

Wednesday 8 July 2020

Session 1: 08.45-12.30

08.45 PLENARY LECTURE in Main Lecture Theatre

Ion exchange processes in the chemical industry: current and future applications
Professor Gabrielle Iffland (BASF SE, Germany)

Room A Industrial Water Treatment

10.00 A brief history of Dungeness B condensate polishing plants – the difference between experimental testing and the real world
Ryan Morris, Carl M Atkinson, Greg Fife (EDF Energy Nuclear Generation Ltd, UK)

10.30 Ion exchange resins quality features in thermal power plants
Hans-Jürgen Wedemeyer (Lanxess Deutschland GmbH)

11.00 The impact of hydrazine on the performance of condensate polishing plant ion-exchange resins (Amberlite HPR 1600H)
Ryan Morris, Carl M Atkinson, Zinnia Parker (EDF Energy Nuclear Generation Ltd, UK)

11.30 TOC reduction by innovative resin technology: five years of field experience at BASF Antwerp
Marc Slagt (DuPont Water Solutions, the Netherlands), Kristof de Neve (BASF Antwerp, Belgium), Delphine Correia (DuPont Water Solutions, France)

12.00 Benefits of resin analyses in water treatment plant performance evaluation
Peter van Hartingsveldt (Evides Industriewater, the Netherlands), Marc Slagt (DuPont Water solutions, the Netherlands)

Room B Metals and Environmental Applications

10.00 Recovery of lithium from brine using lithium ion sieves
Craig J Brown (Chemionex Inc, USA), Andy Robinson (Standard Lithium Ltd)

10.30 The use of selective resins with small particle size for the preparation of battery chemicals
Dirk Steinhilber, Petra Raab (Lanxess Deutschland GmbH)

11.00 Ion exchange purification of lithium ion battery waste leachate
Sami Virolainen, Arttu Kaukinen, Tuomo Sainio (LUT University, Finland)

11.30 Barium removal with SAC resin
Guy J Mommaerts (Ion Exchange Services [Canada] Inc)

12.00 Microfluidic fabrication of ion-exchange Micro Polymer Inclusion Beads (μ PIBs): application to the recovery of gold from electronic scrap
D Kolev, Yanlin Zhang, Charles F Croft, Robert W Cattrall (University of Melbourne, Australia)

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Session 2: 13.30-15.30

Room A Industrial Water Treatment

- 13.30 Predicting operating capacity of PFAS-selective ion exchange resins
Francis Boodoo (Purolite Corporation, USA)
- 14.00 Functionalized nanoporous ceramic ion exchange membranes towards low cost electrodialysis
Gregory Newbloom, Rachel Malone, Ryan Kingsbury, Aditya Salunkhe (Membrion Inc, USA)
- 14.30 Autonomous operation of the DI-plant: artificial intelligence (AI) in DI-production
Dieter Mauer (MionTec GmbH, Germany)
- 15.00 title to be confirmed
Carl Atkinson (EDF Energy Nuclear Generation Ltd, UK)

Room B Metals and Environmental Applications

- 13.30 Trace mercury removal from water using chelating resins such as AmbersepTM GT74 and AmbersepTM 43600
Laurent Fournival (DuPont Water Solutions, France), Klaus-Dieter Topp (DuPont Water Solutions, Germany), Brandon Kern (DuPont Water Solutions, USA)
- 14.00 Effect of solution pH and temperature on phenol adsorption onto carbonized rice husk chemically activated with phosphoric acid
Yahaya Sayyadi Mohammad, Yusuf Suleiman Bagirei (IBB University, Nigeria)
Umar Garba (FUT Minna, Nigeria)
- 14.30 Polyelectrolyte membranes composited with electrospun ion-exchange nanofibers
Hidetoshi Matsumoto, Fumiyasu Seino, Minoru Ashizawa (Tokyo Institute of Technology, Japan) Yuriko Kakihana, Mitsuru Higa (Yamaguchi University, Japan)
- 15.00 Liquid ion exchangers incorporated in polymeric membranes: a simple approach for water pollution control
Clàudia Fontàs, Enriqueta Anticó (University of Girona, Spain)

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Session 3: 16.00-17.30

Room A Adsorption Applications

- 16.00 Hydroxyapatite – new modifications for the preparation of high-affinity adsorbents
Spiro Alexandratos (Hunter College of the City University of New York, USA)
- 16.30 Synthesis and application of cellulose-based functionalized adsorbent for the recovery of lithium from aqueous solutions
Aslı Yüksel Özşen, Yaşar Kemal Reçepoğlu (Izmir Institute of Technology, Turkey)
- 17.00 Metal-free activated boron nitride: a highly efficient adsorbent for carbon capture
Basudeb Saha, Fereshteh Hojatisaeidi (London South Bank University), Mauro Mureddu, Alberto Pettinau (Sotacarbo SpA, Italy), Geraldine Durand (The Welding Institute, UK)

