

* Refers to the corresponding author(s).

A Peer-reviewed scientific articles

A1 Original scientific article

1. D. Rico del Cerro*, R. Mera-Adasme*, A. W. T. King, J. E. Perea-Buceta, S. Heikkinen, T. Hase, D. Sundholm,* K. Wähälä. On the mechanism of the reactivity of 1,3-dialkylimidazolium salts under basic to acidic conditions: a combined kinetic and computational study. *Angewandte Chemie Int. Ed.*, **2018**. DOI: 10.1002/anie.201805016.
2. S. Asaadi, T. Kakko, A. W. T. King, I. Kilpeläinen, M. Hummel, H. Sixta*, High-performance acetylated Ioncell-F fibres with low degree of substitution. *ACS Sus. Chem. Eng.* **2018**.
3. A. W. T. King*, V. Mäkelä, S. A. Kedzior, T. Laaksonen, G. J. Partl, S. Heikkinen, H. Koskela, H. A. Heikkinen, A. J. Holding, E. D. Cranston, I. Kilpeläinen*, Liquid-state NMR analysis of nanocelluloses. *Biomacromol.*, **2018**. DOI: 10.1021/acs.biomac.8b00295.
4. D. Moravcová*, J. Planeta, A. W. T. King, S. K. Wiedmer, Phosphonium ionic liquid immobilized to silica monolith as stationary phase for hydrophilic interaction chromatography. *J. Chromatog. A.*, **2018**, 1552, 53-59.
5. V. Mäkelä*, R. Wahlström*, U. Holopainen-Mantila, I. Kilpeläinen, A. W. T. King*, Clustered single cellulosic fiber dissolution kinetics and mechanisms, through optical microscopy under limited dissolving conditions. *Biomacromol.*, **2018**, DOI: 10.1021/acs.biomac.7b01797.
6. P. Khanjani, A. W. T. King, G. J. Partl, L-S. Johansson, M. Kostianen, R. Ras*, Superhydrophobic paper from nanostructured fluorinated cellulose esters. *ACS App. Mat. Inter.*, **2018**. DOI: 10.1021/acsami.7b19310.
7. S.-K. Ruokonen, C. Sanwald, A. Robciuc, S. Hietala, A. H. Rantamäki, J. Witos, A. W.T. King, M. Lämmerhofer, S. K. Wiedmer*, Correlation between ionic liquid cytotoxicity and liposome-ionic liquid interactions, *Chem. Eur. J.*, **2018**, DOI: 10.1002/chem.201704924.
8. J. Rahikainen, S. Anbarasan, R. Wahlström, A. Parviainen, A. W. T. King, T. Puranen, K. Kruus, I. Kilpeläinen, O. Turunen, A. Suurnäkki, Screening of glycoside hydrolases and ionic liquids for fibre modification. *J. Chem. Technol. Biotechnol.*, **2018**, DOI: 10.1002/jctb.5435.
9. T. Laaksonen, J. K. J. Helminen, L. Lemmetti, J. Långbacka, D. Rico del Cerro, M. Hummel, I. Filpponen*, A. H. Rantamäki, M. T. Kakko, Kemmel, S. K. Wiedmer, S. Heikkinen, I. Kilpeläinen, A. W. T. King,* WtF-Nano: One-pot dewatering and water-free topochemical modification of nanocellulose in ionic liquids or γ -valerolactone. *ChemSusChem.*, **2017**, DOI: 10.1002/cssc.201701344.

