

#### **Atomic layer deposition process for barrier applications of flexible packaging**

Johansson, P., Lahtinen, K., Kuusipalo, J., Kääriäinen, T., Maydannik, P. & Cameron, D., 2010, *TAPPI 2010 PLACE Conference, April 18-21, 2010, Albuquerque NM, USA*. p. 1-12 12 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

#### **Bio-Hybrid Nanocomposite Coatings from Sonicated Chitosan and Nanoclay**

Vartiainen, J., Tuominen, M. & Nättinen, K., 2010, In : *Journal of Applied Polymer Science*. 116, 6, p. 3638-3647

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Development of sustainable paper coatings using nanoscale industrial**

Markert, F., Breedveld, L., Lahti, J. & Vangeneugden, D., 2010, *i-SUP 2010, Innovation for Sustainable Production, Conference 4, Materials for Sustainable Production, Bruges, Belgium, 18-21 April, 2010*. p. 80-84

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Digital imaging measurement of dense multiphase flows in industrial processes**

Honkanen, M., Eloranta, H. & Saarenrinne, P., 2010, In : *Flow Measurement and Instrumentation*. 21, 1, p. 25-32

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Effect of fibre properties on flocculation and fractionation of cellulosic fibres in dry state**

Larkomaa, J., Niinimäki, J., Honkanen, M., Hanif, M. & Saarenrinne, P., 2010, In : *Journal of Engineered Fibers and Fabrics*. 5, 1, p. 1-10 10 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Effect of Pigment Volume Concentration and Drying Aspects on the Enzyme Activity of Clay Coatings**

Johansson, K., Christophliemk, H., Jönsson, L. J. & Järnström, L., 2010, *11th Advanced Coating Fundamentals Symposium Proceedings, The Latest Advances in Coating Research and Development, 11-13 October 2010, Munich, Germany*. USA: TAPPI Press, p. 129-143 (TAPPI Advanced Coating Fundamentals Symposium).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Image based measurement of particle phase reynolds stresses in a laboratory scale circulating fluidized bed**

Peltola, J., Kallio, S., Honkanen, M. & Saarenrinne, P., 2010, *7th International Conference on Multiphase Flow ICMF2010, May 30 - June 4, 2010, Tampa, Florida*. p. 1-9 9 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Influence of Atmospheric Plasma Treatment on Surface Properties and Inkjet Printability of Plastic Packaging Film**

Lahti, J., Eiroma, K., Tenhunen, T.-M., Pykönen, M. & Toivakka, M., 2010, *Advances in Printing and Media Technology*. Enlund, N. & Lovrecek, M. (eds.). p. 197-203

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

#### **The name of the thesis: Surface Treatment in Extrusion Coating, Topic: The Influence of Corona and Flame Treatment on Sealability of Extrusion Coated Paper**

Tuominen, M., 2010, *PaPSaT, International Doctoral Programme in Pulp and Paper Science and Technology in Finland, Yearbook 2010*. Kärkkäinen, S. (ed.). p. 1-5 5 p.

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#### **Two-phase PIV/PTV measurement of bubbly flow across pin fins in a micro-channel**

Honkanen, M., Jung, J., Kuo, C. J., Peles, Y. & Amitay, M., 2010, *7th International Conference on Multiphase Flow ICMF2010, May 30 - June 4, 2010, Tampa, Florida*. p. 1-9 9 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Adhesion Mechanism of Water Droplets on Hierarchically Rough Superhydrophobic Rose Petal Surface**

Teisala, H., Tuominen, M. & Kuusipalo, J., 2011, In : *Journal of Nanomaterials*. 2011, p. 1-6 6 p., 818707.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Atmospheric Plasma Treatment of Plastic Packaging Film: Effects on Surface Properties and UV Inkjet Printability**

Lahti, J., Eiroma, K., Tenhunen, T.-M., Pykönen, M., Toivakka, M. & Tuominen, M., 2011, *13th TAPPI European PLACE Conference, Bregenz, Austria, 30 May - 1 June, 2011*. Norcross, GA: TAPPI, p. 1-31 31 p. (TAPPI European PLACE

Conference).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Atomic layer deposition on polymer based flexible packaging materials: Growth characteristics and diffusion barrier properties**

Kääriäinen, T. O., Maydannik, P., Cameron, D. C., Lahtinen, K., Johansson, P. & Kuusipalo, J., 2011, In : *Thin Solid Films*. 519, 10, p. 3146-3154

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Deposition of flame synthesised nanoparticles on paperboard surface**

