

Prof Andrew Livingston

PhD, MSc (Economics), BEng (Hons)

School of Engineering and Materials Science
Queen Mary University of London
Mile End Road
London E1 4NS

tel: +44 (0)20 7882 3006

email: a.livingston@qmul.ac.uk web: www.sems.qmul.ac.uk/a.livingston

2021

Liquid Phase Peptide Synthesis via One-Pot Nanostar Sieving (PEPSTAR).

Yeo J, Peeva L, Chung S, Gaffney P, Kim D, Luciani C, Tsukanov S, Seibert K, Kopach M, Albericio F and Livingston A. *Angew Chem Int Ed Engl* vol. 60, (14) 7786-7795.

Liquid Phase Peptide Synthesis via One-Pot Nanostar Sieving (PEPSTAR).

Yeo J, Peeva L, Chung S, Gaffney P, Kim D, Luciani C, Tsukanov S, Seibert K, Kopach M, Albericio F and Livingston A. *Angewandte Chemie* vol. 133, (14) 7865-7874.

2020

Low energy intensity production of fuel-grade bio-butanol enabled by membrane-based extraction.

Kim JH, Cook M, Peeva L, Yeo J, Bolton LW, Lee YM and Livingston AG. *Energy and Environmental Science. Royal Society of Chemistry*.

N-Aryl-linked spirocyclic polymers for membrane separations of complex hydrocarbon mixtures.

Thompson KA, Mathias R, Kim D, Kim J, Rangnekar N, Johnson JR, Hoy SJ, Bechis I, Tarzia A, Jelfs KE, McCool BA, Livingston AG, Lively RP and Finn MG. *Science* vol. 369, (6501) 310-315.

N-Aryl-linked spirocyclic polymers for membrane separations of complex hydrocarbon mixtures.

Livingston A. *Science* vol. 369, 310-315.

Nanoscale Chemical Heterogeneity in Aromatic Polyamide Membranes for Reverse Osmosis Applications.

McGilvery CM, Abellan P, Kȃȃosowski MM, Livingston AG, Cabral JT, Ramasse QM and Porter AE. *Acs Appl Mater Interfaces* vol. 12, (17) 19890-19902.

High flux thin-film nanocomposites with embedded boron nitride nanotubes for nanofiltration.

Casanova S, Liu TY, Chew YMJ, Livingston A and Mattia D. *Journal of Membrane Science* vol. 597,.

Poly(piperazine trimesamide) thin film nanocomposite membrane formation based on MIL-101: Filler aggregation and interfacial polymerization dynamics.

Butler EL, Petit C and Livingston AG. *Journal of Membrane Science* vol. 596,.

Proteins tailor pore geometry.

Livingston AG and Jiang Z. *Nature Materials*.

On the influence of salt concentration on the transport properties of reverse osmosis membranes in high pressure and high recovery desalination.

Ebrahim MA, Karan S and Livingston AG. *Journal of Membrane Science* vol. 594,.

Chapter 1 Challenges and Directions for Green Chemical Engineering--Role of Nanoscale Materials.

Livingston A, Trout BL, Horvath IT, Johnson MD, Vaccaro L, Coronas J, Babbitt CW, Zhang X, Pradeep T, Drioli E, Hayler JD, Tam KC, Kappe CO, Fane AG and Szekely G. *Sustainable Nanoscale Engineering*.

2019

Membrane Fouling: Does Microscale Roughness Matter?.

Jiang Z, Karan S and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 59, (12) 5424-5431.

Reducing the Pore Size of Covalent Organic Frameworks in Thin-Film Composite Membranes Enhances Solute Rejection.

Corcos AR, Levato GA, Jiang Z, Evans AM, Livingston AG, MarinÂ¿as BJ and Dichtel WR. *Acs Materials Letters* vol. 1, (4) 440-446.

Membrane Fractionation of Liquors from Lignin-First Biorefining.

Sultan Z, GraÃ¿a I, Li Y, Lima S, Peeva LG, Kim D, Ebrahim MA, Rinaldi R and Livingston AG. *Chemsuschem* vol. 12, (6) 1203-1212.

Author Correction: Sequence-defined multifunctional polyethers via liquid-phase synthesis with molecular sieving.

Dong R, Liu R, Gaffney PRJ, Schaeperstoens M, Marchetti P, Williams CM, Chen R and Livingston AG. *Nat Chem* vol. 11, (2).

Chapter 4 Nanofiltration in the Pharmaceutical and Biopharmaceutical Technology.

Peeva L and Livingston A. *Current Trends and Future Developments On (Bio-) Membranes*.

2018

Sequence-defined multifunctional polyethers via liquid-phase synthesis with molecular sieving.

Dong R, Liu R, Gaffney PRJ, Schaeperstoens M, Marchetti P, Williams CM, Chen R and Livingston AG. *Nature Chemistry* vol. 11, (2) 136-145. *Nature Research*.

Roll-to-roll dip coating of three different PIMs for Organic Solvent Nanofiltration.

Cook M, Gaffney PRJ, Peeva LG and Livingston AG. *Journal of Membrane Science* vol. 558, 52-63.

Iterative peptide synthesis in membrane cascades: Untangling operational decisions.

Chen W, Sharifzadeh , Shah N and Livingston AG. *Computers & Chemical Engineering* vol. 115, 275-285.

Thin Films: Water Transport through Ultrathin Polyamide Nanofilms Used for Reverse Osmosis (Adv. Mater. 15/2018).

Jiang Z, Karan S and Livingston AG. *Advanced Materials* vol. 30, (15).

Water Transport through Ultrathin Polyamide Nanofilms Used for Reverse Osmosis.

Jiang Z, Karan S and Livingston AG. *Advanced Materials* vol. 30, (15).

A robust thin film composite membrane incorporating thermally rearranged polymer support for organic solvent nanofiltration and pressure retarded osmosis.

Kim JH, Moon SJ, Park SH, Cook M, Livingston AG and Lee YM. *Journal of Membrane Science* vol. 550, 322-331.

PECVD modification of nano & ultrafiltration membranes for organic solvent nanofiltration.

Mitev D, Radeva E, Peshev D, Burgal J, Cook M, Peeva L and Livingston A. *Journal of Membrane Science* vol. 548, 540-547.

Solvent-Free Coating of Epoxysilicones for the Fabrication of Composite Membranes.

Cook M, Peeva L and Livingston A. *Industrial & Engineering Chemistry Research* vol. 57, (2) 730-739.

A compact and scalable fabrication method for robust thin film composite membranes.

Kim JH, Cook M, Park SH, Moon SJ, Kim JF, Livingston AG and Lee YM. *Green Chemistry* vol. 20, (8) 1887-1898.

2017

Continuously Operated Hydroamination - Toward High Catalytic Performance via Organic Solvent Nanofiltration in a Membrane Reactor.

Vogelsang D, Dreimann JM, Wenzel D, Peeva L, da Silva Burgal J, Livingston AG, Behr A and Vorholt AJ. *Industrial & Engineering Chemistry Research* vol. 56, (46) 13634-13641.

Neutron Reflectivity and Performance of Polyamide Nanofilms for Water Desalination.

Foglia F, Karan S, Nania M, Jiang Z, Porter AE, Barker R, Livingston AG and Cabral JT. *Advanced Functional Materials* vol. 27, (37).

Probing flow activity in polyamide layer of reverse osmosis membrane with nanoparticle tracers.

Li Y, KÅ¸osowski MM, McGilvery CM, Porter AE, Livingston AG and Cabral JT. *Journal of Membrane Science* vol. 534, 9-17.

Implication of Side Reactions in Iterative Biopolymer Synthesis: The Case of Membrane Enhanced Peptide Synthesis.

Chen W, Sharifzadeh M, Shah N and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 56, (23) 6796-6804.

The Selectivity Challenge in Organic Solvent Nanofiltration: Membrane and Process Solutions.

Marchetti P, Peeva L and Livingston A.

Will ultra-high permeance membranes lead to ultra-efficient processes? Challenges for molecular separations in liquid systems.

Shi B, Marchetti P, Peshev D, Zhang S and Livingston AG. *Journal of Membrane Science* vol. 525, 35-47.

Negligible ageing in poly(ether-ether-ketone) membranes widens application range for solvent processing.

da Silva Bursal J, Peeva L and Livingston A. *Journal of Membrane Science* vol. 525, 48-56.

Membranes from academia to industry.

. *Nat Mater* vol. 16, (3) 280-282.

Nanofiltration Operations in Nonaqueous Systems.

Peeva LG, Marchetti P and Livingston AG. *Comprehensive Membrane Science and Engineering*.

2016

Organic fouling behaviour of structurally and chemically different forward osmosis membranes - A study of cellulose triacetate and thin film composite membranes.