10. T. Kakko, A. W. T. King, I. Kilpeläinen*, Homogeneous esterification of cellulose pulp in [DBNH][OAc], *Cellulose*, **2017**, *24*, 5341-5354.
11. A. H. Rantamäki, S-K. Ruokonen, E. Sklavounos, L. Kyllönen, A. W. T. King*, S. K. Wiedmer*, Impact of surface-active guanidinium-, tetramethylguanidinium-, and cholinium-based ionic liquids on *Vibrio fischeri* cells and dipalmitoylphosphatidylcholine liposomes. *Nature - Scientific Reports*, **2017**, DOI: 10.1038/srep46673.
12. A. J. Holding, A. Parviainen, I. Kilpeläinen, A. Soto, A. W. T. King*, H. Rodriguez*, Efficiency of hydrophobic phosphonium ionic liquids and DMSO as recyclable cellulose dissolution and regeneration media. *RSC Adv.*, **2017**, DOI: 10.1039/c7ra01662j.
13. W. Ahmad, A. Ostonen, K. Jakobsson, P. Uusi-Kyynty, V. Alopaeus*, U. Hyvääkö, A. W. T. King, Feasibility of thermal separation in recycling of the distillable ionic liquid [DBNH][OAc] in cellulose fiber production. *Chem. Eng. Res. Design*, **2016**. DOI: <http://dx.doi.org/10.1016/j.cherd.2016.08.032>
14. A. Ostonen, J. Bervas, P. Uusi-Kyynty, V. Alopaeus, D. Zaitsau, V. Emel'yanenko, C. Schick, A. W. T. King, J. Helminen, I. Kilpeläinen, A. Khachatryan, M. Varfolomeev, S. Verevkin*, Experimental and Theoretical Thermodynamic Study of Distillable Ionic Liquid [DBNH][OAc] Application in Industrial Cellulose Treatment. *Ind. Eng. Chem. Res.*, **2016**. DOI: 10.1021/acs.iecr.6b02417
15. S-K. Ruokonen, C. Sanwald, M. Sundvik, S. Polnick, K. Vyavaharka, F. Duša, A. J. Holding, A. W. T. King, I. Kilpeläinen, M. Lämmerhofer, P. Panula, S. K. Wiedmer,* Effect of Ionic Liquids on Zebrafish (*Danio rerio*) Viability, Behavior, and Histology; Correlation between Toxicity and Ionic Liquid Aggregation. *Environ. Sci. Technol.*, **2016**, DOI: 10.1021/acs.est.5b06107.
16. A. J. Holding, V. Mäkelä, L. Tolonen, H. Sixta, I. Kilpeläinen*, A. W. T. King*. Solution-State One- and Two-Dimensional NMR Spectroscopy of High-Molecular-Weight Cellulose. *ChemSusChem*, **2016**, *9* (8), 880-892.
17. S. Deb, S. R. Labafzadeh, U. Liimatainen, A. Parviainen, L. K. J. Hauru, S. Ahzar, M. Lawoko, T. Kulomaa, T. Kakko, J. Fiskari, M. Borrega, H. Sixta, I. Kilpeläinen,* A. W. T. King* Application of mild autohydrolysis to facilitate the dissolution of wood chips in direct-dissolution solvents. *Green Chem.*, **2016**, *18*, 3286-3294.
18. E. Niinivaara, B. P. Wilson, A. W. T. King, E. Kontturi*, Parameters affecting monolayer organisation of substituted polysaccharides on solid substrates upon Langmuir-Schaefer deposition. *Reactive and Functional Polymers*, **2016**, *99*, 100-106.

