

1 Publications

1.1 Theses

1.1.1 Doctoral theses (12)

David Agar, The Feasibility of Torrefaction for the Co-Firing of Wood in Pulverised-Fuel Boilers
<http://urn.fi/URN:ISBN:978-952-12-3321-0>

Petteri Kangas, Modelling the super-equilibria in thermal biomass conversion: applications and limitations of the constrained free energy method
<http://urn.fi/URN:ISBN:978-951-38-8298-3>

Petri Kälpeläinen, Pressurized hot water flow-through extraction of birch wood
<http://urn.fi/URN:NBN:fi-fe201503262029>

Victor Kisonen, Functionalisation of spruce O-acetyl-galactoglucomannans for barrier and composite applications
<http://urn.fi/URN:NBN:fi-fe2015092814123>

Jens Krogell, Intensification of hemicellulose hot-water extraction from spruce wood by parameter tuning
<http://urn.fi/URN:ISBN:978-952-12-3202-2>

Antonina Kupareva, Silicon-containing species in used lube oil re-refining
<http://urn.fi/URN:NBN:fi-fe201503111854>

Ewelina Leino, Transformation of carbon dioxide to diethyl carbonate over ceria and ceria-supported catalysts
<http://urn.fi/URN:NBN:fi-fe201504237416>

Otto Långvik, Bio and Chemocatalysis for Stereo and Regioselective One-Pot Reaction Applications
<http://urn.fi/URN:NBN:fi-fe2015092413971>

Jussi Rissanen, Utilizing hemicelluloses - The first step: Controlled extraction with hot water
<http://www.doria.fi/handle/10024/117546>

Risto Savela, Iron (III) as Lewis Acid Catalyst in Organosilicon and Carbonyl Chemistry
<http://urn.fi/URN:ISBN:978-952-12-3206-0>

Ulriika Vanamo, Solid-State Reference and Ion-Selective Electrodes – Towards Portable Potentiometric Sensing
<http://urn.fi/URN:ISBN:978-952-12-3190-2>

Daniel Valtakari, The role of metal ions in selective and sustainable processes
<http://urn.fi/URN:NBN:fi-fe2015092914187>

1.1.2 Master's theses (25)

Akhmetzyanova, Uliana, Synthesis and characterization of metal modified solid heterogeneous catalysts – Application of Raman spectroscopy

Bernardini, Andrea, Direct synthesis H₂O₂ over palladium supported on rare earths promoted zirconia (in co-operation with Università di Padova)

Bizzotto, Francesco, Application of the catalyst wet pretreatment method (CWPM) for catalytic direct synthesis of H₂O₂ (in co-operation with Università di Padova)

Fernández, Andérez María, Extraction of hemicelluloses from stone pine, Norway spruce and holm oak with pressurized hot water

Forsblom, Juba, An overview of cancer immunotherapy and oncology markets

Gao, Chao, Porous implants sintered of bioactive glasses

González, Muñoz Marta, Microwave-assisted and acid-catalyzed epoxidation of oleic acid in the presence of peracetic acid and cation exchange resin

Gunell, Andreas, Från kolhydrater till finkemikalier: Syntes av ett par polyolderivat

Holmblad, Henri, Low temperature corrosion in black liquor recovery boilers due to hygroscopic salts

Hussein, Abdifatab Mohamed, Characterization of novel solid-state reference electrodes

Kiran, Sara, Preparation of bioactive glass scaffolds via replica technique

Kosivtsova, Anna, Isolation of Ligning with aqueous alkali and peroxide from hot-water pre-extracted Norway spruce wood

Kotelnikova, Aleksandra, NFC-galactoglucomannan-based hydrogels for the removal of heavy metal ions from aqueous solutions

Kråkström, Matilda, Transformation av läkemedel i biologisk avloppsvattenrening

Kujanpää, Petra, En ny avisningsmetod

Pérez Martínez, Victor, Acid hydrolysis of hemicelluloses from hardwood and softwood with homogeneous and heterogeneous catalysts

Raguzina, Ekaterina, Investigation of the potential stability of ion-selective electrodes with solid-contact