Mazlan NM, Marchetti P, Maples HA, Gu B, Karan S, Bismarck A and Livingston AG. *Journal of Membrane Science* vol. 520, 247-261.

Micro-to nano-scale characterisation of polyamide structures of the SW30HR RO membrane using advanced electron microscopy and stain tracers.

KÅ¸osowski MM, McGilvery CM, Li Y, Abellan P, Ramasse Q, Cabral JT, Livingston AG and Porter AE. *Journal of Membrane Science* vol. 520, 465-476.

Controlling biofilm development in the extractive membrane bioreactor.

Yeo BJL, Goh S, Livingston AG and Fane AG. *Separation Science and Technology* vol. 52, (1) 113-121.

Researchers develop "designer" chemical separation membranes.

Livingston A. *Membrane Technology* vol. 2016, (11).

Continuous Consecutive Reactions with Inter-Reaction Solvent Exchange by Membrane Separation.

Peeva L, Bursal JDS, Heckenast Z, Brazy F, Cazenave F and Livingston A. *Angewandte Chemie International Edition* vol. 55, (43) 13576-13579. Wiley.

Continuous Consecutive Reactions with Inter-Reaction Solvent Exchange by Membrane Separation.

Peeva L, Da Silva Bursal J, Heckenast Z, Brazy F, Cazenave F and Livingston A. *Angewandte Chemie* vol. 128, (43) 13774-13777.

Solvent recycle with imperfect membranes: A semi-continuous workaround for diafiltration.

Schaepertoens M, Didaskalou C, Kim JF, Livingston AG and Szekely G. *Journal of Membrane Science* vol. 514, 646-658.

Organic Solvent Nanofiltration (OSN): A New Technology Platform for Liquid-Phase Oligonucleotide Synthesis (LPOS).

Kim JF, Gaffney PRJ, Valtcheva IB, Williams G, Buswell AM, Anson MS and Livingston AG. *Organic Process Research & Development* vol. 20, (8) 1439-1452.

Polymer nanofilms with enhanced microporosity by interfacial polymerization.

Jimenez-Solomon MF, Song Q, Jelfs KE, Munoz-Ibanez M and Livingston AG. *Nature Materials* vol. 15, (7) 760-767.

Multi-scale modelling of OSN batch concentration with spiral-wound membrane modules using OSN Designer.

Shi B, Peshev D, Marchetti P, Zhang S and Livingston AG. *Chemical Engineering Research and Design* vol. 109, 385-396.

Hybrid polymer/MOF membranes for Organic Solvent Nanofiltration (OSN): Chemical modification and the quest for perfection.

Campbell J, Da Silva Bural J, Szekely G, Davies RP, Braddock DC and Livingston A. *Journal of Membrane Science* vol. 503, 166-176.

Towards improved membrane production: using low-toxicity solvents for the preparation of PEEK nanofiltration membranes.

da Silva Bural J, Peeva L and Livingston A. *Green Chemistry* vol. 18, (8) 2374-2384.

Energy consumption for desalination -- A comparison of forward osmosis with reverse osmosis, and the potential for perfect membranes.

Mazlan NM, Peshev D and Livingston AG. *Desalination* vol. 377, 138-151.

2015

Tunable-Porosity Membranes From Discrete Nanoparticles.

Marchetti P, Mechelhoff M and Livingston AG. *Sci Rep* vol. 5,.

Crosslinked polybenzimidazole membranes for organic solvent nanofiltration (OSN): Analysis of crosslinking reaction mechanism and effects of reaction parameters.

Valtcheva IB, Marchetti P and Livingston AG. *Journal of Membrane Science* vol. 493, 568-579.

Controlling molecular weight cut-off of PEEK nanofiltration membranes using a drying method.

da Silva Bural J, Peeva L, Marchetti P and Livingston A. *Journal of Membrane Science* vol. 493, 524-538.

Performance of spiral-wound membrane modules in organic solvent nanofiltration - Fluid dynamics and mass transfer characteristics.

Shi B, Marchetti P, Peshev D, Zhang S and Livingston AG. *Journal of Membrane Science* vol. 494, 8-24.

Novel MBRs for the removal of organic priority pollutants from industrial wastewaters: a review.

Yeo BJ, Goh S, Zhang J, Livingston AG and Fane AG. *Journal of Chemical Technology & Biotechnology* vol. 90, (11) 1949-1967.

Liquid-Phase Synthesis of 2'-Methyl-RNA on a Homostar Support through Organic-Solvent Nanofiltration.

Gaffney PRJ, Kim JF, Valtcheva IB, Williams GD, Anson MS, Buswell AM and Livingston AG. *Chemistry* vol. 21, (26) 9535-9543.

Sub-10 nm polyamide nanofilms with ultrafast solvent transport for molecular separation.

Karan S, Jiang Z and Livingston AG. *Science* vol. 348, (6241) 1347-1351.

Organic solvent resistant poly(ether-ether-ketone) nanofiltration membranes.

da Silva Bural J, Peeva LG, Kumbharkar S and Livingston A. *Journal of Membrane Science* vol. 479, 105-116.

Predictive membrane transport models for Organic Solvent Nanofiltration: How complex do we need to be?.

Marchetti P and Livingston AG. *Journal of Membrane Science* vol. 476, 530-553.

Molecularly imprinted organic solvent nanofiltration membranes - Revealing molecular recognition and solute rejection behaviour.

Székely G, Valtcheva IB, Kim JF and Livingston AG. *Reactive and Functional Polymers* vol. 86, 215-224.

Editorial "Polymers for membrane applications".

Bismarck A, Li K and Livingston A. *Reactive and Functional Polymers* vol. 86,.

Improving the permeance of hybrid polymer/metal-organic framework (MOF) membranes for organic solvent nanofiltration (OSN) - development of MOF thin films via interfacial synthesis.

Campbell J, Davies RP, Braddock DC and Livingston AG. *Journal of Materials Chemistry A* vol. 3, (18) 9668-9674.

Synthesis and characterization of branched fullerene-terminated poly(ethylene glycol)s.

Yau HC, Bayazit MK, Gaffney PRJ, Livingston AG, Steinke JHG and Shaffer MSP. *Polymer Chemistry* vol. 6, (7) 1056-1065.

2014

Molecular separation with organic solvent nanofiltration: a critical review.

Marchetti P, Jimenez Solomon MF, Szekely G and Livingston AG. *Chem Rev* vol. 114, (21) 10735-10806.

Continuous purification of active pharmaceutical ingredients using multistage organic solvent nanofiltration membrane cascade.

Peeva L, da Silva Bungal J, Valtcheva I and Livingston AG. *Chemical Engineering Science* vol. 116, 183-194.

Pore preserving crosslinkers for polyimide OSN membranes.

Siddique H, Bhole Y, Peeva LG and Livingston AG. *Journal of Membrane Science* vol. 465, 138-150.

In Situ Solvent Recovery by Organic Solvent Nanofiltration.

Kim JF, Szekely G, Schaepertoens M, Valtcheva IB, Jimenez-Solomon MF and Livingston AG. *Acs Sustainable Chemistry & Engineering* vol. 2, (10) 2371-2379.

Membranes: Ultrathin Polymer Films with Intrinsic Microporosity: Anomalous Solvent Permeation and High Flux Membranes (Adv. Funct. Mater. 30/2014).

Gorgojo P, Karan S, Wong HC, Jimenez-Solomon MF, Cabral JT and Livingston AG. *Advanced Functional Materials* vol. 24, (30) 4728-4728.

Beyond PEG2000: synthesis and functionalisation of monodisperse PEGylated homostars and clickable bivalent polyethyleneglycols.

Székely G, Schaepertoens M, Gaffney PRJ and Livingston AG. *Chemistry* vol. 20, (32) 10038-10051.

Sustainability assessment of organic solvent nanofiltration: from fabrication to application.

Szekely G, Jimenez-Solomon MF, Marchetti P, Kim JF and Livingston AG. *Green Chemistry* vol. 16, (10) 4440-4473.

Polyamide thin film composite membranes on cross-linked polyimide supports: Improvement of RO performance via activating solvent.

Gorgojo P, Jimenez-Solomon MF and Livingston AG. *Desalination* vol. 344, 181-188.

Racemisation of 1-Arylethylamines with Shvo-type Organoruthenium Catalysts.

Apps J, Livingston A, Parrett M, Pounder R, Taylor P and Turner A. *Synlett* vol. 25, (10) 1391-1394.

Beyond polyimide: Crosslinked polybenzimidazole membranes for organic solvent nanofiltration (OSN) in harsh environments.

Valtcheva IB, Kumbharkar SC, Kim JF, Bhole Y and Livingston AG. *Journal of Membrane Science* vol. 457, 62-72.

