

## PUBLICATIONS

### PhD Thesis

Chinga-Carrasco, G.: "Structural studies of LWC paper coating layers using SEM and image analysis techniques". PhD thesis 2002:14, Inst. for chemical engineering, NTNU (February 2002, 108 p). ISBN 82-471-5406-4 / ISSN 0809-103X

### MSc Thesis

Chinga-Carrasco, G.: "Three-dimensional reconstruction of plant cells exposed to different gravity conditions", 112 p., 1997

### Book chapter contribution

4. Chinga-Carrasco, G., Miettinen, A., Luengo Hendriks, C.L., Gamstedt, E.K. and Kataja, M. (2011): "Structural characterisation of kraft pulp fibres and their nanofibrillated materials for biodegradable composite applications". *In: Nano composites and Polymers with Analytical Methods - Book 3*, ISBN 979-953-307-136-6.
3. Lenes, M., Chinga-Carrasco, G. and Gregersen, Ø. (2011): "Performance properties and micro-structural quantification of fibre-polypropylene composites". *In: Fiber Reinforced Composites*. Ed: Quingzheng (George) Cheng. West Virginia University, Morgantown, WV, USA.
2. Chinga-Carrasco, G. and Syverud, K. (2011): "Cellulose nanofibrils – Production, characterisation and applications". *In: Characterisation of the fine structure and properties of papermaking fibres using new technologies*.
1. Chinga-Carrasco, G. (2010): "Microscopy and computerized image analysis of wood pulp fibres multiscale structures". *In: Microscopy: Science, Technology, Applications and Education A*. Méndez-Vilas and J. Díaz (Eds.).

## JOURNAL PUBLICATIONS

42. Syverud, K., Kirsebom, H., Hajizadeh, S. and Chinga-Carrasco, G. (2011): "Cross-linking cellulose nanofibrils for potential elastic cryo-structured gels". *Nanoscale research letters* 6: 626.
41. Chinga-Carrasco, G., Aasarød, K., Leinsvang, B., Bouveng, M. and Johansson, P-Å (2011): "Structural effects on print-through and set-off". *Nordic Pulp and Paper Research J. In press*.
40. Chinga-Carrasco, G. (2011): "Cellulose fibres, nanofibrils and microfibrils: The morphological sequence of MFC components from a plant physiology and fibre technology point of view". *Nanoscale research letters* 6, 417.
39. Aslan, M., Chinga-Carrasco, G., Sørensen, B.F. and Madsen, B. (2011): "Strength Variability of Single Flax Fibre". *J. Materials Science* 46(19): 6344-6354.
38. Chinga-Carrasco, G., Yu, Y., Diserud, O. (2011): "Quantitative electron microscopy of cellulose nanofibril structures from *Eucalyptus* and *Pinus radiata* pulp fibres". *Microscopy and microanalysis* 17: 563-571.
37. Xhanari, K., Syverud, K., Chinga-Carrasco, G., Paso, K. and Stenius, P. (2010): "Structure of nanofibrillated layers at the o/w interface", *J. Colloid and Interface Science* 356(1): 58-62.