Rai, Varun, Development of a short-term gas-blast type erosion tester for elevated temperatures

Sangder, Johan, Dynamisk in vitro-undersökning av bioaktiva glas med och utan zink- och strontiumsubstitution

Smirnov, Iliia, Bubbling fluidized bed agglomeration due to phosphorus compounds

Stenlund, Daniel, In-furnace measurements of deposit build-up and corrosion in a copper flash smelting waste heat boiler

Tkacheva, Anastasia, Pharmaceuticals and surfactants from alga derived feedstock: catalytic amidation of fatty acids and their derivatives with amino alcohols over heterogeneous catalysts

Xu, Wenyang, Preparation of cellulose nanocrystals (CNCs) using oxalic acid

Zubair, Muhammad, Electrospinning of conducting polymer and nanofibrillated cellulose based composite fibers

Östman, Johnny, Bestämning av antibiotika i kommunala avloppsvatten med användning av fastfasextraktion och vätskekromatografi-masspektrometri

1.2 Publications

1.2.1 Articles in refereed international scientific journals and series (146)

1. Abejon, R., Abejon, A., Biasi, P., Gemo, N., Garea, A., Salmi, T., Irabien, J. A., **Hydrogen peroxide obtained via direct synthesis as alternative raw material for ultrapurification process to produce electronic grade chemical**, *Journal of Chemical Technology and Biotechnology* 91 (2016) 1136-1148
2. Aho, A., Roggan, S., Simakova, O., Salmi, T., Murzin, D. Yu., **Structure sensitivity in catalytic hydrogenation of glucose over ruthenium**, *Catalysis Today* 241 (2015) 195-199
3. Aho, A., Roggan, S., Eränen, K., Salmi, T., Murzin, D. Yu., **Continuous hydrogenation of glucose with ruthenium on carbon nanotubes catalysts**, *Catalysis Science and Technology*, 5 (2015) 953-959
4. Berguerand, C., A. Yarulin, A., Cardenas-Lizana, F., Wärnå, J., Sulman, E. M, Murzin, D. Yu., Kiwi-Minsker, L., **Chemoselective liquid phase hydrogenation of 3-nitrostyrene over Pt nanoparticles: synergy with ZnO support**, *Industrial and Engineering Chemistry Research*, 54 (2015) 8659–8669
5. Bernas, H., Demidova, Y.S., Aho, A., Simakova, I.L., Kumar, N., Laribi, Y., Perrichon, P., Leino, R., Murzin, D. Yu., **Transformations of 1-(2-aminophenyl)propan-2-ol to 2-methylindoline using supported metal catalysts**, *Catalysis Letters* 145 (2015) 955-963
6. Bernardini, A., Gemo, N., Biasi, P., Canu, P., Mikkola, J. P., Salmi, T., Lanza, R., **Direct synthesis of H₂O₂ over Pd supported on rare earths promoted zirconia**, *Catalysis Today* 256 (2015) 294-301
7. Biasi, P., Sterchele, S., Bizzotto, F., Manzoli, M., Lindholm, S., Ek, P., Bobacka, J., Mikkola, J.-P., Salmi, T., **Application of the Catalyst Wet Pretreatment Method (CWPM) for catalytic direct synthesis of H₂O₂**, *Catalysis Today* 246 (2015) 207-215
8. Blochberger, M., Hupa, L., Brauer, D.S., **Influence of zinc and magnesium substitution on ion release from Bioglass® 45S5 at physiological and acidic pH**, *Biomedical Glasses* 1 (2015) 93-107
9. Bober, P., Humpoíček, P., Pacherník, J., Stejskal, J., Lindfors T., **Conducting polyaniline based cell culture substrate for embryonic stem cells and embryoid bodies**, *RSC Advances* 5 (2015) 50328-50335
10. Bourhis, K., Massera, J., Petit, L., Ihalainen, H., Fargues, A., Cardinal, T., Hupa, L., Hupa, M., Dussauze, M., Rodriguez, V., Boussard-Plédel, C., Bureau, B., Roiland, C., Ferraris, M., **Influence of P₂O₅ and Al₂O₃ content on the structure of erbium-doped borosilicate glasses and on their physical, thermal, optical and luminescence properties**, *Materials Research Bulletin* 63 (2015) 41-50