Room B Metals and Environmental Applications

- 16.00 Arsenic and beyond: a closer look at what other contaminants hybrid ion exchangers can remove
Peter Meyers (ResinTech Inc, USA)
- 16.30 The polymer surfactant aggregate process for the separation of copper(II) from iron(III) in aqueous streams
Nick Hankins, Ming Chen, Licheng Shen (University of Oxford, UK)
- 17.00 Dual approach for removal of hexavalent chromium in drinking water using ion exchange resins
María de los Angeles Pérez Maciá, Stephane Delameilleure, Blanca Salgado Ruiz, Guillem Gilabert Oriol, Valeria Burlakova (Dupont Water Solutions, Spain)

Thursday 9 July 2020

Session 4: 08.45-12.30

08.45 PLENARY LECTURE in Main Lecture Theatre

Selective extraction of ionic species by means of electrosorption processes
Professor Marek Bryjak (Wroclaw University of Science and Technology, Poland)

Room A Metals and Environmental Applications

- 10.00 Selective separation of rare earths from transition elements from acid mine waters by integration of ion-exchange and solvent impregnated resins containing organophosphorous functional groups
J L Cortina, M Hermassi, C Valderrama (UPC Barcelona TECH, Spain),
M Granados (Universitat de Barcelona), C Ayora (Institute of Environmental Assessment and Water Research, Spain)
- 10.30 Extraction of REE from phosphogypsum by resin-in-pulp process
A S Malyshev, S V Kirillov, E V Kirillov, G M Bunkov, A R Yuldashbaeva, A O Taukin,
V N Rychkov (Ural Federal University, Russia)
- 11.00 Improved ion exchange selectivity and yield in recovery of rare earth elements from phosphogypsum
Santeri Kurkinen, Tuomo Sainio, Sami Virolainen, Eveliina Repo (LUT University, Finland)
- 11.30 Removal of arsenic on iron oxide sorbent with previously adsorbed lanthanum(III) ions
Sebastian Dudek, Dorota Kołodyńska (Maria Curie-Skłodowska University, Poland)
- 12.00 Selective lanthanide ion exchange from acids by a hybrid zirconium phosphonate material
Wenzhong Zhang, Risto T Koivula (University of Helsinki, Finland)

Room B Novel Applications

- 10.00 Ion exchange: the key for production of hydroxyl carboxylic acids from spent pulping liquor
Jari Heinonen, Tuomo Sainio (LUT University, Finland)
- 10.30 Cane sugar decolorisation and de-ashing using ion exchange resins and polymeric adsorbents
Jaco Bester, David Chretien (DuPont Water Solutions, USA)
- 11.00 Application of ion exchange for integrated management of geothermal water: recovery of energy and water
Nalan Kabay (Ege University, Turkey), Enver Güler (Atılım University, Turkey),
Marek Bryjak (Wroclaw University of Science and Technology, Poland),
Barbara Tomaszewska (AGH-University of Science and Technology, Poland)
- 11.30 The effect of cell pair and flow velocity in reverse electrodialysis (RED) stack for generation of salinity gradient energy (SGE)
Orhan Kinali, Esra Altıok, Mine Eti, Soma Kitada, Nalan Kabay (Ege University, Turkey), Enver Güler (Atılım University, Turkey), Marek Bryjak (Wroclaw University of Science and Technology, Poland).
- 12.00 Design and function of supramolecular cyclodextrin complex sensors based on novel ion-exchange systems
Takashi Hayashita (Sophia University, Japan)

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Session 5: 13.30-16.00

Room A Nuclear Power

- 13.30 Liquid waste treatment at Fukushima
Paul Sylvester (Veolia Nuclear Solutions, USA), Akira Ikeda (Kurion, Japan)
- 14.00 Preparation of ceramic solid forms for immobilizing Cs and studies of their mechanical properties and leaching
Hongji Sang, Yan Wu, Mingliang Xu, Yuezhou Wei (Shanghai Jiao Tong University, China)
- 14.30 Synthesis and evaluation of mono sodium titanate amidoximated polyacrylonitrile (PMA) nanocomposite beads for uranium removal from contaminated water
Pryanka Kamble, Prithwish Sinharoy, Bitan Ghosh, Dayamoy Banerjee, G Sugilal, Smitha Manohar (Bhabha Atomic Research Centre, India)
- 15.00 Characterisation of nuclear fuel pond resin and the application of the data to plant optimisation and decommissioning strategies
Mike Wharton (Wood plc, UK), Carl Atkinson (EDF Energy Nuclear Generation Ltd, UK)
- 15.30 Adsorptivity of a novel bifunctional chelating adsorbent for recovery of uranium from seawater
M Nogami, M Daiju, N Maegawa, R Toritsuka (Kindai University, Japan)