Aromaa, M., Haapanen, J., Teisala, H., Tuominen, M., Kuusipalo, J., Stepien, M., Saarinen, J. J., Toivakka, M. & Mäkelä, J., 2011, *NOSA & FAAR 2011, Nordic Aerosol Symposium, November 9-11, 2011, Tampere, Finland*. Tampere: Nordic Society for Aerosol Research, p. 17-17 (Nordic Aerosol Symposium NOSA & FAAR).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

#### **Effects of flame and corona treatment on extrusion coated paper properties**

Tuominen, M., Lahti, J. & Kuusipalo, J., 2011, In : *TAPPI Journal*. 10, 10, p. 29-36

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Nanoparticle Deposition from Liquid Flame Spray onto Moving Roll-to-Roll Paperboard Material**

Mäkelä, J. M., Aromaa, M., Teisala, H., Tuominen, M., Stepien, M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2011, In : *Aerosol Science and Technology*. 45, 7, p. 827-837

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Nanoscale Surface Processing of Extrusion Coated Substrates and Plastic Films with Atmospheric Plasma Activation and Deposition**

Lahti, J. & Lavonen, J., 2011, *Novel nanostructured polymeric materials for food packaging and beyond, International COST Workshop, Espoo, Finland, September 15-16, 2011. VTT Symposium*. Vähä-Nissi, M. (ed.). Espoo: VTT, p. 29-30 (International COST Workshop; vol. 270).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **The name of the thesis: Atmospheric Plasma Treatment in Extrusion Coating, Topic: The Effect of Flame Treatment on the Sealability of Extrusion Coated Paper**

Tuominen, M., 2011, *PaPSaT, International Doctoral Programme in Pulp and Paper Science and Technology in Finland, Yearbook 2011*. Kärkkäinen, S. (ed.). Espoo: Aalto University School of science and technology, p. 1-5 5 p.

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

#### **Top layer coatability on barrier coatings**

Bollström, R., Tuominen, M., Määttä, A., Peltonen, J. & Toivakka, M., 2011, *TAPPI's PaperCon 2011, May 1-4, 2011, Covington, KY, USA. Paper 360 - Special PaperCon Edition*. Norcross, GA: TAPPI, p. 1-11 11 p. (TAPPI International Conference Papercon).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Utilisation of continuous atomic layer deposition process for barrier enhancement of extrusion-coated paper**

Lahtinen, K., Maydannik, P., Johansson, P., Kääriäinen, T., Cameron, D. C. & Kuusipalo, J., 2011, In : *Surface and Coatings Technology*. 205, 15, p. 3916-3922

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Adhesion of Extrusion-Coated Polymer Sealing Layers to a Fiber-Based Packaging Material with an Atomic Layer Deposited Aluminum Oxide Surface Coating**

Lahtinen, K., Johansson, P., Kääriäinen, T. & Cameron, D. C., 2012, In : *Polymer Engineering and Science*. 52, 9, p. 1985-1990

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Atmospheric synthesis of superhydrophobic TiO<sub>2</sub> nanoparticle deposits in a single step using Liquid Flame Spray**

Aromaa, M., Arffman, A., Suhonen, H., Haapanen, J., Keskinen, J., Honkanen, M., Nikkanen, J-P., Levänen, E., Messing, M., Deppert, K., Teisala, H., Tuominen, M., Kuusipalo, J., Stepien, M., Saarinen, J., Toivakka, M. & Mäkelä, J. M., 2012, In : *Journal of Aerosol Science*. 52, p. 57-68

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Flame deposition of superhydrophobic and superhydrophilic nanoparticle coating on paperboard materials**

Aromaa, M., Haapanen, J., Teisala, H., Tuominen, M., Kuusipalo, J., Stepien, M., Saarinen, J. J., Toivakka, M. & Mäkelä, J. M., 2012, *Nanotechnology 2012: Advanced Materials, CNTs, Particles, Films and Composites - 2012 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2012, Santa Clara, CA, USA, 18-21 June 2012*. Nano Science and Technology Institute NSTI, p. 365-367 (Nanotechnology Conference and Expo Nanotech).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Nanoscale surface processing of extrusion coated substrates and plastic films with atmospheric plasma activation and deposition**

Lahti, J. & Lavonen, J., 2012, *TAPPI PLACE Conference 2012, Helping Me Do My Job Better, Seattle, Washington, USA, 6-9 May 2012*. TAPPI Press; Curran Associates, Inc, p. 588-600 (TAPPI PLACE Conference).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Nanostructures Increase Water Droplet Adhesion on Hierarchically Rough Superhydrophobic Surfaces**