11. Bourhis, K., Massera, J., Petit, L., Koponen, J., Fargues, A., Cardinal, T., Hupa, L., Hupa, M., Dussauze, M., Rodriguez, V., Ferraris, M., **Erbium-doped borosilicate glasses containing various amounts of P₂O₅ and Al₂O₃: Influence of the silica content on the structure and thermal, physical, optical and luminescence properties**, *Materials Research Bulletin* 70 (2015) 47-54
12. Brusentsev, Y., Eklund, P., **Synthesis and application of diphosphine ligands derived from the lignan hydroxymatairesinol**, *Catalysis Today* 241 (2015) 260-263
13. Cortese, R., Schimmenti, R., Armata, N., Ferrante, F., Prestianni, A., Duca, D. Murzin, D. Yu., **Investigation of polyol adsorption on Ru, Pd and Re using vdW density functionals**, *Journal of Physical Chemistry C*. 119 (2015) 17182-17192
14. Das, I., Medda, S.K., De, G., Fagerlund, S., Hupa, L., Puska, M.A., Vallittu, P.K., **Hierarchically designed bioactive glassy nanocoatings for faster and uniformly dense apatite growth**, *Journal of American Ceramic Society*, 98 (2015) 2428-2347
15. Dax, D., Soledad Chávez Bastidas, M., Honorato, C., Liu, J., Spoljaric, S., Seppälä, J., Mendonça, R.T., Xu, C., Willför, S., Sánchez, J., **Tailor-made hemicellulose-based hydrogels reinforced with nanofibrillated cellulose**, *Nordic Pulp and Paper Research Journal* 30 (2015) 373-384
16. Demidova, Yu. S., Suslov, E. V., Simakova, O. A., Simakova, I. L., Volcho, K. P., Salakhutdinov, N. F., Murzin, D. Yu., **Selective carvone hydrogenation to dihydrocarvone over titania supported gold catalyst**, *Catalysis Today* 241 (2015) 189-194
17. Gallina, G.; Biasi, P.; Garcia-Serna, J.; Salmi, T.; Mikkola, J.-P., **Optimized H₂O₂ production in a trickled bed reactor, using water and methanol enriched with selectivity promoters**, *Chemical Engineering Science* 123 (2015) 334-340
18. Gemo, N., Sterchele, S., Biasi, P., Centomo, P., Canu, P., Zecca, M., Shchukarev, A., Kordas, K., Salmi, T. O., Mikkola, J.-P., **The influence of catalyst amount and Pd loading on the H₂O₂ synthesis from hydrogen and oxygen**, *Catalysis Science & Technology* 5 (2015) 3545-3555
19. Gericke, D., Ott, D., Matveeva, V. G., Sulman, E., Aho, A., Murzin, D. Yu., Roggan, S., Danilova, L., Hessel, V., Loeb, P., Kralisch, D., **Green catalysis by nanoparticulate catalysts developed for flow processing? Case study of glucose hydrogenation**, *RSC Advances* 5 (2015) 15898-15908
20. Godina, L. I., Kirilin, A.V., Tokarev, A. V., Murzin, D. Yu., **Aqueous phase reforming of industrially relevant sugar alcohols with different chirality**, *ACS Catalysis* 5 (2015) 2989-3005
21. Granholm, K., Sokalski, T., Lewenstam, A., Ivaska, A., **Ion-selective electrodes in potentiometric titrations; a new method for processing and evaluating titration data**, *Analytica Chimica Acta* 888 (2015) 36-43
22. Gudarzi, D., Ratchananusorn, W., Turunen, I., Heinonen, M., Salmi, T., **Promotional effects of Au in Pd–Au bimetallic catalysts supported on activated carbon cloth (ACC) for direct synthesis of H₂O₂ from H₂ and O₂**, *Catalysis Today* 248 (2015) 58-68