Ultrathin polymer films with intrinsic microporosity: Anomalous solvent permeation and high flux membranes.

Gorgojo P, Karan S, Wong HC, Jimenez-Solomon MF, Cabral JT and Livingston AG. *Advanced Functional Materials* vol. 24, (30) 4729-4737. Wiley.

Controlling Crystallization via Organic Solvent Nanofiltration: The Influence of Flux on Griseofulvin Crystallization.

Campbell J, Peeva LG and Livingston AG. *Crystal Growth & Design* vol. 14, (5) 2192-2200.

Mixed matrix membranes for organic solvent nanofiltration.

Siddique H, Rundquist E, Bhole Y, Peeva LG and Livingston AG. *Journal of Membrane Science* vol. 452, 354-366.

Increasing the sustainability of membrane processes through cascade approach and solvent recovery--pharmaceutical purification case study.

Kim JF, Székely G, Valtcheva IB and Livingston AG. *Green Chemistry* vol. 16, (1) 133-145.

Fabrication of hybrid polymer/metal organic framework membranes: mixed matrix membranes versus in situ growth.

Campbell J, Székely G, Davies RP, Braddock DC and Livingston AG. *Journal of Materials Chemistry A* vol. 2, (24) 9260-9271.

Iterative synthesis of monodisperse PEG homostars and linear heterobifunctional PEG.

Szkely G, Schaepertoens M, Gaffney PRJ and Livingston AG. *Polymer Chemistry* vol. 5, (3) 694-697.

2013

Use of Continuous MSMPR Crystallization with Integrated Nanofiltration Membrane Recycle for Enhanced Yield and Purity in API Crystallization.

Ferguson S, Ortner F, Quon J, Peeva L, Livingston A, Trout BL and Myerson AS. *Crystal Growth & Design* vol. 14, (2) 617-627.

OSN Designer, a tool for predicting organic solvent nanofiltration technology performance using Aspen One, MATLAB and CAPE OPEN.

Peshev D and Livingston AG. *Chemical Engineering Science* vol. 104, 975-987.

Beneath the surface: Influence of supports on thin film composite membranes by interfacial polymerization for organic solvent nanofiltration.

Jimenez-Solomon MF, Gorgojo P, Munoz-Ibanez M and Livingston AG. *Journal of Membrane Science* vol. 448, 102-113.

High flux thin film nanocomposite membranes based on metal-organic frameworks for organic solvent nanofiltration.

Sorribas S, Gorgojo P, Tllez C, Coronas J and Livingston AG. *J Am Chem Soc* vol. 135, (40) 15201-15208.

NF in organic solvent/water mixtures: Role of preferential solvation.

Marchetti P, Butt A and Livingston AG. *Journal of Membrane Science* vol. 444, 101-115.

Experimental strategies for increasing the catalyst turnover number in a continuous Heck coupling reaction.

Peeva L, da Silva Bursal J, Vartak S and Livingston AG. *Journal of Catalysis* vol. 306, 190-201.

Organic Solvent Nanofiltration.

Szkely G, Marchetti P, JimenezSolomon MF and Livingston AG. *Encyclopedia of Membrane Science and Technology*.

Quality by Design for peptide nanofiltration: Fundamental understanding and process selection.

Marchetti P, Butt A and Livingston AG. *Chemical Engineering Science* vol. 101, 200-212.

When the membrane is not enough: A simplified membrane cascade using Organic Solvent Nanofiltration (OSN).

Kim JF, da Silva AMF, Valtcheva IB and Livingston AG. *Separation and Purification Technology* vol. 116, 277-286.

Nanoparticle contrast agents to elucidate the structure of thin film composite nanofiltration membranes.

Stawikowska J, Jimenez-Solomon MF, Bhole Y and Livingston AG. *Journal of Membrane Science* vol. 442, 107-118.

On the Potential of Organic Solvent Nanofiltration in Continuous Heck Coupling Reactions.

Peeva L, Arbour J and Livingston A. *Organic Process Research & Development* vol. 17, (7) 967-975.

ChemInform Abstract: Efficient and Productive Asymmetric Michael Addition: Development of a Highly Enantioselective Quinidine-Based Organocatalyst for Homogeneous Recycling via Nanofiltration.

Siew WE, Ates C, Merschaert A and Livingston AG. *Cheminform* vol. 44, (27) no-no.

Pore-flow calculations based on pore size distributions in polyimide membranes determined by a nanoprobe imaging technique.

Stawikowska J, Kim JF and Livingston AG. *Chemical Engineering Science* vol. 97, 81-95.

High flux hydrophobic membranes for organic solvent nanofiltration (OSN)--Interfacial polymerization, surface modification and solvent activation.

Solomon MFJ, Bhole Y and Livingston AG. *Journal of Membrane Science* vol. 434, 193-203.

Molecular separation with an organic solvent nanofiltration cascade - augmenting membrane selectivity with process engineering.

Siew WE, Livingston AG, Ates C and Merschaert A. *Chemical Engineering Science* vol. 90, 299-310.

Assessment of atomic force microscopy for characterisation of nanofiltration membranes.

Stawikowska J and Livingston AG. *Journal of Membrane Science* vol. 425, 58-70.

Continuous solute fractionation with membrane cascades - A high productivity alternative to diafiltration.

Siew WE, Livingston AG, Ates C and Merschaert A. *Separation and Purification Technology* vol. 102, 1-14.

Efficient and productive asymmetric Michael addition: development of a highly enantioselective quinidine-based organocatalyst for homogeneous recycling via nanofiltration.

Siew WE, Ates C, Merschaert A and Livingston AG. *Green Chemistry* vol. 15, (3) 663-674.

Batchwise and continuous nanofiltration of POSS-tagged Grubbs-Hoveyda-type olefin metathesis catalysts.

Kajetanowicz A, Czaban J, Krishnan GR, Malińska M, Woźniak K, Siddique H, Peeva LG, Livingston AG and Grela K. *ChemSuschem* vol. 6, (1) 182-192.

2012

High flux membranes for organic solvent nanofiltration (OSN)--Interfacial polymerization with solvent activation.

Solomon MFJ, Bhole Y and Livingston AG. *Journal of Membrane Science* vol. 423, 371-382.

An improved phenomenological model for prediction of solvent permeation through ceramic NF and UF membranes.

Marchetti P, Butt A and Livingston AG. *Journal of Membrane Science* vol. 415, 444-458.

Nanoprobe imaging molecular scale pores in polymeric membranes.

Stawikowska J and Livingston AG. *Journal of Membrane Science* vol. 413, 1-16.

Membranes for Organic Solvent Nanofiltration Based on Preassembled Nanoparticles.

Siddique H, Peeva LG, Stoikos K, Pasparakis G, Vamvakaki M and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 52, (3) 1109-1121.

Facilitating the use of counter-current chromatography in pharmaceutical purification through use of organic solvent nanofiltration.

Rundquist E, Pink C, Vilminot E and Livingston A. *J Chromatogr A* vol. 1229, 156-163.

Separation of reaction product and palladium catalyst after a Heck coupling reaction by means of organic solvent nanofiltration.

Tsoukala A, Peeva L, Livingston AG and Björsvik H-R. *ChemSuschem* vol. 5, (1) 188-193.

Speciation of Pd(OAc)₂ in ligandless Suzuki-Miyaura reaction (vol 2, pg 316, 2012).

Adrio LA, Nguyen BN, Guilera G, Livingston AG and Hii KKM. *Catalysis Science & Technology* vol. 2, (12) 2578-2578.

Organic solvent nanofiltration : a potential alternative to distillation for solvent recovery from crystallisation mother liquors.

Rundquist EM, Pink CJ and Livingston AG. *Green Chemistry* vol. 14, (8) 2197-2205.

Speciation of Pd(OAc)₂ in ligandless Suzuki-Miyaura reactions.

Adrio LA, Nguyen BN, Guilera G, Livingston AG and Hii K. *Catalysis Science & Technology* vol. 2, (2) 316-323.

Novel Liquid Phase Peptide Synthesis (LPPS) Technology: Elongation using Organic Solvent Nanofiltration (OSN).

Chen WQ, Cristau M, Giraud M and Livingston AG. *Procedia Engineering* vol. 44, 1232-1233.

REMOVED: A Simple Closed-Loop Membrane Cascade System for Purification of Active Pharmaceutical Ingredients (API).

Kim JF, Da Silva AF, Gaffney PRJ and Livingston AG. *Procedia Engineering* vol. 44, 896-898.

REMOVED: Organic Solvent Nanofiltration Thin Film Composite (TFC) Membranes by Interfacial Polymerisation.

Solomon MFJ, Bhole Y and Livingston AG. *Procedia Engineering* vol. 44, 253-255.

