
Short - Curriculum Vitae

1. Personal Details:

Dr. Johan Jacquemin
Married, five children
French, 43 years old – 14/10/1978



2. Current Position:

Associate Professor at Materials Science, Energy, and Nano-engineering MSN Department of the Mohammed VI Polytechnic University, BenGuerir, Morocco

3. Academic Qualifications:

- 2006:** University Blaise Pascal / LTSP (Clermont-Ferrand – France): Ph.D. (Physical Chemistry) (Thesis Title: “*Thermodynamic studies of selected Ionic Liquids*”).
- 2013:** Postgraduate Certificate in Higher Education Teaching (Belfast, UK) – PGCHET.
- 2017:** Habilitation in Thermodynamics, Tours University, France.

4. Short Bio:

Dr. Johan Jacquemin has over 15 years of professional teaching in thermodynamics, physical chemistry and chemical engineering at university level, and over 19 years of experience in developing research skills (both experimental and modelling) which concern thermodynamics/fluid-phase equilibria/physical chemistry/engineering of novel materials, including novel solvents, electrolytes and advanced materials. More precisely, he has an expertise in the development of in-house property databanks, the design of novel and original experimental apparatus and physical models able to predict properties with a view to understanding the physical and chemical nature of novel materials and design of viable chemical engineering processes.

He passed with honours a PhD investigating thermodynamics of selected ionic liquids in July 2006 at the University Blaise Pascal (Clermont-Ferrand – France). He stayed for two years as Post-Doctoral Research Associate at Queen’s University Belfast (QUB, Belfast, UK) in order to improve his knowledge of ionic liquids and more precisely their chemical engineering properties and applications.

In September 2008, Dr. Johan Jacquemin joined the Tours University (TU – France) as an Assistant Professor, and was involved in researching physical properties of novel materials (ionic liquids, electrolytes, solar cell materials) for use in battery and supercapacitor applications. In order to enhance his chemical engineering, Dr. Johan Jacquemin accepted to join QUB in October 2011 as Lecturer in chemical engineering and he has been confirmed in post in September 2013. Then, Dr. Johan Jacquemin was promoted as Senior Lecturer in chemical engineering in April 2014 to investigate in detail novel materials for use in energy storage systems and separation processes including olefin/paraffin separation and acid gas capture and utilisation, for example. In October 2016, he decided to return to France at the TU as an Associate Professor in Thermodynamics.

Since January 2022, Dr. Johan Jacquemin is an Associate Professor in Thermodynamics at MSN/UM6P and he is involved in the creation of an Accelerated Research-and-prototyping Centre (ARC) for metallurgy involving MSN/UM6P and Maghreb Steel.

5. Membership of Professional Bodies, Learned Societies:

- Since February 2021:** Editor in Chief of Thermo Journal
- Since September 2018:** Review Editor of Frontiers - Physical Chemistry and Chemical Physics.
- Since February 2018:** Editor and Member of the Editorial Board of Helyion.
- Since January 2018:** Associate Editor of Journal of Solution Chemistry.
- Since May 2017:** Member of Science Board of the Research Group Action: Ionic Liquids and Polymers.
- Since January 2017:** Member of the Editorial Board of Fluid Phase Equilibria.
- Since September 2016:** Member of the Editorial Board of ChemEngineering.
- Since April 2016:** Member of the Editorial Board of the Journal of Solution Chemistry.
- Since September 2014:** Member of the International Union of Pure and Applied Chemistry (IUPAC), Physical and Biophysical Chemistry Division.
- Since June 2013:** Fellow of the UK Higher Education Academy.
- Since May 2012:** Member of the Editorial Board of the Journal of the Scientific World Journal – Chemical Engineering
- From January 2012 to December 2015:** IUPAC nominated member and IUPAC representative member to the WG2 Physical Chemistry of Ionic Liquids (EU COST Action CM1206 Exchange on Ionic Liquids).
- Since September 2011:** Member of the International Union of Pure and Applied Chemistry (IUPAC), Analytical Chemistry Division Subcommittee on Solubility and Equilibrium Data.

