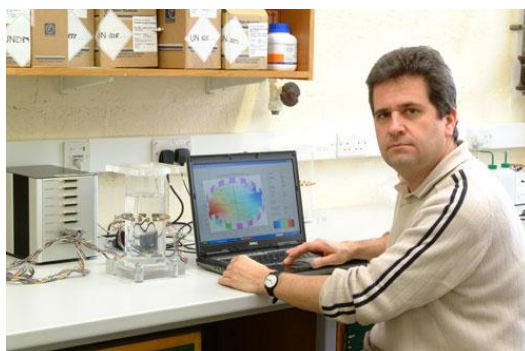




Dr. Nicholas P Hankins MA (Cantab) PhD CEng MChemE MRSC PGCAP

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General

I am a University Lecturer in Chemical Engineering in the Department of Engineering Science at the University of Oxford, and a Fellow of Lady Margaret Hall (LMH), one of the 39 Colleges in the University. I have over six years of industrial experience in the petroleum and chemical industries with Shell Research and Aspen Technology, and 15 years of professional academic experience in esteemed UK and US institutions.

My current **research interests** lie in the application of colloidal and interfacial phenomena to separation processes, with applications in sustainable treatment processes for potable water, and industrial or domestic waste-water. I am Research Director for the [Centre for Sustainable Water Engineering](#), located at the Oxford University Begbroke Science Park.

My **teaching responsibilities** involve the lecturing of undergraduate courses and the teaching of laboratories, the tutoring and pastoral care of engineering undergraduates at LMH, and the supervision of postgraduate research students reading for the DPhil degree in Engineering Science at Oxford University. I am actively involved in recruitment, through UCAS, of undergraduate students to study Engineering Science at LMH.

My **academic administrative** duties include, or have included, membership of the following committees:

- Academic Policy Committee at LMH.
- Buildings Committee at LMH.
- Scholarships Committee at LMH.
- Senior Common Room representative on the LMH IT committee.
- Departmental Postgraduate Studies Committee
- Departmental Representative for the Library Committee – Book and Journal Acquisitions.

With respect to **professional institutions**, I am currently an active member of the EPSRC Peer Review College, a Chartered Engineer, a Corporate Member of The Institution of Chemical Engineers (IChemE), and a Member of the Royal Society of Chemistry. I act as Departmental Liaison Officer for the IChemE.

Education

BA (Cantab) in Chemical Engineering. The University of Cambridge. 1985

PhD in Chemical Engineering. The University of Oklahoma. 1989.*

MA (Cantab) in Chemical Engineering. The University of Cambridge. 1992.

PGCAP (Post-Graduate Certificate in Academic Practice) with Distinction, The University of Nottingham. 2001.

*In 1985, I was awarded a Link Foundation Energy Fellowship in the USA, with a value of \$25 000.

Appointments Held

2005-present	<i>University Lecturer in Chemical Engineering</i> , Department of Engineering Science, The University of Oxford, UK. <i>Tutorial Fellow</i> in Engineering, Lady Margaret Hall.
1999- 2005	<i>Lecturer</i> , School of Chemical, Environmental and Mining Engineering, the University of Nottingham, UK.
1996 - 1999	<i>Applications Engineer</i> for adsorption process simulation software; AspenTech Ltd, Cambridge, UK.
1993 - 1996	<i>Project Leader</i> in well stimulation; Royal Dutch Shell Exploration and Production Research Laboratory, Riswijk, The Netherlands.
1991 - 1993	<i>Visiting Research Scholar</i> , Department of Chemical Engineering, The Pennsylvania State University, USA
1989 - 1991	<i>Post-Doctoral Research Fellow</i> in Colloid and Surface Chemistry, Department of Physical Chemistry, University of Bristol, UK.
1985 - 1989	<i>Research and Teaching Assistant</i> , School of Chemical Engineering and Materials Science, University of Oklahoma, USA.