REMOVED: Modification of Mixed Matrix Membranes for Organic Solvent Nanofiltration.
Campbell J, Davies R, Braddock C and Livingston AG. *Procedia Engineering* vol. 44, 1713-1715.

2011

The effect of membrane formation parameters on performance of polyimide membranes for organic solvent nanofiltration (OSN). Part C. Effect of polyimide characteristics.

Soroko I, Sairam M and Livingston AG. *Journal of Membrane Science* vol. 381, (1-2) 172-182.

The effect of membrane formation parameters on performance of polyimide membranes for organic solvent nanofiltration (OSN): Part A. Effect of polymer/solvent/non-solvent system choice.

Soroko I, Lopes MP and Livingston A. *Journal of Membrane Science* vol. 381, (1-2) 152-162.

The effect of membrane formation parameters on performance of polyimide membranes for organic solvent nanofiltration (OSN). Part B: Analysis of evaporation step and the role of a co-solvent.

Soroko I, Makowski M, Spill F and Livingston A. *Journal of Membrane Science* vol. 381, (1-2) 163-171.

Method for the preparation of cellulose acetate flat sheet composite membranes for forward osmosis--Desalination using MgSO₄ draw solution.

Sairam M, Sereewatthanawut E, Li K, Bismarck A and Livingston AG. *Desalination* vol. 273, (2-3) 299-307.

Nanofiltration process for the nutritional enrichment and refining of rice bran oil.

Sereewatthanawut I, Baptista IIR, Boam AT, Hodgson A and Livingston AG. *Journal of Food Engineering* vol. 102, (1) 16-24.

Environmentally friendly route for the preparation of solvent resistant polyimide nanofiltration membranes.

Soroko I, Bhole Y and Livingston AG. *Green Chemistry* vol. 13, (1) 162-168.

2010

Long-Term, Cytokine-Free Ex Vivo Expansion of Human Cord Blood Mononuclear Cells Using a Novel Closed-Loop 3D Dual Hollow Fibre Perfused Bioreactor.

Rende M, Macedo H, Livingston AG, Li K, Panoskaltis N and Mantalaris A. *Blood* vol. 116, (21) 828-828.

Organic Solvent Nanofiltration: A New Paradigm in Peptide Synthesis.

So S, Peeva LG, Tate EW, Leatherbarrow RJ and Livingston AG. *Organic Process Research & Development* vol. 14, (6) 1313-1325.

A novel approach to modelling counter-current chromatography.

Guzlek H, Baptista IIR, Wood PL and Livingston A. *J Chromatogr A* vol. 1217, (40) 6230-6240.

The regulatory logic of m-xylene biodegradation by *Pseudomonas putida* mt-2 exposed by dynamic modelling of the principal node Ps/Pr of the TOL plasmid.

Koutinas M, Lam M-C, Kiparissides A, Silva-Rocha R, Godinho M, Livingston AG, Pistikopoulos EN, de Lorenzo V, Dos Santos VAPM and Mantalaris A. *Environ Microbiol* vol. 12, (6) 1705-1718.

ChemInform Abstract: Semi-Continuous Nanofiltration-Coupled Heck Reactions as a New Approach to Improve Productivity of Homogeneous Catalysts.

Nair D, Scarpello JT, White LS, dos Santos LMF, Vankelecom IFJ and Livingston AG. *Cheminform* vol. 33, (5) no-no.

Membrane enhanced peptide synthesis.

So S, Peeva LG, Tate EW, Leatherbarrow RJ and Livingston AG. *Chem Commun (Camb)* vol. 46, (16) 2808-2810.

Demonstration of Molecular Purification in Polar Aprotic Solvents by Organic Solvent Nanofiltration.

Sereewatthanawut I, Lim FW, Bhole YS, Ormerod D, Horvath A, Boam AT and Livingston AG. *Organic Process Research & Development* vol. 14, (3) 600-611.

Organic solvent nanofiltration (OSN) with spiral-wound membrane elements--Highly rejected solute system.

Silva P, Peeva LG and Livingston AG. *Journal of Membrane Science* vol. 349, (1-2) 167-174.

Spiral-wound polyaniline membrane modules for organic solvent nanofiltration (OSN).

Sairam M, Loh XX, Bhole Y, Sereewatthanawut I, Li K, Bismarck A, Steinke JHG and Livingston AG. *Journal of Membrane Science* vol. 349, (1-2) 123-129.

2.05 Nanofiltration Operations in Nonaqueous Systems.

Peeva LG, Sairam M and Livingston AG. *Comprehensive Membrane Science and Engineering*.

2009

Impact of TiO₂ nanoparticles on morphology and performance of crosslinked polyimide organic solvent nanofiltration (OSN) membranes.

Soroko I and Livingston A. *Journal of Membrane Science* vol. 343, (1-2) 189-198.

Enantioseparation via EIC-OSN: Process design and improvement of enantiomers resolvability and separation performance.

Sereewatthanawut I, Ferreira FC, Ghazali NF and Livingston AG. *Aiche Journal* vol. 56, (4) 893-904.

Enantioselective whole-cell biotransformation of acetophenone to S-phenylethanol by *Rhodotorula glutinis*. Part II. Aqueous-organic systems: Emulsion and membrane bioreactors.

Valadez-Blanco R and Livingston AG. *Biochemical Engineering Journal* vol. 46, (1) 54-60.

Enantioselective whole-cell biotransformation of acetophenone to S-phenylethanol by *Rhodotorula glutinis* Part I. Product formation kinetics and feeding strategies in aqueous media.

Valadez-Blanco R and Livingston AG. *Biochemical Engineering Journal* vol. 46, (1) 44-53.

A novel phase transition technique for fabrication of mesopore sized ceramic membranes.

Wang B, Wu Z, Livingston AG and Li K. *Journal of Membrane Science* vol. 339, (1-2) 5-9.

Extending Ru-BINAP Catalyst Life and Separating Products from Catalyst Using Membrane Recycling.

Nair D, Wong H-T, Han S, Vankelecom IFJ, White LS, Livingston AG and Boam AT. *Organic Process Research & Development* vol. 13, (5) 863-869.

Molecular separation: the new frontier in liquid filtration.

Livingston A and Nasso M. *Tce (814)* 34-36.

Membrane characterisation by SEM, TEM and ESEM: The implications of dry and wetted microstructure on mass transfer through integrally skinned polyimide nanofiltration membranes.

Patterson DA, Havill A, Costello S, See-Toh YH, Livingston AG and Turner A. *Separation and Purification Technology* vol. 66, (1) 90-97.

Nanoporous asymmetric polyaniline films for filtration of organic solvents.

Sairam M, Loh XX, Li K, Bismarck A, Steinke JHG and Livingston AG. *Journal of Membrane Science* vol. 330, (1-2) 166-174.

Solute molecular transport through polyimide asymmetric organic solvent nanofiltration (OSN) membranes and the effect of membrane-formation parameters on mass transfer.

Valadez-Blanco R and Livingston AG. *Journal of Membrane Science* vol. 326, (2) 332-342.

Crosslinked integrally skinned asymmetric polyaniline membranes for use in organic solvents.

Loh XX, Sairam M, Bismarck A, Steinke JHG, Livingston AG and Li K. *Journal of Membrane Science* vol. 326, (2) 635-642.

2008

Polyaniline hollow fibres for organic solvent nanofiltration.

Loh XX, Sairam M, Steinke JHG, Livingston AG, Bismarck A and Li K. *Chem Commun (Camb)* (47) 6324-6326.

Controlling molecular weight cut-off curves for highly solvent stable organic solvent nanofiltration (OSN) membranes.

See-Toh YH, Silva M and Livingston A. *Journal of Membrane Science* vol. 324, (1-2) 220-232.

Organic Solvent Nanofiltration and Adsorbents; A Hybrid Approach to Achieve Ultra Low Palladium Contamination of Post Coupling Reaction Products.

Pink CJ, Wong H-T, Ferreira FC and Livingston AG. *Organic Process Research & Development* vol. 12, (4) 589-595.

Membranes for the dehydration of solvents by pervaporation.

Chapman PD, Oliveira T, Livingston AG and Li K. *Journal of Membrane Science* vol. 318, (1-2) 5-37.

Polyaniline membranes for the dehydration of tetrahydrofuran by pervaporation.

Chapman P, Loh XX, Livingston AG, Li K and Oliveira TAC. *Journal of Membrane Science* vol. 309, (1-2) 102-111.

Evidence of species succession during chlorobenzene biodegradation.

Baptista IIR, Zhou NY, Emanuelsson EAC, Peeva LG, Leak DJ, Mantalaris A and Livingston AG. *Biotechnol Bioeng* vol. 99, (1) 68-74.

Solvent nanofiltration in organic processes - A rapid and scalable purification technology.

Nasso M and Livingston AG. *Chimica Oggi-Chemistry Today* vol. 26, (5) 62-66.