36. Khanari, K., Syverud, K., Chinga-Carrasco, G., Paso, K. and Stenius, P. (2010): Reduction of water wettability of nanofibrillated cellulose by adsorption of cationic surfactants. *Cellulose* 18(2): 257-270.
35. Syverud, K., Chinga-Carrasco, G., Toledo, J. and Toledo, P. (2010): "A comparative study of *Eucalyptus* and *Pinus radiata* pulp fibres as raw materials for production of cellulose nanofibrils", *Carbohydrate Polymers* 84(3): 1033-1038.
34. Syverud, K., Khanari, K., Chinga-Carrasco, G., Yu, Y. and Stenius, P. (2010): "Films made of cellulose nanofibrils - surface modification by adsorption of a cationic surfactant and characterisation by computer-assisted electron microscopy", *J. Nanoparticle research* 13(2): 773-782.
33. Yamakawa, A., Chinga-Carrasco, G.: "Classification of wood fibre cross-sectional shapes", Hybrid Artificial Intelligent Systems, Part I: LNAI 6076: 144-151 (2010).
32. Konopova, I., Oggiano, L., Chinga-Carrasco, G., Troynikova, O., Sætran, L. and Alamd, F.: "Aerodynamic and comfort characteristics of a double layer knitted fabric assembly for high speed winter sports" *Procedia Engineering* 2(2): 2837-2843 (2010).
31. Chinga-Carrasco, G., Johnsen, P.O. and Øyaas, K. "Structural quantification of wood fibres surfaces - morphological effects of pulping and enzymatic treatment". *Micron* 41(6): 648-659 (2010).
30. Chinga-Carrasco, G., Lenes, M., Johnsen, P.O. and Hult, E.-L. "Computer-assisted scanning electron microscopy of wood pulp fibres: dimensions and spatial distributions in a polypropylene composite". *Micron* 40(7): 761-768 (2009).
29. Chinga-Carrasco, G. and Syverud, K. Computer-assisted quantification of the multiscale structure of films made of nanofibrillated cellulose. *J. Nanoparticle research* 12(3): 841-851 (2010).
28. Chinga-Carrasco, G. "Exploring the multi-scale structure of printing paper - A review of modern technology" *J. Microscopy-Oxford* 234(3): 211-242 (2009).
27. Mørseburg, K. and Chinga-Carrasco, G. "Assessing the combined benefits of clay and nanofibrillated cellulose in layered TMP-based sheets". *Cellulose* 16(5): 795-806 (2009).
26. Chinga-Carrasco, G., Kauko, H., Myllis, M., Timonen, J., Wang, B., Zhou, M. and Fossum, J.O.: "New advances in the 3D characterization of mineral coating layers on paper". *J. Microscopy – Oxford*. 232(2): 212-224 (2008).
25. Chinga-Carrasco, G., Axelsson, M, Eriksen, Ø. and Svensson, S: "Structural characteristics of pore networks affecting *print-through*". *J. Pulp Paper Sci.* 34(1): 13-22 (2008).
24. Antoine, C., Leirset, I., Chinga-Carrasco, G.: "On the oil extraction process during print-through three components quantification - Part 1: The oil extraction efficiency". *Nordic Pulp Paper Res. J.* 24(1): 24-28 (2008).
23. Chinga, G., Solheim, O. and Mørseburg, K.: "Cross-sectional dimensions of fiber and pore networks based on Euclidean distance maps". *Nordic Pulp Paper Res. J.* 22(4): 500-507 (2007).
22. Chinga, G. and Syverud, K.: "On structural properties affecting the picking tendency of newsprints". *Nordic Pulp Paper Res. J* 22(4): 447-451 (2007).
21. Chinga, G. and Syverud, K.: "Quantification of paper mass distributions within local picking areas". *Nordic Pulp Paper Res. J* 22(4): 441-446 (2007).
20. Chinga, G., Eriksen, Ø. and Eilertsen, M: "On the suitability of desktop scanners for assessing print-through". *J. Pulp Paper Sci.* 33(3) (2007).

19. Chinga, G., Diserud, O. and Lunden-Berli, E.: "On surface details affecting the quality of commercial SC papers for gravure printing". *Nordic Pulp Paper Res. J.* 22(3): 331-335 (2007).
18. Chinga, G., Johnssen, P.O., Dougherty, R, Lunden-Berli, E. and Walter, J.: "Quantification of the 3-D micro-structure of SC surfaces". *J. Microscopy– Oxford* 227(3): 254-265 (2007).
17. Ersoy, O., Gourgaud, A., Aydar, E., Chinga, G. and Thouret, J.-C.: "Quantitative SEM analysis of ash surfaces: Application to the 1982-83 Galunggung eruption (Indonesia). *Geol Soc Am Bull* 119: 743-752 (2007).
16. Syverud, K., Chinga, G., Johnssen, P.O., Leirset, I. and Wiik, K.: "Analysis of lint particles from full-scale printing trials". *Appita J.* 60(4): 286-290 (2007).
15. Eriksen, Ø., Chinga, G. and Gregersen, Ø.: "A mathematical morphology-based method for the quantification of fines in the Z-direction of paper". *Journal of pulp and paper science* 32(2):95-99 (2006).
14. Ersoy, O., Chinga, G., Aydar, E., Gourgaud, A., Cubukcu, H.E. and Ulusoy, I. : "Texture discrimination of volcanic ashes from different fragmentation mechanisms: a case study, Mount Nemrut stratovolcano, eastern Turkey". *Computers & Geosciences* 32(7): 936-946 (2006).
13. Chinga, G.: "A quadtree decomposition approach for surface assessment". *Pattern Analysis and Applications Journal* 9(4): 94-101 (2006).
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10. Chinga, G., Stoen, T. and Gregersen, Ø.: "On the roughening effect of laboratory heatset offset printing on SC and LWC paper surfaces". *Journal of Pulp and Paper Science* 30(11): 307-311 (2004).
9. Chinga, G., Johnsen, P.O. and Diserud, O. "Controlled serial grinding for high-resolution 3-D reconstruction". *J. Microscopy– Oxford* 214(1): 13-21 (2004).
8. Chinga, G, Gregersen, Ø, Dougherty, B. "Paper surface characterisation by laser profilometry and image analysis", *J. of Microscopy and Analysis*, 84: 5-7 (2003).
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1. Chinga, G., Skagen, E.B., Beisvåg, T., Briarty, L.G. & Iversen, T.-H. "3-D reconstruction of *Arabidopsis thaliana* root statocytes exposed to different gravity conditions". *Microscopy and Analysis*, p. 17-19, March, 2000.