Professional Associations

- Chartered Engineer and Corporate Member of the Institution of Chemical Engineers.
- Member of the Royal Society of Chemistry.
- Member of the American Institute of Chemical Engineers.
- Member of UK Engineering and Physical Sciences Research Council peer-review panel.
- Founding Member (2000) of the Parliamentary Reception for Britain's Younger Engineers, SET in Britain.

Teaching Activity

I am the course organizer for four courses:

- The Second Law of Thermodynamics A5
- Process Design Fundamentals B5
- Hazards and Safety C5A
- Product Formulation C5B

I participate actively in the teaching of the following courses:

- Thermodynamics Laboratory P5
- Mechanical Engineering Laboratory B1

I also supervise 3rd year Design Projects and 4th year Research Projects.

Research Activity

My early research work focussed on the physico-chemical interactions between surfactants, interfaces and thin liquid films within multi-phase porous media, and their applications in enhanced oil recovery and well stimulation. Later on, my work focussed on the dynamic behaviour of multi-component separation units in

distillation and adsorption. From this background, my current research interests have evolved into two principal themes:

- **Colloidal and Interfacial Processes.** This exciting area of research studies the application of colloids, nanoparticles, surfactants, and interfaces in process technology, particularly in [Potable and Waste-water Treatment](#). This includes: the removal and recycle of organic pollutants and heavy metals from waste-water by [Colloidal Flocculation](#) and [Colloid-Enhanced Ultrafiltration](#); technologies based on [Membrane Filtration](#), including the removal of [Natural Organic Matter](#) during potable water treatment and [Desalination Technology](#); the flocculation behaviour of [Synthetic Activated Sludge](#); and the removal of [Endocrine Disrupting Compounds](#) from waste-water. I have previously investigated the role of [Surfactant Adsorption](#) on mineral oxides, sulphides, sandstones and clays in [Mineral Flotation](#) and Enhanced Oil recovery.
- **Non-linear Wave Propagation.** Disturbance phenomena in process unit operations can often be investigated usefully as 'non-linear' waves, in order to elucidate 'cause' and 'effect'. Past and current projects include the propagation and fate of composition and temperature disturbances in [Multi-Component Fractionation](#), and in continuous-flow [Packed Bed Reactors](#); and the effectiveness and ultimate fate of contaminants in [Surfactant-Enhanced Ground Remediation](#).

Current and Recently Funded Research Projects

- *Development of Novel Visible-Light Photocatalytic Membranes for Applications in the Removal of Organic Contaminants from Water* (The Lubbock Trust £1000; 2009-2010).
- *The Use of Micellar Enhanced Ultrafiltration for the Concentration and Recycle of Heavy Metals in Waste-Water* (The Lubbock Trust £1000; 2008-2009).
- *A Laboratory for Sustainable Water Resources Engineering* (John Fell Oxford University Press Research Fund £100k; 2007-2009).
- *Removal and Recycle of Pollutants from Water Streams by Adsorptive Micellar Flocculation* (EPSRC £225k; Severn Trent Water £10k; Yorkshire Water £15k; 2001-2004) .
- *In-Situ Investigation of Collector Adsorption on Mineral Oxides and Sulphides for Improved Efficiency of Froth Flotation* (EPSRC £60k; 2001-2004) .
- *Development of Membrane Microfiltration Unit with Pre-Coagulation For Combined Clarification and Filtration.*
(CASE studentship EPSRC and Severn Trent Water: £45k; 2001-2004).
- *Removal of Pollutants from Waste-water Streams by Associative Micellar Flocculation* (EPSRC £60k , 2000-2001) . Note: EPSRC is the UK Engineering and Physical Sciences Research Council.

Membership of Editorial Board of Professional Journals

Desalination and Water Journal (since January 2009).

Membrane Water Treatment (since March 2009).

Desalination Journal (since July 2009).

Water (since July 2009).