2007

The use of an oil-absorber-bioscrubber system during biodegradation of sequentially alternating loadings of 1,2-dichloroethane and fluorobenzene in a waste gas.

Koutinas M, Baptista IIR, Meniconi A, Peeva LG, Mantalaris A, Castro PML and Livingston AG. *Chemical Engineering Science* vol. 62, (21) 5989-6001.

Stability and Performance of Xanthobacter autotrophicus GJ10 during 1,2-Dichloroethane Biodegradation.

Baptista IIR, Peeva LG, Zhou N-Y, Leak DJ, Mantalaris A and Livingston AG. *Applied and Environmental Microbiology* vol. 73, (19) 6326-6326.

Towards a continuous dynamic kinetic resolution of 1-phenylethylamine using a membrane assisted, two vessel process.

Roengpithya C, Patterson DA, Livingston AG, Taylor PC, Irwin JL and Parrett MR. *Chem Commun (Camb)* (33) 3462-3463.

Polymeric membranes for nanofiltration in polar aprotic solvents.

Toh YHS, Lim FW and Livingston AG. *Journal of Membrane Science* vol. 301, (1-2) 3-10.

The influence of membrane formation parameters on the functional performance of organic solvent nanofiltration membranes.

See-Toh YH, Ferreira FC and Livingston AG. *Journal of Membrane Science* vol. 299, (1-2) 236-250.

Simulation of the cellular anabolic activity within biofilms: Where a new immobilized cell will preferably be born?.

Gikas P and Livingston AG. *Biochemical Engineering Journal* vol. 35, (1) 29-36.

Nanofiltration membrane cascade for continuous solvent exchange.

Lin JC-T and Livingston AG. *Chemical Engineering Science* vol. 62, (10) 2728-2736.

The use of an oil absorber as a strategy to overcome starvation periods in degrading 1,2-dichloroethane in waste gas.

Koutinas M, Baptista IIR, Peeva LG, Ferreira Jorge RM and Livingston AG. *Biotechnol Bioeng* vol. 96, (4) 673-686.

In search of a standard method for the characterisation of organic solvent nanofiltration membranes.

Toh YHS, Loh XX, Li K, Bismarck A and Livingston AG. *Journal of Membrane Science* vol. 291, (1-2) 120-125.

MEMBRANE SEPARATIONS | Nanofiltration in Organic Liquids.

VerÁ-ssimo SM, Silva P and Livingston AG. *Encyclopedia of Separation Science*.

2006

Organic Solvent Nanofiltration in Asymmetric Hydrogenation: Enhancement of Enantioselectivity and Catalyst Stability by Ionic Liquids.

Wong H, See-Á;Toh YH, Ferreira FC, Crook R and Livingston AG. *Cheminform* vol. 37, (37).

Investigation of the Compatibility of Racemization and Kinetic Resolution for the Dynamic Kinetic Resolution of an Allylic Alcohol.

Roengpithya C, Patterson DA, Gibbins EJ, Taylor PC and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 45, (21) 7101-7109.

Effect of solute concentration and mass transfer limitations on transport in organic solvent nanofiltration -- partially rejected solute.

Silva P and Livingston AG. *Journal of Membrane Science* vol. 280, (1-2) 889-898.

Bioremediation of Industrial and Agro-industrial Effluents.

Kalogerakis N, Livingston AG and Mantzavinos D. *Journal of Chemical Technology & Biotechnology* vol. 81, (9) 1449-1449.

Organic Solvent Nanofiltration.

Livingston AG, Peeva LG and Silva P. *Membrane Technology*.

Enantiomer separation by enantioselective inclusion complexation-organic solvent nanofiltration.

Ghazali NF, Ferreira FC, White AJP and Livingston AG. *Tetrahedron Asymmetry* vol. 17, (12) 1846-1852.

Development of a Liquid-Phase Process for Recycling Resolving Agents within Diastereomeric Resolutions.

Ferreira FC, Macedo H, Cocchini U and Livingston AG. *Organic Process Research & Development* vol. 10, (4) 784-793.

The absolute configuration of (+)-(E)-4-phenylbut-3-ene-2-ol.

Clarkson G, Livingston AG, Muir JC and Taylor PC. *Org Biomol Chem* vol. 4, (11).

Stability and performance of Xanthobacter autotrophicus GJ10 during 1,2-dichloroethane biodegradation.

Baptista IIR, Peeva LG, Zhou N-Y, Leak DJ, Mantalaris A and Livingston AG. *Appl Environ Microbiol* vol. 72, (6) 4411-4418.

Investigation of biofilm growth and attrition in a three-phase airlift bioreactor using 35SO42- as a radiolabelled tracer.

Gikas P and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 81, (6) 858-865.

Organic solvent nanofiltration in asymmetric hydrogenation: enhancement of enantioselectivity and catalyst stability by ionic liquids.

Wong H-T, See-Toh YH, Ferreira FC, Crook R and Livingston AG. *Chem Commun (Camb)* (19) 2063-2065.

Control of membrane-attached biofilms using surfactants.

Splendiani A, Livingston AG and Nicoletta C. *Biotechnol Bioeng* vol. 94, (1) 15-23.

Rational approach to the selection of conditions for diastereomeric resolution of chiral amines by diacid resolving agents.

Ferreira FC, Ghazali NF, Cocchini U and Livingston AG. *Tetrahedron Asymmetry* vol. 17, (9) 1337-1348.

The effect of ionic liquids on product yield and catalyst stability.

Wong H-T, Han S and Livingston AG. *Chemical Engineering Science* vol. 61, (4) 1338-1341.

An oil-absorber-bioscrubber system to stabilize biotreatment of pollutants present in waste gas. Fluctuating loads of 1,2-dichloroethane.

Koutinas M, Martin J, Peeva LG, Mantalaris A and Livingston AG. *Environ Sci Technol* vol. 40, (2) 595-602.

Recovery and reuse of ionic liquids and palladium catalyst for Suzuki reactions using organic solvent nanofiltration.

Wong H-T, Pink CJ, Ferreira FC and Livingston AG. *Green Chemistry* vol. 8, (4) 373-379.

Application of thin film composite membranes to the membrane aromatic recovery system.

Daisley GR, Dastgir MG, Ferreira FC, Peeva LG and Livingston AG. *Journal of Membrane Science* vol. 268, (1) 20-36.

Dehydration of tetrahydrofuran by pervaporation using a composite membrane.

Chapman PD, Tan X, Livingston AG, Li K and Oliveira T. *Journal of Membrane Science* vol. 268, (1) 13-19.

2005

Strain stability in biological systems treating recalcitrant organic compounds.

Emanuelsson EAC, Baptista IIR, Mantalaris A and Livingston AG. *Biotechnol Bioeng* vol. 92, (7) 843-849.

The performance of composite supported polymeric liquid membranes in the Membrane Aromatic Recovery System (MARS).

Dastgir MG, Peeva LG and Livingston AG. *Chemical Engineering Science* vol. 60, (24) 7034-7044.

An attempt to compare the performance of bioscrubbers and biotrickling filters for degradation of ethyl acetate in gas streams.

Koutinas M, Peeva LG and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 80, (11) 1252-1260.

An Improved Protocol for the Synthesis and Nanofiltration of Kim and Park's Aminocyclopentadienyl Ruthenium Chloride Racemisation Catalyst.

Gibbins E, Irwin J, Livingston A, Muir J, Patterson D, Roengpithya C and Taylor P. *Synlett* vol. 2005, (19) 2993-2995.

Solvent transport in organic solvent nanofiltration membranes.

Silva P, Han S and Livingston AG. *Journal of Membrane Science* vol. 262, (1-2) 49-59.

The synthesis of polypropylene glycol based polyethers and their use in membranes for the membrane aromatic recovery system (MARS).

Dastgir MG, Peeva LG, Livingston AG, Morley TA and Steinke JHG. *Journal of Membrane Science* vol. 261, (1-2) 87-97.

Pilot scale application of the Membrane Aromatic Recovery System (MARS) for recovery of phenol from resin production condensates.

Ferreira FC, Peeva L, Boam A, Zhang S and Livingston A. *Journal of Membrane Science* vol. 257, (1-2) 120-133.

Stabilization of Supported Liquid Membranes by γ -Radiation and Their Performance in the Membrane Aromatic Recovery System.

Dastgir MG, Peeva LG, Livingston AG, Morley TA and Steinke JHG. *Industrial & Engineering Chemistry Research* vol. 44, (20) 7659-7667.

Application of Organic Solvent Nanofiltration to Separation of Ionic Liquids and Products from Ionic Liquid Mediated Reactions.

Han S, Wong H-T and Livingston AG. *Chemical Engineering Research and Design* vol. 83, (3) 309-316.