Teisala, H., Tuominen, M., Aromaa, M., Stepien, M., Mäkelä, J. M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2012, In : *Langmuir*. 28, 6, p. 3138-3145

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Surface chemical analysis of photocatalytic wettability conversion of TiO<sub>2</sub> nanoparticle coating**

Stepien, M., Saarinen, J. J., Teisala, H., Tuominen, M., Aromaa, M., Kuusipalo, J., Mäkelä, J. M. & Toivakka, M., 2012, In : *Surface and Coatings Technology*. 208, p. 73-79

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Surface chemical characterization of nanoparticle coated paperboard**

Stepien, M., Saarinen, J. J., Teisala, H., Tuominen, M., Aromaa, M., Kuusipalo, J., Mäkelä, J. M. & Toivakka, M., 2012, In : *Applied Surface Science*. 258, 7, p. 3119-3125

Research output: Contribution to journal › Article › Scientific › peer-review

#### **The Effect of ELF electric fields on Implantable Cardioverter Defibrillators (ICD)**

Gonzalez, J. A., Tarao, H. & Korpinen, L., 2012, *The Bioelectromagnetics Society 34th Annual Meeting, June 17, 2012 - June 22, 2012, Brisbane, Australia*. The Bioelectromagnetics Society, p. 104-106 3 p. (The Bioelectromagnetics Society Annual Meeting).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **The effects of coating structure and water-holding capacity on the oxygen-scavenging capacity of enzymes embedded in the coating layer**

Johansson, K., Christophliemk, H., Johansson, C., Jönsson, L. J. & Järnström, L., 2012, *12th TAPPI Advanced Coating Fundamentals Symposium Proceedings, September 10-12, 2012, Atlanta, USA*. TAPPI, p. 57-69 (TAPPI Advanced Coating Fundamentals Symposium).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Top layer coatability on barrier coatings**

Bollström, R., Tuominen, M., Määttänen, A., Peltonen, J. & Toivakka, M., 2012, In : *Progress in Organic Coatings*. 73, 1, p. 26-32

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Toward more controlled, nanoscale barrier layers in packaging**

Lahtinen, K., Johansson, P., Kääriäinen, T., Maydannik, P., Cameron, D. & Kuusipalo, J., 2012, In : *Plastics Research Online*. 17th August, p. 1-3 3 p.

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#### **Two-component aerosol nanoparticle coating for paperboard on roll-to-roll process**

Haapanen, J., Aromaa, M., Teisala, H., Tuominen, M., Stepien, M., Saarinen, J. J., Toivakka, M., Kuusipalo, J. & Mäkelä, J. M., 2012, *EAC-2012 Granada, European Aerosol Conference, 2-7 Sept 2012, Granada, Spain*. EAA, AECTA, p. 1-1 1 p. (European Aerosol Conference EAC).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

**High- and low-adhesive superhydrophobicity on the liquid flame spray-coated board and paper: structural effects on surface wetting and transition between the low- and high-adhesive states**

Teisala, H., Tuominen, M., Aromaa, M., Stepien, M., Mäkelä, J. M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2013, In : Colloid and Polymer Science. 291, 2, p. 447-455

Research output: Contribution to journal › Article › Scientific › peer-review

**The effect of flame treatment on surface properties and heat sealability of low-density polyethylene coating**

Tuominen, M., Ek, M., Saloranta, P., Toivakka, M. & Kuusipalo, J., 2013, In : Packaging Technology and Science. 26, 4, p. 201-214

Research output: Contribution to journal › Article › Scientific › peer-review

**Wettability conversion on the liquid flame spray generated superhydrophobic TiO<sub>2</sub> nanoparticle coating on paper and board by photocatalytic decomposition of spontaneously accumulated carbonaceous overlayer**

Teisala, H., Tuominen, M., Stepien, M., Haapanen, J., Mäkelä, J. M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2013, In : Cellulose. 20, 1, p. 391-408

Research output: Contribution to journal › Article › Scientific › peer-review

**Creation of superhydrophilic surfaces of paper and board**

Tuominen, M., Teisala, H., Aromaa, M., Stepien, M., Mäkelä, J. M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2014, In : Journal of Adhesion Science and Technology. 28, 8-9, p. 864-879