Selected Recent Publications

Refereed Journal Papers:

1. C.A.P. Almeida, A. dos Santos, S. Jaerger, N.A. Debacher, and **N. P. Hankins**: "Mineral Waste from Coal Mining for Removal of Astrazon Red Dye from Aqueous Solutions", *Desalination*. **2010**, 264, 181-187.
2. **N. Hankins**, R. Price and N.A. Debacher: "Process Intensification During Treatment of NOM-laden Raw Upland Waters: Control and Impact of the Pre-Coagulation Regime During Ultra-filtration", *Desalination and Water Treatment*. **2009**, 8:1,1-15 .
3. **Nick Hankins**: "Editorial: First UK-Israeli Workshop on the Application of Membrane Technology in Water Treatment and Desalination and 2nd Oxford Water and Membranes Research Event 15th–20th June 2008", *Desalination and Water Treatment*. **2009**, 8:1, 1.
4. N.Xu, A.C. Johnson, M.D. Juergens, N.R.Llewellyn, **N.P.Hankins** and R.C.Darton: "Estrogen Concentration Affects Its Biodegradation Rate in Activated Sludge", *Environmental Toxicology and Chemistry*. **2009**, 28(11), 2263-2270.
5. T.P.Nguyen, N.Hilal and **N.P.Hankins**: "Operating Conditions Corresponding to Optimal Final Properties of Activated Sludge Using the DOE and RSM Techniques", *Separation Science and Technology*, **2009**, 44:9, 2041–2066.
6. H.Sun, **N.P.Hankins**, B.J.Azzopardi, N.Hilal and C.A.P.Almeida: "A Pilot-Plant Study of the Adsorptive Micellar Flocculation Process: Optimum Design and Operation", *Separation and Purification Technology*. **2008**, 62, 273-280.
7. **Nick Hankins** and Nidal Hilal: "Editorial: First Oxford and Nottingham Water and Membranes Research Event 2–4 July 2006", *Desalination*. **2008**, 227:1,1.
8. Tan Phong Nguyen, Nidal Hilal, **Nicholas P. Hankins** and John T. Novak: "The Relationship between Cation ions and Polysaccharide on the Floc Formation of Synthetic and Activated Sludge", *Desalination*. **2008**, 227, 94-102.
9. Khalid Al-Anezi, Chris Somerfield, David Mee, **Nick Hankins** and Nidal Hilal: "Effect of Anti-Scale Agents on the Solubility of CO₂ in Seawater at Temperatures of 60 to 90°C and Pressures of 1-2 Bar", *Desalination*. **2008**, 227, 46-56.
10. Tan Phong Nguyen, Nidal Hilal, **Nicholas P. Hankins** and John T. Novak: "Characterization of Synthetic and Activated Sludge and Conditioning with Cationic Polyelectrolytes", *Desalination*. **2008**, 227:1, 103-110.
11. M. Wallace, Z. Cui, and **N.P. Hankins**: "A Thermodynamic Benchmark for Assessing an Emergency Drinking Water Device Based on Forward Osmosis", *Desalination*. **2008**, 227:1, 34-45.
12. T.P.Nguyen, N.Hilal, **N.P.Hankins** and J.T.Novak: "Determination of the Effect of Cations and Cationic Polyelectrolytes on the Characteristics and Final Properties of Synthetic and Activated Sludge", *Desalination*. **2008**, 222, 307-317.
13. **N.P. Hankins**: "A Non-Linear Wave Model with Variable Molar Flows for Dynamic Behaviour and Disturbance Propagation in Distillation Columns", *Trans IChemE, Part A, Chemical Engineering Research and Design*: **2007**, Vol 85 (A1), 1-9.
14. T.P.Nguyen, **N.P.Hankins** and N.Hilal: "Effect of Chemical Composition on the Flocculation Dynamics of Latex-Based Synthetic Activated Sludge", *Journal of Hazardous Materials*. **2007**, Vol B139, 265-274.
15. T.P.Nguyen, **N.P.Hankins** and N.Hilal: "A Comparative Study of the Flocculation Behaviour and Final Properties of Synthetic and Activated Sludge in Wastewater Treatment", *Desalination*. **2007**, 204, 277-295.
16. **N. P. Hankins**, N.Lu and N. Hilal: "Enhanced Removal of Heavy Metal Ions bound to Humic Acid by Polyelectrolyte Flocculation", *Separation and Purification Technology*. **2006**, 51(1), 48-56
17. R. Price and **N. Hankins**, "Impact of Optimised Control of the Pre-Coagulation Regime During Ultra-filtration Treatment of Raw Upland Waters", *Water and Environment Journal*. **2005**, 19(4), 342-351.

