olefin Production by artificial Intelligence and Machine Learning (OPTIMAL)*, total budget €1,205 k, funded by EU RISE <https://cordis.europa.eu/project/id/101007963>

- 01/2018 to 03/2022: Co-I, *Advancing RPB Technology for Reduced CO₂ Emissions (ARTEMIS)*, total budget £890 k, funded by Department of Business, Energy and Industrial Strategy (BEIS).
- 04/2017 to 12/2022: Co-I, Consortium Project: UK CCS Research Centre, total budget £6.23 million. EPSRC Ref: EP/P026214/1.
- 10/2016 to 11/2019: Co-I of the Consortium (and PI at Sheffield), *Systematic design and testing of advanced rotating packed bed process and phase change solvents for intensified post-combustion CO₂ capture (ROLINCAP)*, total budget: €3.2 million in collaboration with 10 partners from Greece, Sweden, Germany, UK and South Korea. 727503 - EU H2020 Low Carbon Energy program
- 10/2016 to 03/2020: Co-I of the Consortium (and PI at Sheffield), *Novel adsorbents applied to integrated energy-efficient industrial CO₂ capture*, total budget: £985 k, in collaboration with Heriot-Watt University and Newcastle University. Funded by EPSRC - Ref: EP/N024540/1
- 10/2016 to 07/2020: Co-I of the Consortium (and PI at Sheffield), *A compact CO₂ capture process to combat industrial emissions*, total budget: £982k, in collaboration with University of Edinburgh and Newcastle University Funded by EPSRC - Ref: EP/N024672/1
- 10/2014 to 06/2019: PI, *Process Intensification for Post-combustion Carbon Capture using Rotating Packed Bed through Systems Engineering Techniques*, total budget £1.27 million, in collaboration with Imperial College London, Newcastle University and University of Hull, funded by EPSRC (Ref: EP/M001458/1 & EP/M001458/2)
- 01/2015 to 08/2018: Co-I of the consortium (and PI at Sheffield), *Novel low energy plasma/catalytic gas cleaning process to deliver high-quality syngas from the gasification of waste biomass*, total budget: £912k, in collaboration with Leeds, Liverpool and Surrey, funded by EPSRC (Ref: EP/M013162/1)
- 01/2015 to 12/2018: Co-I (and PI at Sheffield), *Development of flexible pyrolysis-catalysis processing of waste plastics for the selective production of high-value products through research and innovation*, total budget €405k, funded by EU RISE (Ref: 643322-FLEXI-PYROCAT) <https://cordis.europa.eu/project/id/643322>
- 01/2014 to 12/2017: Project coordinator, *Research and Development in Coal-fired Supercritical Power Plant with Post-combustion Carbon Capture using Process Systems Engineering techniques*, total budget €352.8k, funded by EU Marie Curie IRSES with 6 partners from the UK, France and China <https://cordis.europa.eu/project/id/612230>
- 09/2013 to 03/2015: Co-I, led by Prof Richard Williams and coordinated by Dr Jonathan Radcliffe at the University of Birmingham, total budget £3 million, funded by EPSRC Capital Investment on Energy Storage (EPSRC Ref: EP/L017725/1)
- 06/2010 to 12/2014: PI at Cranfield University and University of Hull, *Multiscale whole systems modelling and analysis for CO₂ capture, transport and storage*. ith Imperial College London, British Geological Survey and University of Sussex, total budget £1.42 million, funded by Natural Environmental Research Council (Ref: NE/H013865/1)
- 10/2012 to 12/2015: Co-I, Gas-FACTS project: *Gas – Future Advanced Capture: Technology Options*, total budget £2.46 million, funded by EPSRC with Cranfield/Hull, Edinburgh, Imperial, Leeds and Sheffield.
- 10/2009 to 09/2011: Co-I of the consortium (PI at Cranfield University), *Distance Skill Transfer Validation Assessment System*, total budget €280 k, funded by EU Leonardo da Vinci, Agreement No. 2009-1-FR1-LEO05-06761.
- 05/2008 to 05/2011: PI, *Dynamic modelling and simulation of Thermal Cracking Furnace in Ethylene plant*, total budget £61.828k, EPSRC DTA for PhD studentship.
- 11/2007 to 11/2010: PI, *Dynamic modelling and simulation of CO₂ capture plant*, total budget £33.75k, funded by RWE npower

5. Prizes, Awards and Honors

- 2024: Elected Fellow: Fellow of European Academy of Sciences.
- 2024: Elected Fellow: Fellow of European Academy of Sciences and Arts