Research output: Contribution to journal › Article › Scientific › peer-review

**Design driven world of cellulose-from bulk to luxury?**

Qvintus, P., Kataja, K., Heikkilä, P., Salmela, J., Lehmonen, J., Ketoja, J., Hänninen, T., Harlin, A., Härkäsalmi, T., Vuorinen, J. & Vuorinen, T., 2014, *Fibre Value Chain Conference and Expo 2014: Pulp and Paper Bioenergy Bioproducts*. Appita Inc., p. 67-74 8 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

**Improving the extensibility, wet web and dry strength of paper by addition of agar**

Vishtal, A. & Retulainen, E., 2014, In : Nordic Pulp and Paper Research Journal. 29, 3, p. 434-443 10 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Modelling fume deposit growth in recovery boilers: effect of flue gas and deposit temperature**

Leppänen, A., Tran, H., Välimäki, E. & Oksanen, A., 2014, In : Journal of Science and Technology for Forest Products and Processes. 4, 1, p. 50-57 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**The effects of UV irradiation to polyetheretherketone fibres: Characterization by different techniques**

Mylläri, V., Ruoko, T. P. & Järvelä, P., 2014, In : Polymer Degradation and Stability. 109, p. 278-284 7 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Numerical modeling of fine particle and deposit formation in a recovery boiler**

Leppänen, A., Tran, H., Taipale, R., Välimäki, E. & Oksanen, A., 1 Aug 2014, In : Fuel. 129, p. 45-53 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Corrosion propagation phase studies on Finnish reinforced concrete facades**

Köliö, A., Honkanen, M. & Lahdensivu, J., 2015, *1st International Symposium on Building Pathology: ISBP 2015*. Porto: FEUP Edicoes (Faculdade de Engenharia da Universidade do Porto Edicoes)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

**Diffusion of acidic solution through rubber at high temperature and its effect on metal-rubber interface degradation**

Sarlin, E., Rosling, A., Mustakangas, M., Laihonon, P., Lindgren, M. & Vuorinen, J., 2015, *Proceedings of SAMPE Europe Conference*.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

**Effect of alkali and silane surface treatments on regenerated cellulose fibre type (Lyocell) intended for composites**

Ramamoorthy, S. K., Skrifvars, M. & Rissanen, M., 2015, In : Cellulose. 22, 1, p. 637-654 18 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**From partial to complete optical erasure of azobenzene-polymer gratings: effect of molecular weight**

Vapaavuori, J., Ras, R. H. A., Kaivola, M., Bazuin, C. G. & Priimägi, A., 2015, In : Journal of Materials Chemistry C. 3, 42, p. 11011-11016 6 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**High-temperature slurry erosion of vinylester matrix composites – The effect of test parameters**

Sarlin, E. L., Lindgren, M., Suihkonen, R. J., Siljander, S. M. K., Kakkonen, M. M. S. & Vuorinen, J. E., 2015, In : Wear. 328-329, p. 488-497 10 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**N-Alkyl ammonium resorcinarene salts: multivalent halogen-bonded deep-cavity cavitands**

Beyeh, N. K., Valkonen, A., Bhowmik, S., Pan, F. & Rissanen, K., 2015, In : Organic chemistry frontiers. 2, 4, p. 340-345 6 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Research on icing behavior and ice adhesion testing of icephobic surfaces**

Koivuluoto, H., Stenroos, C., Ruohomaa, R., Bolelli, G., Lusvardi, L. & Vuoristo, P., 2015, *16th International Workshop on Atmospheric Icing of Structures, IWAIS 2015, June 28-July 3, 2015, Uppsala, Sweden.* p. 183-188 6 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

**Simulation of ash-forming compounds in the kraft recovery boiler**

Leppänen, A., Välimäki, E. & Oksanen, A., 2015, *10th European Conference on Industrial Furnaces and Boilers.* Porto, Portugal, 10 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

**Synthesis, crystal structure, spectral, dielectric characteristics and conduction mechanism of two novel carboxylates of 1-benzhydrylpiperazine**

Wacharine, I., Valkonen, A., Rzaigui, M. & Smirani, W., 2015, In : Monatshefte für Chemie. 146, 12, p. 2007-2020 14 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**The effect of physical adhesion promotion treatments on interfacial adhesion in cellulose-epoxy composite**

Siljander, S., Lehmonen, J., Tanaka, A., Ketoja, J., Heikkilä, P., Lahti, J., Sarlin, E. & Vuorinen, J., 2015, *Proceedings of the 20th International Conference on Composite Materials.* 10 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