18. M. Al-Harashseh, S. Kingman, **N. P. Hankins**, C. Somerfield, S. Bradshaw: "The Influence of Microwaves on the Leaching Kinetics of Chalcopyrite", *Minerals Engineering*. **2005**, 18(13-14), 1259-1268.
19. **N. P. Hankins**, N. Hilal, O. Ogunbiyi and B.Azzopardi: "Inverted Polarity Micellar Enhanced Ultrafiltration for the Treatment of Heavy Metal Polluted Wastewater", *Desalination*. **2005**, 185, 1611-1628.
20. N. Hilal, G. Busca, F.Rozaza and **N. P. Hankins**: "Use of Activated Carbon to Polish Effluent from Metalworking Treatment Plant: Comparison of Different Streams", *Desalination*. **2005**, 185, 1723-1732.
21. **N.P.Hankins**, S. Pliankarom and N. Hilal: "An Equilibrium Ion-Exchange Study on the Removal of NH_4^+ Ion from Aqueous Effluent using Clinoptilolite", *Separation Science and Technology*. **2004**, 39(15), 3639-3663.
22. B. Bai, **N.P.Hankins**, M.Hey and S.Kingman, "In Situ Mechanistic Study of SDS Adsorption on Hematite for Optimised Froth Flotation", *Industrial and Engineering Chemistry Research*. **2004**, 43(17), 5326-5338.
23. N.Hilal, G. Busca, **N.P.Hankins**, and A.W. Mohammed.: "The Use of Ultrafiltration and Nanofiltration Membranes in Metal-Working Fluids Treatment", *Desalination*. **2004**, 167, 227-238.
24. **N.P.Hankins**, S. Pliankarom and N.Hilal: " Removal of NH_4^+ Ion from NH_4Cl Solution using Clinoptilolite: a Dynamic Study Using a Continuous Packed-bed Column in Up-Flow Mode", *Separation Science and Technology*. **2004**, 39(6), 1347-1364.
25. **N.P.Hankins** and J.H.Harwell: "Application of Coherence Theory to a Reservoir Enhanced Oil Recovery Simulator", *Journal of Petroleum Science and Engineering*. **2004**, 42(1), 29-55.
26. N. Hilal, **N.P.Hankins**, I.H. Cho and C.G. Kim: "Optimal Strategy for Algae Control in Potable Water Treatment Facilities", *International Journal of Environmental Technology and Management*, **2004**, 4(3), 236-252.
27. F.I.Talens-Alesson, **N.P.Hankins**, S.T.Hall and B.J.Azzopardi: "Flocculation of SDS micelles by Fe^{3+} ", *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **2002**, 204, 85-91.
28. **N.P.Hankins** and F.G.Helfferich: "On the Concept and Application of 'Partial Coherence' in Non-linear Wave Propagation". *Chemical Engineering Science*. **1999**, 54(6), 741-764.
29. **N.P.Hankins** and J.H.Harwell: "Case Studies for the Feasibility of Sweep Improvement in Surfactant-Assisted Water-flooding". *Journal of Petroleum Science and Engineering*. **1997**, 17(1-2), 41-62.
30. **N.P.Hankins**, J.H.O'Haver, and J.H.Harwell: "Modeling Effects of pH and Counterions on Surfactant Adsorption at the Oxide/Water Interface". *Industrial and Engineering Chemistry Research*. **1996**, 35(9), 2844-2855.