Room B Industrial Biotechnology and Bioprocessing

- 13.30 Monosaccharide purification from crude hydrolysed sugar beet pulp by liquid-liquid centrifugal partition chromatography
G J Lye, D Ward, M Cárdenas-Fernández, F Subrizi, T D Sheppard, H C Hailes (University College, London, UK), C Bennett, D J Leak (University of Bath, UK), P Hewitson, S Ignatova (Brunel University, UK)
- 14.00 Acid lactic recovery by means of ion-exchange resins: study of operational parameters during the adsorption step
M Reig, X Vecino, J López, O Gibert, C Valderrama, J L Cortina (UPC-Barcelona TECH, Spain)
- 14.30 Biosorption of rare earth metals using E. coli
Masahiro Goto, Yukiho Hosomomi (Kyushu University, Japan)
- 15.00 Detection, analysis and control of biological foulant distribution within IEX columns
Greta Jasulaityte, Daniel G Bracewell (University College London, UK), Hans J Johansson (Purolite Ltd, UK)
- 15.30 Isotype dependent on-column aggregation of monoclonal antibodies
Monika Farys, Will Lewis, Daniel Gibson, Richard Kucia-Tran (GlaxoSmithKline, UK)

Friday 10 July 2020

Session 6: 08.30-10.00

Room A Catalysis

- 08.30 Liquid-phase synthesis of sec-butyl levulinate by esterification of levulinic acid with 1-butene over cation-exchange resins
F Cunill, J H Badia, E Ramírez, R Bringué, C Fité, M Iborra, J Tejero
(University of Barcelona, Spain)
- 09.00 Ion exchange resins for production of carotenoid building blocks
Roman Goy, Werner Bonrath (DSM Nutritional Products, Switzerland)
- 09.30 A novel heterogeneously catalyzed solvent-free process for the acylation of anisole with acetic anhydride
Matthias Eisenacher (TH Köln University of Applied Sciences, Germany), Wolfgang F Hölderich (TCHK Hoelderich Consultancy, Germany), Matthias Arend, Moritz Venschott
- 10.00 Ion exchange novel catalysis applications with metal in polymer chemistry: hydrogenation and carbon carbon coupling
Jose Antonio Trejo O'Reilly (DuPont, Water and Process Solutions, USA)

Room B Theoretical Aspects

- 08.30 A theoretical consideration of efficiencies in the regeneration of ion exchange resins
Rolf C Clayton (University College London, UK)
- 09.00 Thermodynamics and kinetics of ion exchange – from theory to applications
H Kalka, J Nicolai (Umwelt- und Ingenieurtechnik GmbH, Germany), H Märten, (Umwelt- und Ingenieurtechnik GmbH and Heathgate Resources Pty Ltd, South Australia)
- 09.30 Optimization of hydrometallurgical IX processing by Reactive Transport Simulations
J Nicolai, H Kalka, E Myers (Umwelt- und Ingenieurtechnik GmbH, Germany), H Märten (Umwelt- und Ingenieurtechnik GmbH and Heathgate Resources Pty Ltd, South Australia)
- 10.00 “Time to Tighten Up the Method”: controlling for temperature during kinetics testing
Brian Blake-Collins, Randy Ebert, Stephen Hinck (Evoqua Water Technologies, USA)

Friday 10 July 2020

Session 7: 11.00-12.30

Room A Catalysis

- 11.00 n-butyl levulinate production over acidic ion-exchange resins to fuel reformulation
Javier Tejero, Eliana Ramírez, Roger Bringué, Carles Fité, Montserrat Iborra,
Fidel Cunill (University of Barcelona, Spain)
- 11.30 Irreversible formation of side products in the synthesis of
poly(oxymethylene)dimethylethers catalyzed by ion exchange resin
Johannes Voggenreiter, Jakob Burger (Technical University of Munich, Germany)
- 12.00 A novel heterogeneous catalytic process for styrene carbonate synthesis via CO₂
utilisation
Bisi Olaniyan, Joshua Kanmodi, Basudeb Saha (London South Bank University, UK)