23. Gudarzi, D., Turunen, I., Heinonen, M., Salmi, T., **Factors influencing hydrogenation and decomposition of H₂O₂ over Pd-Au catalysts supported on activated carbon cloth (ACC)**, *Topics in Catalysis* 58 (2015) 1019-1035
24. Gulbrandsen, T. A., Johnsen, I. A., Opedal, M. T., Toven, K., Øyaas, K., Pranovich, A., Mikkola, J.-P., Hoff, B. H., **Extracting hemicelluloses from softwood and bagasse as oligosaccharides using pure water and microwave heating**, *Cellulose Chemistry and Technology* 49 (2015) 117-126
25. He, N., Höfler, L., Latonen, R.-M., Lindfors, T., **Influence of hydrophobization of the polyazulene ion-to-electron transducer on the potential stability of calcium-selective solid-contact electrodes**, *Sensors and Actuators B: Chemical* 207 (2015) 918-925
26. Hesse, B., Gläsel, J., Kern, A. M., Murzin, D. Yu., Etzold, B. J. M., **Preparation of carbide-derived carbon supported platinum catalysts**, *Catalysis Today* 249 (2015) 30-37
27. Honorato, C., Kumar, V., Liu, J., Koivula, H., Xu, C., Toivakka, M., **Transparent nanocellulose-pigment composite films**, *Journal of Materials Science* 50 (2015) 7343-7352
28. Huang, B. T., Leveneur, S., Zamar, T., Mikkola, J.-P., Taouk, B., **Towards production of γ -valerolactone via hydrogenation of aqueous levulinic acid**, *International Journal of Chemical Reactor Engineering* 13 (2015) 119-127
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30. Hupa, E., Vanamo, U., Bobacka, J., **Novel ion-to-electron transduction principle for solid-contact ISEs**, *Electroanalysis* 27 (2015) 591-594
31. Ipatova, E.V., Krutov, S.M., Sumerskii, I.V., Pranovich, A.V., **Micronization effect on hydrolysis lignin extractive substances**, *Izvestia Sankt-Peterburgskoj Lesotekhniceskoj Akademii: SPb.: SPbGLTU*, 210 (2015) 190-200
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38. Karlström, O., Costa, M., Brink, A., Hupa, M., **CO₂ gasification rates of char particles from torrefied pine shell, olive stone and straw**, *Fuel* 158 (2015) 753-763
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40. Konwar, L. J., Mäki-Arvela, P., Begum, P., Kumar, N., Thakur, A.J., Mikkola, J.-P., Deka, R. C., Deka, D., **Shape selectivity and acidity effects in glycerol acetylation with acetic anhydride: Selective synthesis of triacetin over Y-zeolite and sulfonated mesoporous carbons**, *Journal of Catalysis* 329 (2015) 237-247
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43. Korotkova, E.M., Pranovich, A.V., Willför, S.M., Sulman, E.M., **Lignin isolation from spruce wood with low concentration alkali at high temperature**, *Scientific and Technical Volga region Bulletin* 6 (2015) 151-153 (The article is in Russian with English abstract)
44. Korotkova, E., Pranovich, A., Wärnå, J., Salmi, T. Murzin, D. Yu., Willför, S., **Lignin isolation from spruce wood with low concentration aqueous alkali at high temperature and pressure: Influence of hot-water pre-extraction**, *Green Chemistry* 17 (2015) 5058-5068
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50. Kuuluvainen, V., Mäki-Arvela, P., Eränen, K., Holappa, A., Hemming, J., Österholm, H., Toukoniitty, B., Murzin, D. Yu., **Extraction of spent bleaching earth in the production of renewable diesel**, *Chemical Engineering & Technology* 38 (2015) 769-776
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55. Li, B., Xu, W., Kronlund, D., Määttä, A., Liu, J., Smått, J.-H., Peltonen, J., Willför, S., Xindong, M., Xu, C., **Cellulose nanocrystals prepared via formic acid hydrolysis followed by TEMPO-mediated oxidation**, *Carbohydrate Polymers* 133 (2015), 605-612
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57. Lindfors, T., **Potential cycling stability of composite films of graphene derivatives and poly(3,4-ethylenedioxythiophene)**, *Electroanalysis* 27 (2015) 727-732
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63. Långvik, O., Mavrynsky, D., Leino, R., **Selective ruthenium-catalyzed epimerization of chiral sec-alcohols**, *Catalysis Today* 241 (2015) 255-259
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65. Martin, G., Pereira, C., Pettersson, F., Saxen, H., Murzin, D. Yu., Rodrigues, A., Salmi, T., **Combining reaction and separation in heterogeneous catalytic hydrogenation of ethylformate**, *Chemical Engineering and Technology* 38 (2015) 804-812
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1.2.2 Review articles in refereed international scientific journals and series (6)