**The effect of the outermost fibre layers on solubility of dissolving grade pulp**

Grönqvist, S., Treimanis, A., Kamppuri, T., Maloney, T., Skute, M., Grinfelds, U., Vehviläinen, M. & Suurnäkki, A., 2015, In : Cellulose. 22, 6, p. 3955-3965 11 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**High performance wear and corrosion resistant coatings by novel cladding techniques**

Tuominen, J., Näkki, J., Pajukoski, H., Nyyssönen, T., Ristonen, T., Peltola, T. & Vuoristo, P., Jan 2015, *Surface Modification Technologies XXVIII: Proceedings of the 28th International Conference on Surface Modification Technologies.* Sudarshan, T. S., Vuoristo, P. & Koivuluoto, H. (eds.). Valardocs, p. 105-117 13 p.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

**Perfluoro-1,1'-biphenyl and perfluoronaphthalene and their derivatives as  $\pi$ -acceptors for anions**

Yi, H., Albrecht, M., Valkonen, A. & Rissanen, K., 1 Jan 2015, In : New Journal of Chemistry. 39, 1, p. 746-749 4 p.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Modeling Fume Particle Dynamics and Deposition with Alkali Metal Chemistry in Kraft Recovery Boilers**

Leppänen, A., 9 Jan 2015, Tampere: Tampere University of Technology. 63 p. (Tampere University of Technology. Publication; vol. 1273)

Research output: Book/Report › Doctoral thesis › Collection of Articles

### **Effect of rheological properties of dissolved cellulose/microfibrillated cellulose blend suspensions on film forming**

Saarikoski, E., Rissanen, M. & Seppälä, J., 30 Mar 2015, In : Carbohydrate Polymers. 119, p. 62-70 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Fermentative metabolism of an anaerobic, thermophilic consortium on plant polymers and commercial paper samples**

Carver, S. M., Nelson, M. C., Yu, Z. & Tuovinen, O. H., 1 Apr 2015, In : Biomass & Bioenergy. 75, p. 11-22 12 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Preferential Attachments of Organic Dyes onto {101} Facets of TiO<sub>2</sub> Nanoparticles**

Diao, F., Liang, W., Tian, F., Wang, Y., Vivo, P., Efimov, A. & Lemmetyinen, H., 23 Apr 2015, In : Journal of Physical Chemistry C. 119, 16, p. 8960-8965 6 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **High temperature oxidation tests for the high velocity solution precursor flame sprayed manganese-cobalt oxide spinel protective coatings on SOFC interconnector steel**

Puranen, J., Laakso, J., Honkanen, M., Heinonen, S., Kylmälahti, M., Lugowski, S., Coyle, T. W., Kesler, O. & Vuoristo, P., 18 May 2015, In : International Journal of Hydrogen Energy. 40, 18, p. 6216-6227 12 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Dissolution of enzyme-treated cellulose using freezing thawing method and the properties of fibres regenerated from the solution**

Vehviläinen, M., Kamppuri, T., Gronqvist, S., Rissanen, M., Maloney, T., Honkanen, M. & Nousiainen, P., Jun 2015, In : Cellulose. 22, 3, p. 1653-1674 22 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Impact of mechanical and enzymatic pretreatments on softwood pulp fiber wall structure studied with NMR spectroscopy and X-ray scattering**

Virtanen, T., Penttilä, P. A., Maloney, T. C., Grönqvist, S., Kamppuri, T., Vehviläinen, M., Serimaa, R. & Maunu, S. L., Jun 2015, In : Cellulose. 22, 3, p. 1565-1576 12 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Low temperature temporal and spatial atomic layer deposition of TiO<sub>2</sub> films**

Aghaee, M., Maydannik, P. S., Johansson, P., Kuusipalo, J., Creatore, M., Homola, T. & Cameron, D. C., Jul 2015, In : Journal of Vacuum Science & Technology A. 33, 4, 9 p., 041512.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Electrospun Black Titania Nanofibers: Influence of Hydrogen Plasma-Induced Disorder on the Electronic Structure and Photoelectrochemical Performance**

Lepcha, A., Maccato, C., Mettenbörger, A., Andreu, T., Mayrhofer, L., Walter, M., Olthof, S., Ruoko, T. P., Klein, A., Moseler, M., Meerholz, K., Morante, J. R., Barreca, D. & Mathur, S., 20 Aug 2015, In : Journal of Physical Chemistry C. 119, 33, p. 18835-18842 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Coating of Silica and Titania Aerosol Nanoparticles by Silver Vapor Condensation**