Room B Industrial Biotechnology and Bioprocessing

- 11.00 Three dimensional imaging of chromatography beds and beads to resolve geometric
characteristics as a platform for simulation
Thomas F Johnson, Paul R Shearing, Daniel G Bracewell (University College,
London, UK), John H Welsh, Peter R Levison (Pall Biotech, UK)
- 11.30 Application of ion-exchange to the purification of an active pharmaceutical ingredient
with multivalent isomers: modelling and simulation
Hector Osuna, Karen-Vanessa Gonzalez, Lucrèce Nicoud, Roger-Marc Nicoud
(YPSO-FACTO, France), Aude Portier (FAREVA Romainville, France)
- 12.00 Use of mechanistic chromatography models for early stage biopharmaceutical process
development and decision making
Nehal Patel (University College, London, UK)

Posters

- P1 Antimony(V) removal from sulfate media using ion exchange: Korean Sensei process wastewater management
Richard I Foster, Kwang-Wook Kim, Keun-Young Lee (Korea Atomic Energy Research Institute, Republic of Korea), James T M Amphlett (Korea Advanced Institute of Science and Technology, Korea)
- P2 Adsorption behaviour of rare earth metal ions using chemical bonded N,N'-bis(2-hydroxyphenylmethyl)-N,N'-bis(2-pyridylmethyl)-1,2-ethanediamine on resin
Hisao Kokusen, Tetsuto Kajiyama, Kazumi Tashimo, Satoshi Omuro, Shyuhei Takase, Satomi Makino, Nobutoshi Yoshihara (Tokyo Gakugei University, Japan)
- P3 Multicomponent ion exchange for boiler water treatment at Tata Steel
Sedar Dogan, Chedly Tizaoui (Swansea University, UK), Graham Smith (Tata Steel, UK)
- P4 Highly effective Pd(II) adsorption by silica-based hexacyanoferrates from HLLW
Yan Wu, Qilong Wang (Shanghai Jiao Tong University, China), Yuezhou Wei (Guangxi University, China)
- P5 Resin availability and quality issues in US boiling and pressurized water reactors
Michelle Mura (Electric Power Research Institute, USA), Joel Giannelli (Structural Integrity Associates Inc USA)
- P6 Ammonium recovery from domestic wastewater by ion-exchange process with clinoptilolite zeolites: study of the operational conditions
X Vecino, M Reig, J López, O Gibert, C Valderrama, J L Cortina (UPC-Barcelona TECH, Spain)
- P7 Recycle metal in the wastewater by the Slone's Resin Concentrator
Slone Wang (Youwan Trading Co Ltd, Taiwan)
- P8 Preparation of anion exchange membranes for reverse electrodialysis ("red") applications
Mine Eti, Nalan Kabay, Orhan Kınalı (Ege University, Turkey), Ezgi Karakoç, Enver Güler (Atılım University, Turkey)
- P9 Recovery of rare earth elements from acid mine waters by integration of ion-exchange resin and selective phosphate precipitation
M Hermassi, J L Cortina, C Valderrama (UPC BarcelonaTECH, Spain), M Granados (University of Barcelona) C Ayora (Institute of Environmental Assessment and Water Research, Spain)
- P10 Graver Technologies' MetSorb® product line: treatment of current and emerging water contaminants
Joshua Mertz, Katie Henderson (Graver Technologies, USA)

- P11 Simulated Moving Bed (SMB) technology for improved cation separations
H Eccles, N F Esmail, R Mao (University of Central Lancashire, UK)
- P12 Hexavalent chromium removal from a potable water source
Nickvinder Singh Bhath (Ovivo UK Ltd)
- P13 Application of biodegradable complexing agents in the recovery process of La(III) ions by ion exchange
Katarzyna Araucz, Dorota Kołodyńska (Maria Curie-Skłodowska University, Poland)
- P14 Chromalite M®: introduction of a novel range of methacrylate based polymeric resins
Luke A Burt, Jessica Hatherley, Benjamin D Summers, Alessandra Basso, Simona Serban, Christopher Bresner (Purolite Ltd, UK)
- P15 Removal of the biopolymer NOM-fraction from surface water
Elien Laforce, Jonas Van Neyghem, Pieter Vermeir, Jeriffa De Clercq (Ghent University, Belgium)
- P16 Comparative study of removal of chromium(VI) by using Tulsion resins from aqueous and mixed media
Sanjaykumar V Divekar, Prasanna S Koujalagi, Janhavi M Karekar (KLS Gogte Institute of Technology, India)