## CONFERENCES WITH PROCEEDINGS

30. Alexandrescu, L., Syverud, K., Chinga-Carrasco, G., Iotti, M., Gregersen, Ø., Belosic, F. and Gatti, A.M.: "Air filtration of nano-particles using cellulose nanofibrils". International Conference NanotechItaly 2011, NH Laguna Palace Convention Center in Venice-Mestre, 23rd to 25th of November 2011.
29. Hii, C., Gregersen, Ø., Chinga-Carrasco, G., Eriksen, Ø, Toven, K., Rosén, F. and Vomhoff, H.: "Quantification of the Web Structure in Relation to Process Conditions During Wet Pressing and Furnish Composition". Progress in Paper Physics Seminar. Graz, Austria. Sept. 5-8, (2011).
28. Chinga-Carrasco, G., Syverud, K.: "On the porosity and oxygen barrier properties of cellulose nanofibril-based films". Annual meeting of IAWS 2011. Novel materials from wood or cellulose, Stockholm, August 31-Sept. 2, (2011).
27. Rättö, P., Blohm, E. and Chinga-Carrasco, G.: "Film splitting during offset printing - the influence of paper surface properties on film splitting geometry". 38<sup>th</sup> International Research Conference of iargai. Budapest, September 11-14, 2011.
26. Syverud, K., Chinga-Carrasco, G., Salvatori, R. and Gatti, A.: "Towards novel filter concepts for nanopollution". 241<sup>st</sup> American Chemical Society National Meeting and Exposition, Anaheim, California, Division of Cellulose and Renewable Materials, March 27-31, 2011.
25. Yamakawa, A., Chinga-Carrasco, G.: "Updating the Shape descriptor plugin for automatic classification of TMP fibre cross-sections". Oral presentation at the 3<sup>rd</sup> ImageJ – User and Developer Conference, Luxembourg 27-29 October, 2010.
24. Chinga-Carrasco, G. and Yu, Y.: "Quantitative microscopy of cellulose fibres and nanofibrils" Oral Presentation, International Microscopy Congress. Rio De Janeiro September (2010).
23. Syverud, K., Marstokk, O., Stenstad, P. and Chinga-Carrasco, G.: "The potential of cellulose nanofibrils for stabilizing commercial paints", Tappi 2010 international conference on Nanotechnology for the forest product industry, Espoo, 27-29 Sept 2010.
22. Xhanari, K., Paso, K., Chinga-Carrasco, G., Syverud, K. and Stenius, P.: "Structure of nanofibrillated cellulose monolayers at the oil/water interface", Tappi 2010 international conference on Nanotechnology for the forest product industry, Espoo, 27-29 Sept 2010.
21. Yamakawa, A., Chinga-Carrasco, G.: "Classification of wood fibre cross-sectional shapes", 5th International conference on Hybrid Artificial Intelligence Systems, San Sebastian Spain, June 23-25, 2010.
20. Syverud, K., Chinga-Carrasco, G., Toledo, J. & Toledo, P: "Cellulose nanofibrils production: A comparison of hardwood and softwood never- dried kraft pulp fibres" Oral presentation in CELL symposia at the American Chemical Society, Cellulose and Renewable Materials Division - Session Micro and Nanofibers from Sustainable Materials. San Francisco, USA (2010).
19. Chinga-Carrasco, G., Syverud, Toledo, J., Toledo, P., K., Øyaas, K. & Gregersen, Ø.: "A survey of Chilean natural resources - focus on novel materials and bio-energy solutions". First NorLARNet conference. Oslo, November 12-13 (2009).
18. Syverud, K., Chinga-Carrasco, G. & Stenius, P: "Preparation, characterization and modification of nano-sized cellulose fibrils". 15th Int. Symposium on Wood, Fibre and Pulping Chemistry - ISWFPC, Oslo June 15 - 18 (2009).