Refereed Chapters in Books:

1. **N Hankins**, N Hilal and TP Nguyen: "Synthetic Sludge as a Physical and Chemical Analogue of Real Sludge in the Activated Sludge Process", Chapter 1 in '*Sludge: Types, Treatment Processes and Disposal.*' NOVA Science Publishers Inc., Hauppauge, New York. **2009**, 1-32.
2. **N.P.Hankins** and F.Jegade: "Design and Optimization of Waste Reduction by Adsorption with ADSIM™" in '*Emerging Separation and Separative Reaction Technologies for Process Waste Reduction – Adsorption and Membrane Systems*'. Editors: P P Radecki, J C Crittenden, D R Shonnard, J L Bullock. American Institute of Chemical Engineers, New York. **1999**, 275-277.
3. **N.P.Hankins**, J.M.Haynes and S.D.Lubetkin: "On the Measurement of Disjoining Pressure Isotherms in Thin Electrolyte Films between Oils and Silica" in '*Physical Chemistry of Colloids and Interfaces in Oil Production*'. H.Toulhoat, J.Lecourtier (Editors) and Editions Technip, Paris. **1992**, 59-66.

Refereed Conference Papers:

1. **Nick Hankins**: "A Non-Linear Wave Model with Variable Molar Flows for Dynamic Behaviour and Disturbance Propagation in Distillation Columns", Distillation and Absorption 2006, Institution of Chemical Engineers Symposium Series No. 152, **2006**, 200-210.

- F.I. Talens-Alesson, S. Anthony, **N.P. Hankins** and B.J. Azzopardi: "Removal of Phthalic Acid by Adsorptive Micellar Flocculation in the Presence of Na⁺ and Zn²⁺", *Jornadas del Comité Español de la Detergencia* **2002**, 32, 433-436.
- F.I. Talens-Alesson, **N.P. Hankins** and B.J. Azzopardi: "Soaps and Fe³⁺ as an Alternative to SDS and Al³⁺ in Adsorptive Micellar Flocculation", *Jornadas del Comité Español de la Detergencia* **2001**, 31, 445-450.

Invited Papers in Trade Journals:

- Nidal Hilal, Tan Phong Nguyen and **Nick Hankins**: "Synthetic Sludge as a Surrogate for the Real Thing in Wastewater Treatment". *Arab Water World*. June **2007**, 31(6), 26-30.
- Nick Hankins**, Nidal Hilal and Tan Phong Nguyen: "The Thick of it". *The Chemical Engineer*. June **2007**, p.40-44.
- N. Hankins** and R. Price "A Little Clarification". *The Chemical Engineer*. February **2005**, p.24-26.
- N. Hankins** and R. Price, "Coagulation-Enhanced NOM Removal by Ultrafiltration for Potable Water Clarification." *Arab Water World*. May-June **2004**, 34-36.

Invited Book Review:

"Communication Skills for Engineers and Scientists", Third Edition. Edited by John Venables. IChemE, 2002. Appearing in *Trans IChemE*, Vol. 80: A7 (*Chemical Engineering Research and Design*), October **2002**, p. 809; see also - B5 (*Process Safety and Environmental Protection*), September 2002, p. 282; C4 (*Food and Bioproducts Processing*), December 2002, p. 340.

Oral Presentations Delivered at International Conferences:

- Nick Hankins: "Enhanced Removal of Heavy Metal ions Bound to Humic Acid by Polyelectrolyte Flocculation", presented at the 3rd Oxford Water and Membranes Research Event, Lady Margaret Hall, Oxford UK, September 12th-15th, **2010**.
- Nicholas P. Hankins: "Enhanced Removal of Heavy Metal Ions Bound to Humic Acid by Polyelectrolyte Flocculation", presented at the 32nd Annual Meeting of the Brazilian Chemical Society, Fortaleza, CE, Brazil, May 30th – June 2nd, **2009**.
- Nick Hankins: "Optimised Control of Pre-coagulation during Ultrafiltration Treatment of NOM-laden Raw Upland Waters", invited seminar delivered to the Department of Chemistry, Federal University of Santa Catarina, August 25th **2008**, Florianópolis, SC, Brazil.
- Nick Hankins: "A Non-Linear Wave Model with Variable Molar Flows for Dynamics and Disturbance Propagation in Distillation Columns, invited seminar delivered to the Department of Chemical Engineering, Federal University of Santa Catarina, August 25th **2008**, Florianópolis, SC, Brazil.
- Nick Hankins: "Impact of Optimised Control of the Pre-Coagulation Regime During Ultrafiltration Treatment of NOM-laden Raw Upland Waters", First UK-Israeli Workshop on the Application of Membrane Technology in Water Treatment and Desalination and 2nd Oxford Research Event on Water and Membranes, Oxford UK, June 16th - 20th, **2008**.
- Nick Hankins: "Optimised Control of Pre-coagulation during Ultrafiltration Treatment of NOM-laden Raw Waters", invited presentation given at the seminar "Membrane Technologies for Water and Wastewater Treatment in Industrial and Municipal Sectors", April 2nd **2008**, Partnership for Learning in collaboration with Envirowise and the Environment Agency, Liverpool L24 9PZ, UK.
- M. Wallace, Z. Cui, and N.P. Hankins: "Thermodynamic Benchmark for Assessing an Emergency Drinking Water Device Based on Forward Osmosis", presented at the 2nd Conference of the Network on Potable Water Treatment and Supply, The Assembly Rooms, Bath, UK, 3-4 July, **2007**.
- H. Sun, N. P. Hankins, B. J. Azzopardi, N. Hilal, and C. A. P. Almeida: "Pilot-Plant Study of the Adsorptive Micellar Flocculation Process: Optimum Design and Operation", presented at the 30th Annual Meeting of the Brazilian Chemical Society, Águas do Lindóia, SP, Brazil, May 31st – June 3rd, **2007**.
- Nicholas P Hankins: "Two Novel Micellar-based Processes for Waste Water Treatment", invited seminar delivered to the Department of Chemistry, Federal University of Santa Catarina, May 30th **2007**, Florianópolis, SC, Brazil.
- Tan Phong Nguyen, Nidal Hilal, Nicholas P Hankins and John T. Novak: "Determination of the Effect of Cations and Cationic Polyelectrolytes on Characteristics and Final Properties of Synthetic and Activated

Sludge”, Desalination and the Environment (European Desalination Society), Sani Resort, Haldiki, Greece, April 22nd -25th , **2007**.