6. Research and Industrial Experiences:

- Since January 2022:** Associate Professor in Thermodynamics at the MSN Department of the Mohammed VI Polytechnic University, Benguerir, Morocco.
- Since October 2018:** Invited Professor at University of Manchester and at Queen's University Belfast, UK.
- August 2019 – December 2021:** Affiliate Professor in Thermodynamics at the MSN Department of the Mohammed VI Polytechnic University, Benguerir, Morocco.
- October 2016 – December 2021:** Associate Professor in Thermodynamics at Tours University, Tours, France.
- October 2016 – September 2018:** Part-time (20% FTE) Senior Lecturer in Chemical Engineering - Queen's University, Belfast, UK.
- April 2014 – September 2016:** Senior Lecturer in Chemical Engineering
Centre for the Theory and Application of Catalysis (CentACat), Queen's University, Belfast, UK.
- October 2011 – March 2014:** Lecturer in Chemical Engineering
Centre for the Theory and Application of Catalysis (CentACat), Queen's University, Belfast, UK.
- September 2008 – September 2011:** Assistant Professor in Physical Chemistry
Physicochimie des Matériaux et des Biomolécules (PCMB) Laboratory, University François Rabelais, Tours, France.
- January 2008 – August 2008:** Research Fellow: "*Estimation of ionic liquids physical properties*" - Queen's University Ionic Liquid Laboratories (QUILL), Queen's University, Belfast, UK. **Supervisors:** Prof. C. Hardacre, Prof. D.W. Rooney
- September 2006 – December 2007:** Visiting Fellow – Research Associate: "*Understanding the chemistry of PCl_3 in ionic liquids*" - Queen's University Ionic Liquid Laboratories (QUILL), Queen's University, Belfast, UK. **Supervisors:** Prof. C. Hardacre, Dr V. Kett
- February 2006 – August 2006:** Temporary associate in research and in education: "*Thermodynamic and thermophysical properties of selected ionic liquids and their mixtures with other fluids*" - Laboratoire de Thermodynamique des Solutions et des Polymères (LTSP), UMR CNRS 6003, Clermont-Ferrand, France. **Supervisors:** Prof. V. Majer, Prof. M.F. Costa Gomes
- 2002 – 2006:** Ph.D.: "*Thermodynamic studies of selected ionic liquids*" - Laboratoire de Thermodynamique des Solutions et des Polymères (LTSP), UMR CNR6003, Clermont-Ferrand, France. **Director:** Prof. V. Majer; **supervisors:** Dr P. Husson, Prof. M.F. Costa Gomes

7. Research Experience and Impacts:

Research area: Natural-gas processing, CO₂ capture and utilisation, energy storage systems (supercapacitors, Li-air and Li-ion batteries, etc.), novel separation processes (olefin / paraffin separation, alcohol / paraffin separation, azeotrope breaking, etc.) and investigation of the thermodynamic properties of complex mixtures (non-Newtonian, surfactant, magnetic fluids etc.). More precisely my research area is focused on the development of original experimental apparatuses, databases and physical models able to predict selected properties and their implementation into Aspen Plus.

Research strategy: To investigate novel materials, including ionic liquids, MOFs, porous liquids, electrolytes, solar cell materials, from the determination and the modelling of their fundamental properties through to the development of novel applications. My main strategy is to develop relationships between chemical structure and physical properties of materials to drive novel applications.

Experimental techniques: Density, rheology, conductivity, DSC, TGA, isothermal titration calorimetry, contact angle and wetting experimental techniques, various electrochemical and spectroscopic techniques, and through the development of in-house experimental *apparati* to determine solid-liquid equilibrium, liquid-liquid miscibility, vapour-liquid equilibrium, and gas separation using various techniques including membranes separation process through GC titrations.

Theoretical/Modelling techniques: Gaussian, Turbomole, CosmoThermX, Aspen Plus through the development of in-house databases for novel materials, UNIQUAC-VISCO for ionic liquids and electrolytes, Group Contribution Models, Various Equations of State and Activity Coefficient Models, DIPPR equations.

Impacts: The work in my group is funded by industry, the Royal Society, EPSRC, TSB, APR, ANR, local government and EU attracting > €2.5m since 2008. To date, I have published > 160 peer reviewed journal papers (h-index 40) and supervised more than 20 Master 2 Students, 8 MPhils and 16 PhD students.