17. Preston, J., Toivakka, M., Heard, P. & Chinga-Carrasco, G.: "Coated Paper Microstructure: Particle shape - Microstructure Interrelations. PaperCon , Renaissance St. Louis, 800 Washington Ave., St. Louis, MO 63101, USA. (2009).
16. Syverud, K., Gregersen, Ø., Chinga-Carrasco, G. & Eriksen, Ø.: "The influence of nano-sized fibrillar cellulose on paper strength and surface properties" Oral presentation in the 14th Fundamental Research Symposium, to be held at St. Anne's College, Oxford, UK between 14 and 18 September (2009).
15. Syverud, K., Chinga-Carrasco, G. & Stenius, P.: "On the tensile characteristics of model films and membranes with different MFC loadings" Oral presentation in CELL symposia at the American Chemical Society, National Meetings Cellulose and Renewable Materials Division Salt Lake City (2009).
14. Dickson, A. and Chinga, G.: "Analysing the relationship between ink coverage and variations in sheet grammage and topography", Oral presentation in 62nd Appita annual conference and exhibition, Rotorua New Zealand, April 20-23 (2008).
13. Mettänen, M and Chinga, G.: "Surface reconstruction methods for the characterization of paper topography". COST E32 Action - Characterization of Paper Surfaces for Improved Printing Paper Grades: Paper in Printing Processes Seminar. Grenoble, France, Oct. 4-5 (2007).
12. Chinga, G., Johnsen, P.O., Kauko, H., Myllys, M. and Timonen, J.: "On the three-dimensionality of glossy surfaces". PTS coating symposium, Baden-Baden, Germany (2007).
11. Chinga, G. and Syverud, K.: "Simultaneous quantification of paper mass distribution and print details". International Paper Physics Conference, Broadbeach, Australia (2007).
10. Chinga, G. and Syverud, K.: "Explaining picking tendency by local formation analysis". International Paper Physics Conference, Broadbeach, Australia (2007).
9. Mörseburg, K. and Chinga, G.: "Tailoring printing paper properties - Potential and weaknesses of mechanical pulp in multilayered sheets", International Mechanical Pulp Conference, USA (2007).
8. Chinga, G. and Dougherty, R.: "Quantification of surfaces structures". First ImageJ Conference, Luxembourg, May (2006).
7. Antoine, C. and Chinga, G., "Wavelet analysis of paper surface structure", Progress in Paper Physics Seminar, Trondheim, Norway (2004).
6. Holmstad, R., Gregersen, Ø. and Chinga, G. "A method for the evaluation of the true density distribution in the Z-direction of paper", Progress in Paper Physics Seminar, Finger Lakes/Sycurase, New York, September 8-13, pp 43-47 (2002)
5. Chinga, G., Helle, T. and Johnsen, P.O.: "Characterization of pigment coating layer structure using SEM and Digital Image Analysis techniques". Proceedings, 2000 Tappi Coating Conference and Trade Fair, Washington, DC, USA, 1-4 May, pp 309-316 (2000)
4. Chinga, G., Helle, T. and Johnsen, P.O.: "Pigment coating structure details, its relationship to coating processes and effect on printing ink absorption". Proceedings, PAPTAC 86th Annual meeting, Montreal, Que, Canada, 1-3 Feb., pp A119-A124 (2000)
3. Chinga, G. and Helle, T.: "Variations of LWC paper surfaces and their implications for the printing ink behaviour". Proceedings, COST Workshop Action E-11 "Characterisation methods for fibres and paper", Grenoble, France , November 30th – December 1st (2000)
2. Holmstad, R. and Chinga, G.: "Cross-sectional image analysis of paper structure as a step towards three-dimensional structural analysis". Proceedings, COST

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## **WORKSHOPS, SEMINARS, SCIENTIFICS MEETINGS**

15. Chinga-Carrasco, G.: "Moderne høyoppløsnings-karakterisering av cellulose-baserte materialer". Treforedlingsforum, Oslo, Norway, November 29-30, 2011.

14. Chinga-Carrasco, G.: "Structural characteristics of Eucalyptus and Pinus Radiata pulp fibres and their corresponding nanofibrillated materials". Presentation at the Recent advances in Cellulose nanotechnology research seminar. Trondheim, November 16-17, 2010.