19. Perea-Buceta, J. E., Fernández, I., Heikkinen, S., Axenov, K., Niemi, T., King, A. W. T., Nieger, M., Leskelä, M., Repo,* T. Diverting hydrogenations with Wilkinson's catalyst towards highly reactive Rh-(I) species. *Angew. Chemie*, **2015**, 54, 14321-14325.
20. A. Parviainen, R. Wahlström, U. Liimatainen, T. Liitiä, S. Rovio, K. J. Helminen, U. Hyväkkö, A. W. T. King, A. Suurnäkki, I. Kilpeläinen* Sustainability of cellulose dissolution and regeneration in 1,5-diazabicyclo[4.3.0]non-5-enium acetate: a batch simulation of the IONCELL-F process. *RSC Adv.* **2015**, 5, 69728-69737.
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26. Labafzadeh*, S. R., Vyavaharkar, K., Kavakka, J. S., King, A. W. T., Kilpeläinen, I. Amination and thiolation of chloroacetyl cellulose through reactive dissolution in *N,N*-dimethylformamide. *Carbohydrate Polymers*, **2014**, 116, 60-66.
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34. Stépán, A. M., King, A. W. T., Kakko, T., Toriz, G., Kilpeläinen, I., Gatenholm*, P., Fast and highly efficient acetylation of xylans in ionic liquid systems., *Cellulose.*, **2013**. 20, 2813-2824.
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47. Alistair W. T. King, Ilkka Kilpeläinen, Sami Heikkinen, Paula Järvi and Dimitris S. Argyropoulos.* Hydrophobic Interactions Determining Functionalized Lignocellulose Solubility in Dialkylimidazolium Chlorides, as Probed by ³¹P NMR; *Biomacromol.*, **2009**, 10, 458-463
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A3 Contribution to book/other compilations

1. A. J. Holding, A. W. T. King*, I. Kilpeläinen*, Ch 12. High-Resolution Solution-State NMR of Lignocellulosics in Direct-Dissolution Media - Advances in Cellulose Science and Technology: Chemistry, Analysis and Applications, Ed. Antje Potthast, T. Rosenau, John Wiley & Sons, *Submitted, 2016*.
2. E. Sklavounos, Jussi K.J. Helminen, Lasse Kyllönen, Ilkka Kilpeläinen, Alistair W.T. King (2016) 'Ionic Liquids: Recycling', in *Encyclopedia of Inorganic and Bioinorganic Chemistry*, edited by David A. Atwood. John Wiley & Sons, Ltd: Chichester, UK. DOI: 10.1002/9781119951438.eibc2451
3. J.-P. Mikkola*, E. Sklavounos, A. W. T. King, P. Virtanen, Biorefinery and Green Chemistry; Ionic Liquids in the Biorefinery Concept, *RSC Green Chemistry Series*, Ed. Rafał Bogel-Lukasik, Oct **2015**. p 1-37 (ISBN: 9781849739764, DOI:10.1039/9781782622598-00001)
4. Hummel, M., Michud, A., Tanttu, M., Asaadi, S., Ma, Y., Hauru, L. K. J., Parviainen, A., King, A. W. T., Kilpeläinen, I., Sixta*, H. Ionic liquids for the production of man-made cellulosic fibres; opportunities and challenges; Cellulose Chemistry and Properties: Materials, Fibers and Composites, *Advances in Polymer Science Book Series*, Ed. Orlando Rojas, May **2015**. (DOI 10.1007/12_2015_307).
5. Leskinen, T., King, A. W. T., Argyropoulos*, D. S. Fractionation of lignocellulosic materials with ionic liquids; Production of biofuels and chemicals with ionic liquids, *Springer Book Series - Biofuels and Biorefineries*, Ed. Zhen Fang, Mar **2013**. (ISBN 978-94-007-7710-1).

6. King*, A. W. T., Xie, H., Fiskari, J., Kilpeläinen, I. Reduction of biomass recalcitrance via biomass pre-treatments, Chapter 7; *Materials for Biofuels*, World Scientific Publishing, Ed. A. Ragauskas, **2013**. (ISBN: 978-981-4513-27-2).
7. Haibo Xie, Ilkka Kilpeläinen, Alistair W. T. King, Timo Leskinen, Paula Järvi and Dimitris S. Argyropoulos*, Opportunities with Wood Dissolved in Ionic Liquids, Chapter 19, pp343-363; *Cellulose Solvents: For Analysis, Shaping and Chemical Modification*, Ed Tim F. Liebert, Thomas J. Heinze and Kevin J. Edgar, *ACS Symposium Series*, **2010**, Vol 1033 (ISBN: 9780841200067).