- 2023: Elected Fellow: Fellow of Institution of Engineering and Technology (FIET)
- 2022: Siemens PSE MBI Prize Winner 2022 (with €3,000)
- 2022: Named among the list of top 2% most-cited scientists, Stanford Univ.
- 2021: Named among the list of top 2% most-cited scientists, Stanford Univ.
- 2020: Named among the list of top 2% most-cited scientists, Stanford Univ.
- 2019: Distinguished Visiting Professor, ECUST, China
- 2019: Joint Winner - Nigeria Prize for Science 2019 (with \$100,000), Abuja, Nigeria
- 2019: IChemE Global Award 2019 – Finalist in ‘Energy’ Category and Runner-up
- 2018: Aneke and Wang (2016) - Award of most cited review paper published in *Applied Energy* in 2015 and 2016.
- 2017: Distinguished Visiting Professor, Xi'an Jiaotong University, China
- 2014: Ludwig Mond Prize 2014 by IMechE (Certificate & £1000)

6. Selected Publications & Citations (<http://scholar.google.co.uk/citations?user=xRRZ3o0AAAAJ&hl=en>)

- Lawal, A., Wang, M., Stephenson, P. and Yeung, H. (2009), Dynamic modelling of CO₂ absorption for post combustion capture in coal-fired power plants, *Fuel*, Vol. 88, p2455-2462.
- Lawal, A., Wang, M., Stephenson, P., Koumpouras, G. and Yeung, H. (2010), Dynamic Modelling and Analysis of Post-Combustion CO₂ Chemical Absorption Process for Coal-fired Power Plants, *Fuel*, Vol. 89, p2791–2801.
- Wang, M., Lawal, A., Stephenson, P., Sidders, J. and Ramshaw, C. (2011), Post-combustion CO₂ Capture with chemical absorption: A state-of-the-art Review, *Chemical Engineering Research and Design*, Vol. 89, p1609-1624.
- Lawal, A., Wang, M., Stephenson, P., Obi, O. (2012), Demonstrating full-scale post-combustion CO₂ capture for coal-fired power plants through dynamic modelling and simulation, *Fuel*, Vol. 101, p115-128.
- Lazic, T., Oko, E. and Wang, M. (2014), Case study on CO₂ transport pipeline network design for Humber Region in the UK, *IMechE Journal of Process Mechanical Engineering*, Vol. 228(3), p210–p225.
- Joel, A. S., Wang, M., Ramshaw, C., Oko, E. (2014), Process analysis of intensified absorber for post-combustion CO₂ capture through modelling and simulation, *Int. Journal of Greenhouse Gas Control*, Vol. 21, p91-100.
- Wang, M., Joel, A.S., Ramshaw, C., Eimer, D., N. M. Musa (2015), Process intensification for post-combustion CO₂ capture based on Chemical Absorption: a critical review, *Applied Energy*, Vol. 158, p275–291.
- Aneke, M., Wang, M. (2016), Energy storage technologies and real life applications – a state of the art review, *Applied Energy*, Vol. 179, p350-377.
- Luo, X., Wang, M. (2017), Study of solvent-based carbon capture for cargo ships through process modelling and simulation, *Applied Energy*, Vol. 195, p402-413.
- Oko, E. Wang, M., Ramshaw, C. (2018), Intercooling for rotating packed bed absorbers in intensified solvent-based post-combustion CO₂ capture process, *Applied Energy*, 223, p302-316.
- Chai, Y., Gao, N., Wang, M., Wu, C. (2020), H₂ Production from Pyrolysis/Gasification of Waste Plastics and Biomass under Novel Catalyst Ni-CaO-C, *Chemical Engineering Journal*, Vol. 382, 122947.
- Kamkeng, A.D.N., Wang, M.*, Hu, J., Du, W., Qian, F. (2021), Transformation technologies for CO₂ utilisation: current status, challenges and future prospects, *Chemical Engineering Journal*, Vol. 409, 128138
- Luo, X., Wang, M., Lee, J., Hendry, J. (2021), Dynamic modelling based on surface renewal theory, model validation and process analysis of rotating packed bed absorber for carbon capture, *Applied Energy*, Vol. 301, 117462.
- Yan, Y., Borhani, T.N., Subraveti, Pai, K. N., Prasad, V., Rajendran, A., Nkulikiyinka, P., Asibor, J.O., Zhang, Z., Shao, D., Wang, L., Zhang, W., Yan, Yong, Ampomah, W., You, J., Wang, M., Anthony, E.J., Manovic, V., and Clough, P. (2021), Harnessing the power of machine learning for carbon capture, utilisation, and storage (CCUS) – A state-of-the-art review, *Energy & Environmental Science*, Vol. 14, p6122-6157.
- Shao, B., Hu, G., Alkebsi, K., Ye, G., Lin, X., Du, W., Hu, J.*, Wang, M.*, Liu, H. and Qian, F. (2021), Heterojunction-Redox catalysts of Fe_xCo_yMg₁₀CaO for high-temperature CO₂ capture and in-situ conversion in the context of green manufacturing, *Energy & Environmental Science*, p2291-2301.