13. Chinga-Carrasco, G. and Syverud, K.: "Micro- and nanostructures of cellulose-based materials". Oral presentation at the Transpore symposium – "From microscopy to modeling", PSI Villagen, Switzerland, August 19-20, 2010.

12. Chinga-Carrasco, G.: "Micro- and nanostructures of wood pulp fibres". Oral presentation at the COST E54 9th scientific workshop - Characterisation of the fine structures and properties of papermaking fibers using new technologies. May 10-12, Coimbra, Portugal (2010).

11. Øyaas, K., Syverud, K. & Chinga-Carrasco, G.: "The effect of enzymatic modification on the surface nano-structure of wood fibres" Oral presentation in The 2nd Annual Workshop of COST FP0602 Enzymatic fiber modification and hydrolysis December 4-5, Biel, Switzerland (2008).

10. Chinga-Carrasco, G.: "Nano-characterisation of cellulose-based materials" PFI research seminar- Oral presentation in PFI Research Seminar: "Recent advances in fibrillar nanocellulose research – Characterisation and applications". PFI, Norway, November 12-13 (2008).

9. Chinga-Carrasco, G.: "Assessment of coldset print quality - Structure-property relationships", Oral presentation in the STFI research seminar, September 30 (2008).

8. Syverud, K. & Chinga-Carrasco, G.: "Structural characterization of nanocellulose films – from macro to nano". Oral presentation in the E50 workshop – Characterization and Applications of cell walls macromolecules. Dübendorf, Switzerland, October 27-29 (2008).

7. Chinga-Carrasco, G.: "Modern methods for characterisation of fibres, paper and prints - from desktop scanners to x-ray microtomography", Oral presentation in the PFI seminar, June 5 (2008).

6. Chinga, G.: "Microscopy studies of fibre and paper structures". Presentation in Avancell seminar, Gothenburg, Sweden, November 29 (2007)

5. Chinga, G.: "ImageJ as a tool for the quantification of paper and print defects". Mikroskopiklubben, Espoo, Finland, Oct. 4-5 (2007).

4. Chinga, G., : "Surface structure characterization for mottling assessment on coated papers", Paper/Ink Properties and their Relation to Offset Printability, Symposium

COST E32 Action: Characterization of Paper Surfaces for Improved Printing Paper Grades, October 6-7, Madrid (2005)

3. Gregersen, Ø., Eriksen, Ø. and Chinga, G., "Ink distribution and surface roughening in cold- and heatset printed surfaces", Paper/Ink Properties and their Relation to Offset Printability, Symposium COST E32 Action: Characterization of Paper Surfaces for Improved Printing Paper Grades, October 6-7, Madrid (2005)

2. Chinga, G., "Structural characterisation of coating layers", New concepts in paper surface treatment seminar, Stockholm, October (2004).

1. Chinga, G., "Comparison of optical devices for assessing paper surface structure", COST Action E32: Characterization of paper surfaces for improved paper grades, 2nd Working group meeting, June 18, Trondheim, Norway (2004).

## **POSTERS**

5. Eriksen, Ø, Aasarød, K., Chinga-Carrasco, G. and Gregersen, Ø.: "Furnish Composition of Newsprint – Effects on Pressability, Paper and Print Quality". Progress in Paper Physics Seminar. Graz, Austria. Sept. 5-8 (2011).

4. Chinga-Carrasco G., Johnsen, PO and Syverud, K. "A field-emission SEM study of the nanostructure of cellulose fibrils". E50 Workshop - Characterisation and application of cell wall macromolecules. Dübendorf, Switzerland, October 27-29 (2008).

3. Ersoy O, Gourgaud A, Aydar E, Chinga G, Thouret J-C.: "Prediction of changes in volcanic activity based on ash surface textures: a case study, the 1982-83 eruption of Galunggung volcano (Indonesia)". Cities on Volcanoes 4 conference (IAVCEI), Quito-Ecuador (23-27 January 2006)-Poster presentation (2006).

2. Chinga,G., Helle,T. and Johnsen, P.O.: "Analysis of pigment coating layer structure details using digital image processing and analysis and SEM techniques". Poster. "Microscopy as a tool in pulp and paper research and development symposium", Stockholm, Sweden, 21-22 June 1999, p. 217 (1999)

1. Chinga,G. and Helle,T.: "On the assessment of coating layer structure details". Poster. 2000 Progress in Paper Physics Seminar, Grenoble, Frankrike.

*Updated January 2<sup>nd</sup>, 2012. GCH*