Mass transfer enhancement in the membrane aromatic recovery system (MARS): experimental results and comparison with theory.

Ferreira FC, Peeva LG and Livingston AG. *Chemical Engineering Science* vol. 60, (4) 1029-1042.

Mass transfer enhancement in the Membrane Aromatic Recovery System (MARS): theoretical analysis.

Ferreira FC, Peeva LG and Livingston AG. *Chemical Engineering Science* vol. 60, (1) 151-166.

2004

Effect of concentration polarisation and osmotic pressure on flux in organic solvent nanofiltration.

Peeva LG, Gibbins E, Luthra SS, White LS, Stateva RP and Livingston AG. *Journal of Membrane Science* vol. 236, (1-2) 121-136.

Elucidation of the mechanism of chiral selectivity in diastereomeric salt formation using organic solvent nanofiltration.

Ghazali NF, Patterson DA and Livingston AG. *Chem Commun (Camb)* (8) 962-963.

Recovery of 2,4-dichlorophenol from acidic aqueous streams by Membrane Aromatic Recovery System (MARS).

Dastgir MG, Ferreira FC, Peeva LG and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 79, (4) 381-390.

Overcoming oxygen limitations in membrane-attached biofilms--investigation of flux and diffusivity in an anoxic biofilm.

Emanuelsson EAC and Livingston AG. *Water Res* vol. 38, (6) 1530-1541.

Physico-chemical interpretation of the SRNF transport mechanism for solvents through dense silicone membranes.

Vankelecom IFJ, De Smet K, Gevers LEM, Livingston A, Nair D, Aerts S, Kuypers S and Jacobs PA. *Journal of Membrane Science* vol. 231, (1-2) 99-108.

2003

Bioscrubbing of waste gas-substrate absorber to avoid instability induced by inhibition kinetics.

Oliveira TAC and Livingston AG. *Biotechnol Bioeng* vol. 84, (5) 552-563.

A novel biphasic extractive membrane bioreactor for minimization of membrane-attached biofilms.

Splendiani A, Nicoletta C and Livingston AG. *Biotechnol Bioeng* vol. 83, (1) 8-19.

The anoxic extractive membrane bioreactor.

Emanuelsson EAC, Arcangeli J-P and Livingston AG. *Water Res* vol. 37, (6) 1231-1238.

Insights into the Transport of Toluene and Phenol Through Organic Solvent Nanofiltration Membranes.

Han SJ, Luthra SS, Peeva L, Yang XJ and Livingston AG. *Separation Science and Technology* vol. 38, (9) 1899-1923.

Chapter 8 Membrane Aromatic Recovery System (MARS) - A new process for recovering phenols and aromatic amines from aqueous streams.

Ferreira FC, Livingston A, Han S, Boam A and Zhang S. *New Insights Into Membrane Science and Technology: Polymeric and Biofunctional Membranes*.

Chapter 14: Case study in identification of multistep reaction stoichiometries.

Buxton A, Hugo A, Livingston AG and Pistikopoulos EN. *Computer Aided Molecular Design: Theory and Practice*.

Chapter 7: Identification of multistep reaction stoichiometries: CAMD problem formulation.

Buxton A, Hugo A, Livingston AG and Pistikopoulos EN. *Computer Aided Molecular Design: Theory and Practice*.

2002

Countercurrent transport of organic and water molecules through thin film composite membranes in aqueous-aqueous extractive membrane processes. Part II: theoretical analysis.

Cocchini U, Nicoletta C and Livingston AG. *Chemical Engineering Science* vol. 57, (21) 4461-4473.

Countercurrent transport of organic and water molecules through thin film composite membranes in aqueous-aqueous extractive membrane processes. Part I: experimental characterisation.

Cocchini U, Nicoletta C and Livingston AG. *Chemical Engineering Science* vol. 57, (19) 4087-4098.

Recovery of Aniline from Aqueous Solution Using the Membrane Aromatic Recovery System (MARS).

Ferreira FC, Han S and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 41, (22) 5538-5538.

Biodegradability of linear alkylbenzene sulfonates subjected to wet air oxidation.

Patterson DA, Metcalfe IS, Xiong F and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 77, (9) 1039-1049.

The separation of homogeneous organometallic catalysts using solvent resistant nanofiltration.

Scarpello JT, Nair D, dos Santos LMF, White LS and Livingston AG. *Journal of Membrane Science* vol. 203, (1-2) 71-85.

Homogeneous phase transfer catalyst recovery and re-use using solvent resistant membranes.

Luthra SS, Yang X, dos Santos LMF, White LS and Livingston AG. *Journal of Membrane Science* vol. 201, (1-2) 65-75.

Recovery of Aniline from Aqueous Solution Using the Membrane Aromatic Recovery System (MARS).

Ferreira FC, Han S and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 41, (11) 2766-2774.

Braided silicone rubber membranes for organic extraction from aqueous solutions II. Application to contained liquid membranes.

Cocchini U, Nicoletta C and Livingston AG. *Journal of Membrane Science* vol. 199, (1-2) 101-115.

Braided silicone rubber membranes for organic extraction from aqueous solutions I. Mass transport studies.

Cocchini U, Nicoletta C and Livingston AG. *Journal of Membrane Science* vol. 199, (1-2) 85-99.

Selection of elastomeric membranes for the separation of organic compounds in acidic media.

Han S, Puech L, Law RV, Steinke JHG and Livingston A. *Journal of Membrane Science* vol. 199, (1-2) 1-11.

Pervaporation-biological oxidation hybrid process for removal of volatile organic compounds from wastewaters.

Oliveira TAC, Scarpello JT and Livingston AG. *Journal of Membrane Science* vol. 195, (1) 75-88.

Increased catalytic productivity for nanofiltration-coupled Heck reactions using highly stable catalyst systems.

Nair D, Scarpello JT, Vankelecom IFJ, Dos Santos LMF, White LS, Kloetzing RJ, Welton T and Livingston AG. *Green Chemistry* vol. 4, (4) 319-324.

2001

Semi-continuous nanofiltration-coupled Heck reactions as a new approach to improve productivity of homogeneous catalysts.

Nair D, Scarpello JT, White LS, dos Santos LMF, Vankelecom IFJ and Livingston AG. *Tetrahedron Letters* vol. 42, (46) 8219-8222.

Wet Air Oxidation of Linear Alkylbenzene Sulfonate 1. Effect of Temperature and Pressure.

Patterson DA, Metcalfe IS, Xiong F and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 40, (23) 5507-5516.

Wet Air Oxidation of Linear Alkylbenzene Sulfonate 2. Effect of pH.

Patterson DA, Metcalfe IS, Xiong F and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 40, (23) 5517-5525.

Chemical treatment of an anionic surfactant wastewater: Electrospray-MS studies of intermediates and effect on aerobic biodegradability.

Mantzavinos D, Burrows DM, Willey R, Lo Biundo G, Zhang SF, Livingston AG and Metcalfe IS. *Water Res* vol. 35, (14) 3337-3344.

Experimental observations of nanofiltration with organic solvents.

Yang XJ, Livingston AG and dos Santos LF. *Journal of Membrane Science* vol. 190, (1) 45-55.

Mathematical Modeling of Membrane-Attached Biofilms.

Nicolella C and Livingston AG. *Engineering in Life Sciences* vol. 1, (1) 43-46.

Mathematical modeling of membrane-attached biofilms.

Nicolella C and Livingston AG. *Chemical Engineering & Technology* vol. 24, (7) 43-46.

Membrane aromatic recovery system (MARS) -- a new membrane process for the recovery of phenols from wastewaters.

Han S, Ferreira FC and Livingston A. *Journal of Membrane Science* vol. 188, (2) 219-233.

Pervaporation mass transfer with liquid flow in the transition regime.

Oliveira TAC, Cocchini U, Scarpello JT and Livingston AG. *Journal of Membrane Science* vol. 183, (1) 119-133.

Treatment of metal-containing wastewaters with a novel extractive membrane reactor using sulfate-reducing bacteria.

Chuichulcherm S, Nagpal S, Peeva L and Livingston A. *Journal of Chemical Technology & Biotechnology* vol. 76, (1) 61-68.

Phase-transfer catalyst separation and re-use by solvent resistant nanofiltration membranes
Electronic supplementary information (ESI) available: experimental procedures and results. See

<http://www.rsc.org/suppdata/cc/b1/b103645a/>.

Luthra SS, Yang X, dos Santos LMF, White LS and Livingston AG. *Chemical Communications* (16) 1468-1469.

2000

Ethanol utilization by sulfate-reducing bacteria: an experimental and modeling study.

Nagpal S, Chuichulcherm S, Livingston A and Peeva L. *Biotechnol Bioeng* vol. 70, (5) 533-543.