Harra, J., Juuti, P., Haapanen, J., Sorvali, M., Roumeli, E., Honkanen, M., Vippola, M., Yli-Ojanperä, J. & Mäkelä, J. M., 2 Sep 2015, In : Aerosol Science and Technology. 49, 9, p. 767-776 10 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Measuring synthesis yield in graphene oxide synthesis by modified hummers method**

Frankberg, E. J., George, L., Efimov, A., Honkanen, M., Pessi, J. & Levänen, E., 2 Sep 2015, In : Fullerenes Nanotubes and Carbon Nanostructures. 23, 9, p. 755-759 5 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**The Effect of Phosphorus Exposure on Diesel Oxidation Catalysts-Part I: Activity Measurements, Elementary and Surface Analyses**

Kärkkäinen, M., Kolli, T., Honkanen, M., Heikkinen, O., Huuhtanen, M., Kallinen, K., Lepistö, T., Lahtinen, J., Vippola, M. & Keiski, R. L., Oct 2015, In : Topics in Catalysis. 58, 14, p. 961-970 10 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**The Effect of Phosphorus Exposure on Diesel Oxidation Catalysts-Part II: Characterization of Structural Changes by Transmission Electron Microscopy**

Honkanen, M., Kärkkäinen, M., Heikkinen, O., Kallinen, K., Kolli, T., Huuhtanen, M., Lahtinen, J., Keiski, R. L., Lepistö, T. & Vippola, M., Oct 2015, In : Topics in Catalysis. 58, 14, p. 971-976 6 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Cracking resistance of Cr<sub>3</sub>C<sub>2</sub>-NiCr and WC-Cr<sub>3</sub>C<sub>2</sub>-Ni thermally sprayed coatings under tensile bending stress**

Mayrhofer, E., Janka, L., Mayr, W. P., Norpoth, J., Rodriguez Ripoll, M. & Gröschl, M., 15 Nov 2015, In : Surface and Coatings Technology. 281, p. 169-175 7 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Corrosion products of carbonation induced corrosion in existing reinforced concrete facades**

Köliö, A., Honkanen, M., Lahdensivu, J., Vippola, M. & Pentti, M., Dec 2015, In : Cement and Concrete Research. 78, p. 200-207 8 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Enhanced pre-treatment of cellulose pulp prior to dissolution into NaOH/ZnO**

Grönqvist, S., Kamppuri, T., Maloney, T., Vehviläinen, M., Liittä, T. & Suurnäkki, A., Dec 2015, In : Cellulose. 22, 6, p. 3981-3990 10 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Machine-coated starch-based dispersion coatings prevent mineral oil migration from paperboard**

Koivula, H. M., Jalkanen, L., Saukkonen, E., Ovaska, S-S., Lahti, J., Christophliemk, H. & Mikkonen, K. S., 2016, In : Progress in Organic Coatings. 99, p. 173-181

Research output: Contribution to journal > Article > Scientific > peer-review

**Remarkable Dependence of the Final Charge Separation Efficiency on the Donor-Acceptor Interaction in Photoinduced Electron Transfer**

Higashino, T., Yamada, T., Yamamoto, M., Furube, A., Tkachenko, N. V., Miura, T., Kobori, Y., Jono, R., Yamashita, K. & Imahori, H., 2016, In : Angewandte Chemie (International Edition). 55, 2, p. 629-633

Research output: Contribution to journal > Article > Scientific > peer-review

**Techno-economic analysis of four concepts for thermal decomposition of methane: Reduction of CO<sub>2</sub> emissions in natural gas combustion**

Keipi, T., Hankalin, V., Nummelin, J. & Raiko, R., 2016, In : Energy Conversion and Management. 110, p. 1-12

Research output: Contribution to journal > Article > Scientific > peer-review

**Towards material excellence: Evaluation of Tekes' programmes on materials**

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Research output: Book/Report > Commissioned report > Professional

**Improving Recovery Boiler Availability through Understanding Fume Behavior**

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Research output: Contribution to journal > Article > Scientific > peer-review

**Sustainable nutrients recovery and recycling by optimizing the chemical addition sequence for struvite precipitation from raw swine slurries**

Taddeo, R., Kolppo, K. & Lepistö, R., 15 Sep 2016, In : Journal of Environmental Management. 180, p. 52-58 7 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Thermo-catalytic decomposition of methane: The effect of reaction parameters on process design and the utilization possibilities of the produced carbon**

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Research output: Contribution to journal > Article > Scientific > peer-review

**Photocatalytic and antibacterial properties of ZnO films with different surface topographies on stainless steel substrate**