B Non-peer-reviewed scientific writings

B2 Contribution to book/other compilations

1. Ed. Alistair W. T. King, *Ionic Liquids for Wood Fractionation*; Future biorefinery program report **2011-2014**, Ed. Annaleena Kokko, *SHOK Program Report*, **2014**. (ISBN 978-952-67969-6-3).
2. Ed. Alistair W. T. King, *Novel ionic liquids for wood processing*, Chapter 1, pp12-23; Future biorefinery program report **2009-2011**, Ed. Niklas von Weymarn, *SHOK Program Report*, **2011**. (ISBN 978-952-92-9718-4).

B3 Article in conference proceedings

1. A. J. Holding, V. Mäkelä, J. K. J. Helminen, E. Sklavounos, S. Kedzior, E. Cranston, I. Kilpeläinen*, A. W. T. King*. High-resolution solution-state NMR of wood biopolymers in ionic liquid electrolytes, for understanding catalytic processes (OCXX), 3rd International Congress on Catalysis for Biorefineries (CATBIOR), **2015**, Rio de Janeiro, Brazil.
2. T. Kakko, S. Asaaki, A. W. T. King, M. Hummel, H. Sixta, I. Kilpeläinen*, Homogeneous Esterification of Pre-Hydrolysis Kraft Pulp in [DBNH][OAc]. *ISWFPC 2015* (Extended Abstract Proceedings – P8), 22-25, Vienna-Austria, Sept **2015**.
3. S. Asaadi, T. Kakko, M. Hummel, A. W. T. King, I. Kilpeläinen, H. Sixta*, Effect of Degree of Acetylation on Properties of Regenerated Fibres Spun from Cellulose-Ionic Liquid ([DBNH][OAc]) Solution. *ISWFPC 2015* (Extended Abstract Proceedings – P40), 133-135, Vienna-Austria, Sept **2015**.
4. Holding, A. J., Rodríguez, H., Kilpeläinen*, I., King*, A. W. T., Phase separable ionic liquids for lignocellulose processing (P62). 13th *European Workshop on Lignocellulosics and Pulp* (Extended Abstract), Seville, Spain, **2014**, 403-407.

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6. King*, A. W. T., Holding, A. J., Parviainen, A., Kilpeläinen, I. Development of recyclable ionic liquids for biomass processing (OC12), 2nd International Congress on Catalysis for Biorefineries (CATBIOR), **2013**, Dalian, China.
7. King*, A. W. T., Parviainen, A., Selg, C., Mutikainen, I., Hummel, M., Sixta, H., Kilpeläinen, I. The design of 'distillable' ionic liquids for cellulose processing (PD29), 3rd International Cellulose Conference (ICC 2012), **2012**, Sapporo, Japan.
8. King*, A. W. T., Lawoko, M., Leskinen, T., D. S. Argyropoulos, Kilpeläinen*, I., Cellulose extraction from spruce sawdust with 1-allyl-3-methylimidazolium chloride (O5). *12th European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Helsinki, Finland, **2012**, 28-31.
9. Parviainen, A., King*, A. W. T., Selg, C., Mutikainen, I., Hummel, M., Sixta, H., Kilpeläinen*, I., Design of novel acid-base conjugate ionic liquids for cellulose dissolution (P72). *12th European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Helsinki, Finland, **2012**, 440-443.
10. Rauhala, T., Lawoko*, M., King, A. W. T., Liitiä, T., Sixta*, H., On the role of lignin carbohydrate complexes in kraft delignification of autohydrolysis wood (P80). *12th European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Helsinki, Finland, **2012**, 472-475.
11. Talja, R. A., Kulomaa, T. P. S., Labafzadeh, S., Kyllönen, L. E., King, A. W. T., Kilpeläinen, I., Poppius-Levlin, K. Cellulose esters from birch kraft pulps: new biomaterials for barrier coating, 16th International Symposium on Wood, Fiber and Pulping Chemistry (16th ISWFPC), **2011**, Vol. 2, 1394-1398, Tianjin, China, 8-10 June 2011.
12. Järvi, P. K., Granström, M., King, A. W. T., Hietala, S., Olszewska, A., Kilpeläinen, I., Argyropoulos*, D. S. Study of viscosity of cellulose ionic liquids at high concentrations, *Ann. Trans. Nordic Rheology Soc.*, **2011**, 19, 339-343.
13. Riku A. Talja, Jun Shan, Mika Vähä-Nissi, Alistair W. T. King, Ilkka Kilpeläinen, Kristiina Poppius-Levlin,* A new birch xylan derivative by aqueous benzylation, *11th European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Hamburg, Germany, **2010**, 403-406.
14. Tiina Rauhala, Alistair W. T. King, Gerhard Zuckerstätter, Herbert Sixta,* Influence of autohydrolysis on lignin from birch wood, *11th European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Hamburg, Germany, **2010**, 357-360.