Bioconversion of hydrophobic compounds in a continuous closed-gas-loop bioreactor: feasibility assessment and epoxide production.

Steinig GH, Livingston AG and Stuckey DC. *Biotechnol Bioeng* vol. 70, (5) 553-563.

Biological treatment of an alternating source of organic compounds in a single tube extractive membrane bioreactor.

Jorge RMF and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 75, (12) 1174-1182.

Microbial sulfate reduction in a liquid-solid fluidized bed reactor.

Nagpal S, Chuichulcherm S, Peeva L and Livingston A. *Biotechnol Bioeng* vol. 70, (4) 370-380.

Microbial dynamics in an extractive membrane bioreactor exposed to an alternating sequence of organic compounds.

Ferreira Jorge RM and Livingston AG. *Biotechnol Bioeng* vol. 70, (3) 313-322.

Chemo-enzymatic synthesis of arginine-based gemini surfactants.

Piera E, Infante MR and ClapÃ©s P. *Biotechnol Bioeng* vol. 70, (3) 323-331.

Wet Air Oxidation of Aqueous Solutions of Linear Alkylbenzene Sulfonates.

Mantzavinos D, Burrows DMP, Willey R, Biundo GL, Zhang SF, Livingston AG and Metcalfe IS. *Industrial & Engineering Chemistry Research* vol. 39, (10) 3659-3665.

Microbial dynamics in a continuous stirred tank bioreactor exposed to an alternating sequence of organic compounds.

Ferreira Jorge RM and Livingston AG. *Biotechnol Bioeng* vol. 69, (4) 409-417.

Modelling and analysis of membrane-attached biofilms.

Nicolella C, Pavasant P and Livingston AG. *The Canadian Journal of Chemical Engineering* vol. 78, (2) 371-381.

Substrate counterdiffusion and reaction in membrane-attached biofilms: mathematical analysis of rate limiting mechanisms.

Nicolella C, Pavasant P and Livingston AG. *Chemical Engineering Science* vol. 55, (8) 1385-1398.

Beneficial combination of wet oxidation, membrane separation and biodegradation processes for treatment of polymer processing wastewaters.

Mantzavinos D, Hellenbrand R, Livingston AG and Metcalfe IS. *The Canadian Journal of Chemical Engineering* vol. 78, (2) 418-422.

Assessment of partial treatment of polyethylene glycol wastewaters by wet air oxidation.

Mantzavinos D, Lauer E, Sahibzada M, Livingston AG and Metcalfe IS. *Water Research* vol. 34, (5) 1620-1628.

Development of an extractive membrane bioreactor for degradation of 3 chloro-4-methylaniline: From lab bench to pilot scale.

Splendiani A, de Sa JAGCM, Jorge R, Nicolella C, Livingston AG, Hughes K and Cook S. *Environmental Progress & Sustainable Energy* vol. 19, (1) 18-27.

1999

Life Cycle Optimization.

Stefanis SK, Livingston A and Pistikopoulos EN. *Wiley Encyclopedia of Electrical and Electronics Engineering*.

An extractive membrane biofilm reactor for degradation of 1,3-dichloropropene in industrial waste water.

Katsivela E, Bonse D, Krüger A, Strömpl C, Livingston A and Wittich RM. *Appl Microbiol Biotechnol* vol. 52, (6) 853-862.

Effect of ionic strength on extraction of hydrophobic organics through silicone rubber membranes.

Cocchini U, Nicolella C and Livingston AG. *Journal of Membrane Science* vol. 162, (1-2) 57-72.

A novel method for characterisation of microbial growth kinetics on volatile organic compounds.

Ferreira Jorge RM and Livingston AG. *Applied Microbiology and Biotechnology* vol. 52, (2) 174-178.

Epoxidation of 1,7-octadiene by pseudomonas oleovorans in a membrane bioreactor.

Doig SD, Boam AT, Livingston AG and Stuckey DC. *Biotechnol Bioeng* vol. 63, (5) 601-611.

Steady state behaviour of three phase air lift bioreactors - an integrated model and experimental verification.

Gikas P and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 74, (6) 551-561.

Optimal design of solvent blends for environmental impact minimization.

Buxton A, Livingston AG and Pistikopoulos EN. *Aiche Journal* vol. 45, (4) 817-843.

Degradation of chloronitrobenzenes by a coculture of *Pseudomonas putida* and a *Rhodococcus* sp.

Park HS, Lim SJ, Chang YK, Livingston AG and Kim HS. *Appl Environ Microbiol* vol. 65, (3) 1083-1091.

Mass transfer of hydrophobic solutes in solvent swollen silicone rubber membranes.

Doig SD, Boam AT, Livingston AG and Stuckey DC. *Journal of Membrane Science* vol. 154, (1) 127-140.

1998

Extractive membrane bioreactors for detoxification of chemical industry wastes: process development.

Livingston AG, Arcangeli J-P, Boam AT, Zhang S, Marangon M and dos Santos LMF. *Journal of Membrane Science* vol. 151, (1) 29-44.

Anaerobic dechlorination of perchloroethene in an extractive membrane bioreactor.

Pampel LW and Livingston AG. *Appl Microbiol Biotechnol* vol. 50, (3) 303-308.

Determination of pollutant diffusion coefficients in naturally formed biofilms using a single tube extractive membrane bioreactor.

Zhang S, Splendiani A, dos Santos LM and Livingston AG. *Biotechnol Bioeng* vol. 59, (1) 80-89.

A membrane bioreactor for biotransformations of hydrophobic molecules.

Doig SD, Boam AT, Leak DI, Livingston AG and Stuckey DC. *Biotechnol Bioeng* vol. 58, (6) 587-594.

Use of Specific ATP Concentration and Specific Oxygen Uptake Rate to Determine Parameters of a Structured Model of Biomass Growth.

Gikas P and Livingston AG. *Enzyme and Microbial Technology* vol. 22, (6) 500-510.

HYDRODYNAMICS OF THREE-PHASE AIR/TPAL REACTORS USING VISCOUS FLUIDS.

DOUEK RS, CLERC AX, HEWITT GF and LIVINGSTON AG. *Chemical Engineering Communications* vol. 167, (1) 205-225.

Waste treatment and optimal degree of pollution abatement.

Romero Hernández O, Pistikopoulos EN and Livingston AG. *Environmental Progress & Sustainable Energy* vol. 17, (4) 270-277.

Optimisation Of The Kinetics Of The Stereoselective Reduction Of Geraniol To Citronellol In A Two Liquid Phase System.

Doig SD, Boam AT, Leak DJ, Livingston AG and Stuckey DC. *Biocatalysis and Biotransformation* vol. 16, (1) 27-44.

1997

Hydrodynamics of vertical co-current gas-liquid-solid flows.

Douek RS, Hewitt GF and Livingston AG. *Chemical Engineering Science* vol. 52, (23) 4357-4372.

Integration of Wet Oxidation and Nanofiltration for Treatment of Recalcitrant Organics in Wastewater.

Hellenbrand R, Mantzavinos D, Metcalfe IS and Livingston AG. *Industrial & Engineering Chemistry Research* vol. 36, (12) 5054-5062.

Integrated Wet Air Oxidation and Biological Treatment of Polyethylene Glycol-Containing Wastewaters.

Otal E, Mantzavinos D, Delgado MV, Hellenbrand R, Lebrato J, Metcalfe IS and Livingston AG. *Journal of Chemical Technology & Biotechnology* vol. 70, (2) 147-156.

Specific ATP and specific oxygen uptake rate in immobilized cell aggregates: Experimental results and theoretical analysis using a structured model of immobilized cell growth.

Gikas P and Livingston AG. *Biotechnol Bioeng* vol. 55, (4) 660-673.

Environmental impact considerations in the optimal design and scheduling of batch processes.

Stefanis SK, Livingston AG and Pistikopoulos EN. *Computers & Chemical Engineering* vol. 21, (10) 1073-1094.

Prediction of axial concentration profiles in an extractive membrane bioreactor and experimental verification.

Pavasant P, Pistikopoulos EN and Livingston AG. *Journal of Membrane Science* vol. 130, (1-2) 85-98.

Wet oxidation as a pretreatment method for wastewaters contaminated by bioresistant organics.

Mantzavinos D, Lauer E, Hellenbrand R, Livingston AG and Metcalfe IS. *Water Science & Technology* vol. 36, (2-3) 109-116.

The effect of membrane module configuration on extraction efficiency in an extractive membrane bioreactor.

Strachan LF and Livingston AG. *Journal of Membrane Science* vol. 128, (2) 231-242.

Reaction mechanisms and kinetics of chemical pretreatment of bioresistant organic molecules by wet air oxidation.

Mantzavinos D, Hellenbrand R, Livingston AG and Metcalfe IS. *Water Science & Technology* vol. 35, (4) 119-127.

