

PERSONAL DETAILS:

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PROFESSIONAL EXPERIENCE:

- October 2015 - present **University Lecturer, Department of Chemical Engineering and Biotechnology, University of Cambridge**
- **Fellow of the UK Engineering and Physical Science Research Council**
 - **Member of the UK Forum in Manufacturing**
 - Fellow of the Higher Education Academy (Recognition Ref PR055317)
- July 2010 – September 2015 **Lecturer, Department of Chemical Engineering, University of Bath**
- Director of the Chemical and Biochemical Reaction Engineering Unit (11 academics)
 - Member of the Departmental Research committee
 - Member of the Management board of the Centre for Sustainable Chemical Technologies.
 - Director of Postgraduate Research studies (2013-2014)
- Oct 2007 - June 2010 **Research Associate, Imperial College London**, Dept. of Chemical Engineering under the supervision of Prof David Chadwick.
- Areas of research: catalysis development, conversion of bio-derived materials into chemicals and CO₂ purification.
- June 2003 - Sep 2004 **Scientist Engineer, REPSOL YPF R&ID Centre, Madrid, Spain**
Responsible of R&D activities for the FCC units.
- Aug 2002 - Oct 2002 **Undergraduate placement, GENERAL ELECTRICS PLASTICS** (Polycarbonate plant), Cartagena, Spain

EDUCATION:

- 1998 - 2003 **Masters Degree in Chemical Engineering** at Rey Juan Carlos University (Madrid, Spain) - First class
- Oct 2004 - Sep 2007 **PhD in Chemical Engineering**, Dep. of Chemical Engineering, University of Bath.
Title: "Feasibility of tandem reaction isomerisation – telomerisation"
Supervisor: Prof Alexei Lapkin.
- Sep 2012 **Postgraduate Certificate in Academic Practice (PGCAPP)** – University of Bath

PRIZES

- 2013 Sponsorship Award as **Future Leader of Engineering** by EPSRC.
- 2011 **Young Researcher Best Presentation**
At the 10th International Conference on Catalysis in Membrane Reactors (ICCMR10)
- 2009 **Rushlight Carbon Capture and Storage Award**
Shared with Prof D. Chadwick, Imperial College, Air Products and Doosan Babcock
For the work carried out in the development of a flue-gas purification process.
- 2007 **Johnson Matthey Silver Medal**
Shared with F. Walsh, D. Bavykin, A. Lapkin and B. Cressey

PROFESSIONAL AFFILIATIONS

- Fellow of the Higher Education Academy
- Associate member of the Institution of Chemical Engineers (IChemE) – application for Chartered status under review.
- Affiliate member of the Royal Society of Chemistry

CONSULTANCY EXPERIENCE

- 2012- 13 **CRODA Europe Ltd**
Reactor design for the enzymatic oxidation of cellulose.
- 2013-14 **VIPER SUBSEA**
Investigation of degradation mechanisms of communication cables under sea.

RESEARCH SUPERVISION:

My current group consists of 5 PhD students and post-doctoral research associates. I have experience supervising research associates, PhD students, Master research students and UG research projects. I have graduated 6 PhD students to completion (4 as lead supervisor).

SUMMARY OF RESEARCH FUNDING:

I have a current research portfolio of over 6 million euros (> 1.8 million euros as principal investigator), having received funding from different bodies including the UK Research Council, the Royal Society, the Technology Strategy Board in UK and industry. I supervise a research team of 5 PhD students and post-docs, having graduate 6 PhD students to completion. Further details of the most relevant projects are given below:

- *2016 - 2019 *Integrated anodeless PEM fuel cell – beyond hydrogen*
Scope: Integration of in-situ hydrogen production, purification and conversion in PEM fuel cells using printed membranes.
840k € (FEC), UK Research Council
- *2014 - 2019 *COMPACT – Continuous Microsystem Production of Catalyst Technology (EP/L020432/1)*
Scope: Continuous synthesis and stabilization of metal nanoparticle in microdevices for catalytic applications
€ 1.6m (FEC), UK Research Council
- *2013 - 2016 *Stabilization of cobalt nanoparticles on structured supports*
Scope: Thermal stabilization of cobalt nanoparticles under reaction conditions using nanostructured alumina supports
€108,500, UK Research Council and Industry (SASOL)
- 2013 - 2018 *Terpene-based Manufacturing for Sustainable Chemical Feedstocks (EP/K014889/1)*
Scope: Development of reaction technology for the use of terpene-based feedstock in the chemical supply chain.
Collaborators: University of Bath, SASOL, Johnson Matthey and TMO.
€ 4.7m (FEC), UK Research Council
- *2013 - 2015 *Stabilization of metal nanoparticles in nanostructured materials (EP/K016334/1)*
Scope: Development of thermally stable heterogeneous metal catalyst using nanostructured curved materials.
€ 170k (FEC), UK Research Council
- 2012 - 2015 *Innovative nanoporous carbon materials for energy storage applications (TSB n.101226)*

Scope: Use of bio-polymers as carbon precursor with tuneable sizes and porosities via membrane technology

Collaborators: Mast Carbon, Sharp Electronics, Johnson Matthey and Axelon
€ 1.1m – UK Technology Strategy Board

2007 - 2010 *Sour Gas Compression Process (DTI project 404 – UK-Oxycoal)*

Scope: Development of reaction technology for the removal of NO_x and SO₂ compounds from an oxyfuel fluegas CO₂ stream.

Collaborations: Air Products, Doosan Babcock, E.ON Engineering and BP Clean Energy.

2007-2010 *Conversion of bioderived feedstocks to chemicals – The Glycerol Challenge (TSB)*

Scope: Catalysis development and reaction engineering for the sequential dehydration of glycerol and the selective oxidation of glycerol.

Collaborations: Cardiff University, University of Cambridge, SASOL, Ciba and Oxford Catalysts.

2009-2010 *The Dow Chemicals Methane Challenge*

www.dow.com/innovation/news/2008/20080124a.htm

Scope: Development of heterogeneous catalysts and reactor design for the feasibility study of the selective direct oxidation of methane at low temperatures into oxygenates.

Collaborations: Cardiff University (Prof Graham Hutchings), and Lehigh University, (USA Professor Chris Kiely)

2007 *Sustainable Waste to Chemicals, DTI project TP/16307*

Scope: Conversion of biomass/plastics into large-scale petrochemical intermediates.

Collaborations: Ineos, Manchester University and Surrey University.

ACADEMIC REVIEWS

- Expert Evaluator in Horizon 2020
- EPSRC Peer Review College Member
- International reviewer of the Estonian Research Council
- Reviewer of high impact factor journals including: Nature Communications, Angewandte Chemie, Journal of Membrane Science, Journal of Catalysis, Applied Catalysis B: Environmental, ACS Catalysis, ChemCatChem, Catalysis Today, Catalysis Communications, Journal of Chemical Engineering Research and Design, Journal of Industrial & Engineering Chemistry Research, and STMS Books (Wiley-VCH Editorial).

TEACHING EXPERIENCE:

I have a wide range of teaching experience at undergraduate and postgraduate level including lectures, workshops, tutorial supervisions and design project. A selection of the main courses taught and

Postgraduate teaching – University of Bath

- Design and assembly of continuous flow set-ups (unit manager)
- Reaction engineering for chemists

Chemical Engineering MEng degree – IChemE accredited - University of Bath

- Design & Safety – Simulation Processes using ASPEN PLUS (2nd year, 114 students, unit manager)
- Reaction Engineering (2nd year, 90 students, unit manager)
- Particle Technology (2nd Year, 90 students, unit manager)
- Design & Safety – Simulation Processes using ASPEN PLUS (2nd year, 75 students, unit manager)
- Intermediate Design Project (3rd Year, 75 students, unit manager)