11. Nick Hankins: “A Non-Linear Wave Model with Variable Molar Flows for Dynamic Behaviour and Disturbance Propagation in Distillation Columns”, Distillation and Absorption (ICHEME) 2006, London UK, September 4th-6th, **2006**.
12. Nick Hankins, Hong Sun and Barry Azzopardi: “Pilot Plant Studies of Adsorptive Micellar Flocculation – A Novel Water Treatment Technology”, 1st Oxford Research Event on Water and Membranes, Oxford UK, July 2nd - 4th, **2006**.
13. T.P.Nguyen, N.P.Hankins and N.Hilal: “A Comparative Study of the Flocculation Behaviour and Final Properties of Synthetic and Activated Sludge in Wastewater Treatment”, EuroMed 2006: Desalination Strategies in South Mediterranean Countries, Montpellier, France, May 21-25, **2006**.
14. Nick Hankins, Nidal Hilal, Oluwaseun O. Ogunbiyi and Barry Azzopardi: “Inverted Polarity Micellar Enhanced Ultrafiltration for the Treatment of Heavy Metal Polluted Wastewater”, Desalination and the Environment (European Desalination Society), Santa Margherita-Potofino-La Spezia, Italy, May 22nd -25th , **2005**.
15. N. Hilal, G. Busca, F.Rozaza and N. Hankins: “Use of Activated Carbon to Polish Effluent from Metalworking Treatment Plant: Comparison of Different Streams”, Desalination and the Environment, Santa Margherita-Potofino-La Spezia, Italy, May 22nd -25th , **2005**.
16. Tan Pong Nguyen and Nick Hankins: “Experimental Study of Flocculation Kinetics of Latex-based Synthetic Activated Sludge in Waste Water Treatment”, Tenth Meeting of the UK Polymer Colloids Forum, Sheffield University, April 7th-8th , **2005**.
17. M. Al-Harashsheh, G.Rice, C.Sommerfield, N.P.Hankins, S.Kingman: “Influence of Microwaves on the Leaching Kinetics of Chalcopyrite in Ferric Ion Media”, 4th World Congress on Microwaves and RF Applications, Austin, Texas, November 7th – 11th , **2004**.
18. Robert Price and Nick P. Hankins: “Zeta Potential Measurements to Control NOM Coagulation in Upland Water”, Membrane Academia Industry Network Conference, Cranfield University, May 19th-20th, **2004**.
19. Nidal Hilal, Nicholas P. Hankins and Gerald Busca: “Effect of Operating Parameters on Membrane Flux During Bio-Remediation and Ultra-Filtration of Metal Working Fluids”, Membrane Academia Industry Network Conference, Cranfield University, May 19th-20th, **2004**.
20. Nicholas P Hankins: “Effect of pH and Counterions on Surfactant Adsorption at the Oxide/Water Interface during Micellar Enhanced Oil Recovery”, invited seminar delivered to the Chemistry Unit, National Atomic Energy Commission, June 9th **2004**, Buenos Aires, Argentina.
21. Nicholas P Hankins: “Effect of pH and Counterions on Surfactant Adsorption at the Oxide/Water Interface during Micellar Enhanced Oil Recovery”, invited seminar delivered to the Department of Chemistry, Federal University of Santa Catarina, June 7th **2004**, Florianópolis, SC, Brazil..
22. Nicholas P Hankins: “In-Situ ATR/FTIR Study of the Adsorption Mechanisms of Isopropyl Xanthate on Galena During Flotation”, presented at the XXVI Congreso Latinoamericano de Química/27a Reunión Anual da Sociedade Brasileira de Química, May 30th – June 2nd **2004**, Salvador, BA, Brazil
23. Nick Hankins and Robert Price: “Membrane Filtration with Pre-coagulation for Potable Water Treatment”, 11th International Conference on Surface and Colloid Science, Iguassu Falls, Parana, Brazil, September 15-19, **2003**.
24. Bianfang Bai, Nick Hankins, Michael Hey and Sam Kingman: “In-situ ATR/FTIR Study of the Adsorption Mechanisms of Isopropyl Xanthate on Galena”, 11th International Conference on Surface and Colloid Science, Iguassu Falls, Parana, Brazil, September 15-19, **2003**.
25. R.W. Price and N.P.Hankins: “Membrane Filtration with Pre-Coagulation for Potable Water Treatment”, presented at the Annual Reception at the House of Commons for Britain’s Younger Engineers from UK University, Industrial and Public-Sector Laboratories, December 9, **2002**.
26. F.I. Talens-Alession, S.Anthony, N.P.Hankins and B.J.Azzopardi: "Removal of Phenol, Phthalic Acid, Benzoic Acid and 2,4-DB by Adsorptive Micellar Flocculation in the Presence of Zn²⁺", 2nd International Conference on 'Interfaces Against Pollution' and NATO Advanced Research Workshop on 'Role of Interfaces in Environmental Protection', Miskolc, Hungary, May 27-30, **2002**.
27. F.I. Talens-Alession, S.Anthony, N.P.Hankins and B.J.Azzopardi: "Removal of Phthalic Acid by Adsorptive Micellar Flocculation in the Presence of Na⁺ and Zn²⁺", XXXII Jornadas del Comité Español de la Detergencia Tensioactivos Y Afines, Barcelona, Spain, April 10-12, **2002**.