Kinetics of Wet Oxidation of P-Coumaric Acid over a CuO.ZnO-Al₂O₃ Catalyst.

Mantzavinos D, Hellenbrand R, Livingston AG and Metcalfe IS. *Chemical Engineering Research and Design* vol. 75, (1) 87-91.

Environmental Risk Assessment of Chemical Plants.

Stefanis SK, Livingston AG and Pistikopoulos EN. *Advances in Safety and Reliability*.

Mineralisation of 1,2-dibromoethane and other brominated aliphatics under aerobic conditions.

dos Santos LMF and Livingston AG. *Water Science & Technology* vol. 36, (10) 17-25.

1996

Catalytic wet air oxidation of polyethylene glycol.

Mantzavinos D, Hellenbrand R, Livingston AG and Metcalfe IS. *Applied Catalysis B Environmental* vol. 11, (1) 99-119.

Enrichment of mixed cultures capable of aerobic degradation of 1,2-dibromoethane.

Freitas dos Santos LM, Leak DJ and Livingston AG. *Appl Environ Microbiol* vol. 62, (12) 4675-4677.

Partial wet oxidation of p-coumaric acid: Oxidation intermediates, reaction pathways and implications for wastewater treatment.

Mantzavinos D, Hellenbrand R, Metcalfe IS and Livingston AG. *Water Research* vol. 30, (12) 2969-2976.

Prediction of optimal biofilm thickness for membrane-attached biofilms growing in an extractive membrane bioreactor.

Pavasant P, Dos Santos LM, Pistikopoulos EN and Livingston AG. *Biotechnol Bioeng* vol. 52, (3) 373-386.

Wet air oxidation of polyethylene glycols; mechanisms, intermediates and implications for integrated chemical-biological wastewater treatment.

Mantzavinos D, Livingston AG, Hellenbrand R and Metcalfe IS. *Chemical Engineering Science* vol. 51, (18) 4219-4235.

Minimisation of biomass in an extractive membrane bioreactor.

Strachan LF, dos Santos LMF, Leak DJ and Livingston AG. *Water Science & Technology* vol. 34, (5-6) 273-280.

Instability phenomenon in an external-loop three-phase gas-liquid-solid airlift reactor (vol 41, pg 2508, 1995).

Douek RS, Livingston AG and Hewitt GF. *Aiche Journal* vol. 42, (6) 1771-1771.

Detoxification of industrial wastewaters in an Extractive Membrane Bioreactor.

Livingston AG, dos Santos LMF, Pavasant P, Pistikopoulos EN and Strachan LF. *Water Science & Technology* vol. 33, (3) 1-8.

Catalytic wet oxidation of p-coumaric acid: Partial oxidation intermediates, reaction pathways and catalyst leaching.

Mantzavinos D, Hellenbrand R, Livingston AG and Metcalfe IS. *Applied Catalysis B Environmental* vol. 7, (3-4) 379-396.

1995

Instability phenomenon in an external-loop three-phase gas-liquid airlift reactor.

Douek RS, Livingston AG and Hewitt GF. *Aiche Journal* vol. 41, (11) 2508-2511.

Aqueous-aqueous extraction of organic pollutants through tubular silicone rubber membranes.

Brookes PR and Livingston AG. *Journal of Membrane Science* vol. 104, (1-2) 119-137.

Membrane-attached biofilms for VOC wastewater treatment. II: Effect of biofilm thickness on performance.

Dos Santos LM and Livingston AG. *Biotechnol Bioeng* vol. 47, (1) 90-95.

Membrane-attached biofilms for VOC wastewater treatment I: Novel in situ biofilm thickness measurement technique.

Dos Santos LM and Livingston AG. *Biotechnol Bioeng* vol. 47, (1) 82-89.

Minimizing the environmental impact of process Plants: A process systems methodology.

Stefanis SK, Livingston AG and Pistikopoulos EN. *Computers & Chemical Engineering* vol. 19, 39-44.

Dichloroethane Removal from Gas Streams by an Extractive Membrane Bioreactor.

dosSantos LMF, Hoemmerich U and Livingston AG. *Biotechnology Progress* vol. 11, (2) 194-201.

Novel membrane bioreactor for detoxification of VOC wastewaters: Biodegradation of 1,2-dichloroethane.

dos Santos LMF and Livingston AG. *Water Research* vol. 29, (1) 179-194.

1994

Extraction and biodegradation of a toxic volatile organic compound (1,2-dichloroethane) from waste-water in a membrane bioreactor.

Freitas dos Santos LM and Livingston AG. *Appl Microbiol Biotechnol* vol. 42, (2-3) 421-431.

Hydrodynamics of an external-loop three-phase airlift (TPAL) reactor.

Douek RS, Livingston AG, Johansson AC and Hewitt GF. *Chemical Engineering Science* vol. 49, (22) 3719-3737.

Extractive membrane bioreactors: a new process technology for detoxifying chemical industry wastewaters.

Livingston AG. *J Chem Technol Biotechnol* vol. 60, (2) 117-124.

Biological detoxification of a 3-chloronitrobenzene manufacture wastewater in an extractive membrane bioreactor.

Brookes PR and Livingston AG. *Water Research* vol. 28, (6) 1347-1354.

Biotreatment of a point-source industrial wastewater arising in 3,4-dichloroaniline manufacture using an extractive membrane bioreactor. [Erratum to document cited in CA120:85584].

Brookes PR and Livingston AG. *Biotechnology Progress* vol. 10, (3) 344-344.

Biotreatment of a point-source industrial wastewater arising in 3,4-dichloroaniline manufacture using an extractive membrane bioreactor.

Brookes PR and Livingston AG. *Biotechnology Progress* vol. 10, (1) 65-75.

1993

Use of ATP to characterize biomass viability in freely suspended and immobilized cell bioreactors.

Gikas P and Livingston AG. *Biotechnol Bioeng* vol. 42, (11) 1337-1351.

A novel bioreactor system for the destruction of volatile organic compounds.

Freitas dos Santos LM and Livingston AG. *Applied Microbiology and Biotechnology* vol. 40, (1) 151-157.

Point source detoxification of an industrially produced 3,4-dichloroaniline-manufacture wastewater using a membrane bioreactor.

Brookes PR and Livingston AG. *Applied Microbiology and Biotechnology* vol. 39, (6) 764-771.

A novel membrane bioreactor for detoxifying industrial wastewater: I. Biodegradation of phenol in a synthetically concocted wastewater.

Livingston AG. *Biotechnol Bioeng* vol. 41, (10) 915-926.

A novel membrane bioreactor for detoxifying industrial wastewater: II. Biodegradation of 3-chloronitrobenzene in an industrially produced wastewater.

Livingston AG. *Biotechnol Bioeng* vol. 41, (10) 927-936.

Mass transfer in liquid--solid fluidized beds of ion exchange resins at low Reynolds numbers.

Livingston AG and Noble JB. *Chemical Engineering Science* vol. 48, (6) 1174-1178.

Hydrodynamic behaviour of three-phase (gas--liquid--solid) airlift reactors.

Livingston AG and Zhang SF. *Chemical Engineering Science* vol. 48, (9) 1641-1654.

1991

Degradation of 3,4-dichloroaniline in synthetic and industrially produced wastewaters by mixed cultures freely suspended and immobilized in a packed-bed reactor.

Livingston AG and Willacy A. *Appl Microbiol Biotechnol* vol. 35, (4) 551-557.

Biodegradation of 3,4-dichloroaniline in a fluidized bed bioreactor and a steady-state biofilm Kinetic model.

Livingston AG. *Biotechnol Bioeng* vol. 38, (3) 260-272.

DEVELOPMENT OF A PHENOL DEGRADING FLUIDIZED-BED BIOREACTOR FOR CONSTANT BIOMASS HOLDUP.

LIVINGSTON AG and CHASE HA. *Chemical Engineering Journal and The Biochemical Engineering Journal* vol. 45, (3) B35-B47.

Development of a phenol degrading fluidized bed bioreactor for constant biomass holdup.

Livingston AG and Chase HA. *Chemical Engineering Journal* vol. 45, (3) b57-b66.

1990

LIQUID-SOLID MASS TRANSFER IN A THREE PHASE DRAFT TUBE FLUIDIZED BED REACTOR.

LIVINGSTON AG and CHASE HA. *Chemical Engineering Communications* vol. 92, (1) 225-244.

1989

Modeling phenol degradation in a fluidized-bed bioreactor.

Livingston AG and Chase HA. *Aiche Journal* vol. 35, (12) 1980-1992.

Preparation and characterization of adsorbents for use in high-performance liquid affinity chromatography.

Livingston AG and Chase HA. *Journal of Chromatography A* vol. 481, 159-174.