Heinonen, S., Kannisto, M., Nikkanen, J-P., Huttunen-Saarivirta, E., Karp, M. & Levänen, E., 1 Oct 2016, In : Thin Solid Films. 616, p. 842-849 8 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Characterization of endoglucanase rich Trichoderma reesei cellulase mixtures and their effect on alkaline solubility of dissolving pulp**

Kamppuri, T., Vehviläinen, M., Backfolk, K. & Heiskanen, I., Dec 2016, In : Cellulose. 23, 6, p. 3901–3911 11 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Engineering and Characterization of Bacterial Nanocellulose Films as Low Cost and Flexible Sensor Material**

Mangayil, R., Rajala, S., Pammo, A., Sarlin, E., Luo, J., Santala, V., Karp, M. & Tuukkanen, S., 2017, In : ACS Applied Materials & Interfaces. 9, 22, p. 19048–19056 9 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**On the effect of deformation twinning and microstructure to strain hardening of high manganese austenitic steel 3D microstructure aggregates at large strains**

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Research output: Contribution to journal > Article > Scientific > peer-review

**Tailored Fabrication of Transferable and Hollow Weblike Titanium Dioxide Structures**

Hiltunen, A., Lahtonen, K., Saari, J., Ojanperä, A., Sarlin, E., Wondraczek, H., Efimov, A., Kaunisto, K., Vivo, P., Maccato, C., Barreca, D., Fardim, P., Tkachenko, N., Valden, M. & Lemmetyinen, H., 2017, In : ChemPhysChem. 18, p. 64-71 8 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Methane thermal decomposition in regenerative heat exchanger reactor: Experimental and modeling study**

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Research output: Contribution to journal > Article > Scientific > peer-review

**Noncovalent functionalization of reduced graphene oxide with pluronic F127 and its nanocomposites with gum arabic**

Layek, R. K., Uddin, M. E., Kim, N. H., Tak Lau, A. K. & Lee, J. H., 1 Nov 2017, In : Composites Part B : Engineering. 128, p. 155-163 9 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Convenient extraction method for quantification of thin zinc patina layers**

Saarimaa, V., Kaleva, A., Paunikallio, T., Nikkanen, J-P., Heinonen, S., Levänen, E., Väisänen, P. & Markkula, A., 2018, In : Surface and Interface Analysis. 50, 5, p. 564-570

Research output: Contribution to journal > Article > Scientific > peer-review

**Valorization of Finnish mining tailings for use in the ceramics industry**

Solismaa, S., Ismailov, A., Karhu, M., Sreenivasan, H., Lehtonen, M., Kinnunen, P., Illikainen, M. & Räisänen, M-L., 2018, In : BULLETIN OF THE GEOLOGICAL SOCIETY OF FINLAND. 90, 1, p. 33-54

Research output: Contribution to journal > Article > Scientific > peer-review

**Entrapped Styrene Butadiene Polymer Chains by Sol-Gel-Derived Silica Nanoparticles with Hierarchical Raspberry Structures**

Vaikuntam, S. R., Stöckelhuber, K. W., Subramani Bhagavatheswaran, E., Wießner, S., Scheler, U., Saalwächter, K., Formanek, P., Heinrich, G. & Das, A., 15 Feb 2018, In : Journal of Physical Chemistry B. 122, 6, p. 2010-2022 13 p.



Research output: Contribution to journal › Article › Scientific › peer-review

**Charge Shift/Recombination and Triplet Formation in a Closely-Spaced Molecular Dyad based on a Borondipyrromethene (Bodipy) and an Expanded Acridinium Cation**

He, X., Benniston, A. C., Lemmetyinen, H. & Tkachenko, N. V., Mar 2018, In : *ChemPhotoChem*. 2, 3, p. 277-282

Research output: Contribution to journal › Article › Scientific › peer-review

**Economic analysis of hydrogen production by methane thermal decomposition: Comparison to competing technologies**

Keipi, T., Tolvanen, H. & Konttinen, J., 1 Mar 2018, In : *Energy Conversion and Management*. 159, p. 264-273 10 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Composite Hydrogels Using Bioinspired Approach with in Situ Fast Gelation and Self-Healing Ability as Future Injectable Biomaterial**

Khan, M., Koivisto, J., Hukka, T., Hokka, M. & Kellomäki, M., 11 Apr 2018, In : *ACS Applied Materials & Interfaces*. 10, 14, p. 11950-11960

Research output: Contribution to journal › Article › Scientific › peer-review

**Utilization of CO<sub>2</sub> in modification of galvanized steel surface**

Nikkanen, J-P., Kaleva, A., Saarimaa, V., Honkanen, M., Vuorinen, T., Heinonen, S., Väisänen, P., Markkula, A., Huttunen-Saarivirta, E. & Levänen, E., 19 Jun 2018.