28. L.Y.Chong, B.J.Azzopardi and N.P.Hankins: "Entrainment Rate in Annular Two-Phase Flow", 7th UK National Conference on Heat Transfer, Nottingham University UK, September 11-12, **2001**.
29. F.I. Talens-Alesson, N.P.Hankins and B.J.Azzopardi: "Soaps and Fe³⁺ as an Alternative to SDS and Al³⁺ in Adsorptive Micellar Flocculation", XXXI Jornadas del Comité Español de la Detergencia Tensioactivos Y Afines, Barcelona, Spain, March 28-30, **2001**.
30. N.P. Hankins and F.I. Talens-Alesson: "Removal and Recycle of Pollutants from Water Streams by Associative Micellar Flocculation", Special Reception in 2000 for Britain's Younger Engineers, The House of Commons, London, December 4, **2000**.
31. N.P.Hankins: "Future Directions for the Application of Adsorption Processes in Gas Separation and Purification", presented at the session on "Adsorption Processes in Gas Separation and Purification", AIChE Spring National Meeting, Houston TX, March 14-18, **1999**.
32. N.P.Hankins and F.Jegede: "Design and Optimization of Waste Reduction by Adsorption with ADSIMTM", presented at the National Workshop on Process Waste Reduction via Separation Technologies and Separative Reactors, AIChE Center for Waste Reduction Technologies, February 4-6, **1998**, New Orleans, LA.
33. N.P.Hankins, J.H.Harwell, J.O'Haver and D.A.Sabatini: "Surfactant Adsorption: Modelling pH, Surface Charge, and Counterion Interactions on Amphoteric Surfaces", presented at the 11th International Symposium on Surfactants in Solution, Jerusalem, Israel, June 9-13, **1996**.
34. N.P.Hankins: "A Surfactant Flood Simulator based on Coherence Theory", poster presented at the Gordon Conference on "Modelling of Fluid Flows in Permeable Media", Plymouth State College NH, USA, August 10-14, **1992**.
35. N.P.Hankins, J.M.Haynes and S.D. Lubetkin: "On the Measurement of Disjoining Pressure Isotherms in Thin Electrolyte Films between Oils and Silica", paper presented at the 6th Annual Conference of the Institute Francais du Petrole on the "Physical Chemistry of Colloids and Interfaces in Oil Production", St Raphael, France, Sept. 10-13, **1991**.
36. N.P.Hankins and J.H.Harwell: "Application of Coherence Theory to a Reservoir Enhanced Oil Recovery Simulator", paper presented at the AIChE symposium on "Non-linear Wave Propagation: Theory and Application", AIChE Annual Meeting, Chicago IL, November 11-16, **1990**.
37. N.P.Hankins and J.H.Harwell: "Case Studies for the Feasibility of Sweep Improvement in Surfactant Assisted Water Flooding", paper presented at the AIChE Symposium on "Enhanced Oil Recovery", AIChE Spring Meeting, Orlando FL, March 18-22, **1990**.
38. N.P.Hankins and J.H.Harwell: "Simulation of Enhanced Oil Recovery by Surfactant Enhanced Volumetric Sweep Efficiency", paper presented at the Third Annual Link Conference on Energy, University of Rochester, New York, June **1987**.

COMPLETED POSTGRADUATE STUDENTS

Doctor of Philosophy:

- Nguyen, Tan Phong: "Bioflocculation and Final Properties of Synthetic and Activated Sludge in Wastewater Treatment", September, 2007.
- Bai, Bianfang: "In-situ Investigation of Collector Adsorption on Mineral Oxides and Sulphides for Improved Efficiency of Froth Flotation", March 2006.
- Price, Robert: "A Study of Hybrid Clarification Processes for Potable Water Treatment", January 2006.
- Pliankarom, Sudtida: "Performance of Natural Zeolite Adsorption for the Removal of Ammonium ion from Liquid Waste of Landfill Leachate-Assisted Froth Flotation Process, December 2005.

Master of Philosophy:

- Lu, Na: "The Binding of Heavy Metal Ions to Humic Substances and Their Removal Enhancement by Polyelectrolyte Flocculation", September 2005.

Master of Research:

- Anthony, Salvation: "Adsorptive Micellar Flocculation of Organic Compounds in the Presence of Sodium and Zinc Salts", March 2002.

Master of Science:

- Yao, Haifeng: "Development of Membrane Micro-Filtration Unit with Pre-Coagulation for Combined Clarification and Filtration", September 2002.
- Dave, Hardik K: "A Critical Review of the Influence of Physical-Chemical Parameters on Biological Floc Formation", September 2004.
- Jun, Yan: "A Critical Review of the Manufacture and Use of Single-Walled Carbon Nanotubes", September 2004.
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