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1.2.3 Books and book chapters (5)

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1.2.4 Articles in refereed international edited volumes and conference proceedings (7)

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163. Sevonius C., Yrjas P., Lindberg D., Hupa M., **Agglomeration mechanisms in a laboratory bubbling fluidized bed due to addition of different phosphate compounds**, *Proceedings of the 22nd International Conference on Fluidized Bed Conversion*, Åbo, Finland (2015) ISBN: 978-952-12-3223-7
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1.3 Edited conference proceedings and reports (1)

1. Lindqvist, H., Brink, A., Latonen, R-M., Mäki-Arvela, P., Saloranta, T., Sundberg, A. (eds) *Johan Gadolin Process Chemistry Centre Annual Report 2014-2015*, Åbo Akademi University, 2015, ISSN: 1459-8213, Newprint, Loimaa, Finland

1.4 Patents and invention disclosures (3)

1. Holmbom, Thomas; Holmbom, Bjarne. Hydrophobization composition, hydrophobization treatment of substrate and hydrophobic substrate. Finn. Pat 125475 (2015), 12 pp.
2. Savolainen, J., Ranta, K., Mukherjee, C., Leino, R. Multivalent β -1,2-Linked Mannose Oligosaccharides as Immunostimulatory Compounds and Uses Thereof, U.S. Patent 9,221,861, December 29, 2015.
3. Sokalski, T., Lewenstam, A., Mousavi, Z., Granholm, K., A reference electrode and an arrangement for an electrochemical measurement, WO 2014091083 A1

1.5 Awards granted (5)

Anugwom, Ikenna

Baltic University Programme (BUP) 2014 PhD Award

Winner of the 2014 BUP PhD Thesis Award is Ikenna Anugwom of Åbo Akademi University, Johan Gadolin Process Chemistry Centre, Finland and Umeå University Sweden for his thesis Towards Optimal Fractionation of Lignocellulosic Biomass Using Switchable Ionic Liquids. The thesis is found by using the link below.

<https://www.doria.fi/handle/10024/95610>

Holmbom, Bjarne

Honoured as an “Inductee” at Paper Industry International Hall of Fame, Appleton, Wisconsin, USA. Bjarne Holmboms merits are characterized as follows: *“His studies are a superb combination of high-level basic and applied research. His research has had a major significance for the development of forest industry and wood-based innovations, creating new commercial fields building on the inherent chemistry of wood. Holmbom’s research has made an important contribution towards making the forest products industry a biorefining industry.”*

Niemi, Jonne

The 22nd FBC Best Paper Awards were given to Jonne Niemi, et al. for their paper "Alkali chloride transport within superheater deposits due to temperature gradients"

Schmidt, Sabrina

Best doctoral thesis in chemistry and chemical technology, Finska Kemistsamfundet (Association of Finnish Chemists)

Vincenzo, Russo; Kilpiö, Teuvo; Carucci, Jose Hernandez; di Serio, Martina; Salmi, Tapio

2015 PSE Model-Based Innovation Prize. The Runners up prize has been awarded to the publication entitled: “Modeling of microreactors for ethylene epoxidation and total oxidation”. Among the prize winner we can find Teuvo Kilpiö and Tapio Salmi. The work is published Chemical Engineering Science and can be found using this [link](#) [Chem. Eng. Sci. 134 (2015) 563–571]. Further information about the prize can be found [here](#).