15. Alistair W. T. King,* Arno Parviainen, Sami Heikkinen, Ilkka Kilpeläinen,* The basis for chemical interaction of ionic liquids with lignocellulosic material, 11th *European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Hamburg, Germany, **2010**, 247-250.
16. Pirkko Karhunen, Alistair W. T. King,* Jorma Matikainen, Paula Järvi, Lasse Kyllönen, Ilkka Kilpeläinen,* Deconstruction of wood using ionic liquids, 11th *European Workshop on Lignocellulosics and Pulp (Extended Abstract)*, Hamburg, Germany, **2010**, 121-124
17. Alistair W. T. King, Paula Järvi, Anna Olszewska, Ilkka Kilpeläinen and Dimitris S. Argyropoulos.* Solubility and Reactivity of Wood Biopolymers in Ionic Liquids. *2nd Nordic Wood Biorefinery Conference, Helsinki (Extended Abstract)*, Helsinki, Finland, **2009**, 49, 113-118.
18. Alistair W. T. King,* Jarno Jalomäki, Paula Järvi, Mari Granström, Sami Heikkinen and Ilkka Kilpeläinen.* Rapid DS and Purity Determination of Organically Soluble Esters of Cellulose using ³¹P NMR. *2nd Nordic Wood Biorefinery Conference, Helsinki (Extended Abstract)*, Helsinki, Finland, **2009**, 66, 225-231.
19. Mari Granström, Jarno Jalomäki, Paula Järvi, Annastiina Veistinen, Alistair W. T. King, Lasse Kyllönen and Ilkka Kilpeläinen.* Homogeneous Synthesis of Novel Cellulose Derivatives in Ionic Reaction Media. *2nd Nordic Wood Biorefinery Conference, Helsinki (Extended Abstract)*, Finland, **2009**, 67, 232-239

G Theses

G4 Doctoral thesis (monography)

1. Alistair W. T. King, Chemoenzymatic Synthesis of Chiral Organosulfur Compounds. *Ph.D. Thesis*, Queens University of Belfast, **2002**

H Patents and invention reports

H1 Patents

1. L. K. J. Hauru, A. W. T. King, I. A. Kilpeläinen, METHOD OF JOINING POLYMERIC BIOMATERIALS, *FI Provisional Filing*, **2017**.
2. J. K. J. Helminen, H. Sixta, A. W. T. King, M. Hummel, Kadvaël Le Boulch, I. A. Kilpeläinen, Process for the production of shaped cellulose articles using ionic liquids with enhanced hydrothermal stability. *Provisional FI Filing*, **2017**.
3. J. K. J. Helminen, A. W. T. King, I. A. Kilpeläinen, METHOD FOR PREPARING A BICYCLIC GUANIDINE AND ITS DERIVATIVES. *FI Provisional Filing*, **20175999**.

1. E. Sklavounos, A. Rantamäki, S.-K. Ruukonen, T. Laaksonen, L. Kyllönen, S. Wiedmer, A. W. T. King, Novel hydrotropic ionic liquids, based on branched acids. *Provisional FI Filing*, **2016**.
2. King, A. W. T., Filpponen, E. I., Helminen, J. K. J., Kilpeläinen, I. A. Method of dewatering water soluble polymers, *PCT Filing FI2016/050615*
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