Research output: Other conference contribution › Paper, poster or abstract › Scientific

**Titanium oxide based nanoparticles by laser ablation in supercritical carbon dioxide**

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Research output: Other conference contribution › Paper, poster or abstract › Scientific

**Microstructure-property relationships of novel ultra-high strength press hardening steels**

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Research output: Contribution to journal › Article › Scientific › peer-review

**Pinacol-Derived Chlorohydrosilane in Metal-Free Reductive Amination for the Preparation of Tertiary Alkylphenolmethyl Amines**

Assoah, B., Veiros, L. F. & R. Candeias, N., 15 Feb 2019, In : *Organic Letters*. 21, 5, p. 1402-1406 5 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Anaerobic treatment and resource recovery from methanol rich waste gases and wastewaters**

Eregowda, T., 23 May 2019, Tampere University. 211 p. (Tampere University Dissertations)

Research output: Book/Report › Doctoral thesis › Collection of Articles

**Solution Modified Fumed Silica and Its Effect on Charge Trapping Behavior of PP/POE/Silica Nanodielectrics**

Mahtabani, A., Rytöluoto, I., He, X., Saarimäki, E., Lahti, K., Paajanen, M., Anyszka, R., Dierkes, W. & Blume, A., 8 Aug 2019, *Proceedings of the 26th Nordic Insulation Symposium*. NTNU, Norway: Nordic Insulation Symposium, p. 129-133 (Proceedings of the Nordic Insulation Symposium).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

**Chemical Dissolution of Pt(111) During Potential Cycling Under Negative pH Conditions Studied by Operando X-ray Photoelectron Spectroscopy**

Ali-Löytty, H., Valden, M., Hannula, M., Eilert, A., Ogasawara, H. & Nilsson, A., 25 Sep 2019, In : *Journal of Physical Chemistry C*. 123, 41, p. 25128-25134

Research output: Contribution to journal › Article › Scientific › peer-review

**Electronically Coupled Uranium and Iron Oxide Heterojunctions as Efficient Water Oxidation Catalysts**

Leduc, J., Gönüllü, Y., Ruoko, T-P., Fischer, T., Mayrhofer, L., Tkachenko, N. V., Dong, C-L., Held, A., Moseler, M. & Mathur, S., 3 Oct 2019, In : *Advanced Functional Materials*. 7 p., 1905005.

Research output: Contribution to journal › Article › Scientific › peer-review

**Electronic couplings and rates of excited state charge transfer processes at poly(thiophene-*co*-quinoxaline)-PC<sub>71</sub>BM interfaces: two- *versus* multi-state treatments**

Kastinen, T., da Silva Filho, D. A., Paunonen, L., Linares, M., Ribeiro Junior, L. A., Cramariuc, O. & Hukka, T. I., 1 Nov 2019, In : Physical Chemistry Chemical Physics. 21, 46, p. 25606-25625 20 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Light-fuelled freestyle self-oscillators**

Zeng, H., Lahikainen, M., Liu, L., Ahmed, Z., Wani, O. M., Wang, M., Yang, H. & Priimagi, A., 7 Nov 2019, In : Nature Communications. 10, 1, 5057.

Research output: Contribution to journal › Article › Scientific › peer-review

**Enhancing piezoelectric properties of bacterial cellulose films by incorporation of MnFe<sub>2</sub>O<sub>4</sub> nanoparticles**

Sriplai, N., Mangayil, R., Pammo, A., Santala, V., Tuukkanen, S. & Pinitsoontorn, S., 10 Dec 2019, In : Carbohydrate Polymers. 231

Research output: Contribution to journal › Article › Scientific › peer-review

**Silver-Decorated TiO<sub>2</sub> Inverse Opal Structure for Visible Light-Induced Photocatalytic Degradation of Organic Pollutants and Hydrogen Evolution**

Temerov, F., Pham, K., Juuti, P., Mäkelä, J. M., Grachova, E. V., Kumar, S., Eslava, S. & Saarinen, J. J., 16 Sep 2020, In : ACS Applied Materials & Interfaces. 12, 37, p. 41200-41210 11 p.

Research output: Contribution to journal › Article › Scientific › peer-review