

Publications Geminicentre TEM, 2006

18 journal papers

Andresen M, Johansson LS, **Tanem BS**, Stenius P, [Properties and characterization of hydrophobized microfibrillated cellulose](#), Cellulose 13, 665-677, 2006.

Arstad B, Venvik, H, Klette H, **Walmsley JC**, **Tucho WM**, **Holmestad R**, Holmen A and Bredesen R, [Studies of self-supported 1.6 µm Pd/23 wt.% Ag membranes during and after hydrogen production in a catalytic membrane reactor](#), Catalysis today, 118, 63-72, 2006.

Forbord B, Auran L, Lefebvre W, Hallem H, Marthinsen K, [Rapid precipitation of dispersoids during extrusion of an Al-0.91 wt.% Mn-0.13 wt.% Zr-0.17 wt.% Sc-alloy](#) Materials Science and Engineering A, 424, 174-180, 2006.

Forbord B, Andersson B, Ingvaldsen F, Austevik O, Horst JA, Skauvik I, [The formation of surface segregates during twin roll casting of aluminium alloys](#), Materials Science and Engineering A, 415, 12-20, 2006.

Graver B, **van Helvoort A**, **Walmsley JC**, Nisancioglu K, [Surface segregation of indium by heat treatment of aluminium](#), Materials Science Forum 519-521, 673-678, 2006.

Hallem H, Rittel WJ, **Forbord B**, Marthinsen K, [Recrystallisation resistance of extruded and cold rolled aluminium alloys with additions of Hf, Sc and Zr](#), Materials Science Forum 519-521, 525-530, 2006.

Hallem H, Lefebvre W, **Forbord B**, Danoix F, Marthinsen K, [The formation of Al-3\(ScxZryHf1-x-y\)-dispersoids in aluminium alloys](#), Materials Science and Engineering A 421, 154-160, 2006.

Hasting HS, **Walmsley JC**, **Marioara CD**, **van Helvoort ATJ**, **Holmestad R**, Danoix F, Lefebvre W, [Characterisation of early precipitation stages in 6xxx series aluminium alloys](#), Journal of Physics, Conference Series, 26, 99-102, 2006.

Hasting HS, **Walmsley JC**, **van Helvoort ATJ**, **Marioara, CD**, **Andersen S**, **Holmestad R**. [Z-contrast imaging of the arrangement of Cu-precipitates in 6xxx-series aluminium alloys](#), Philosophical Magazine Letters, 86, 589-597, 2006.

van Helvoort, ATJ, **Tanem, BS**, **Holmestad, R**, [Annular bright and dark field imaging of soft materials](#). Journal of Physics, Conference Series, 26, 42-45, 2006.

Knowles KM and **van Helvoort ATJ**, [Anodic bonding](#), International Materials Review, 51, 273-311, 2006.

Larsen MH, **Walmsley JC**, Lunder O, Nisancioglu K, [Significance of low copper content on grain boundary nanostructure and intergranular corrosion of AlMgSi\(Cu\) model alloys](#), Materials Science Forum, 519-521, 667-671, 2006.

Lein HL, Andersen OS, **Vullum PE**, Lara-Curzio E, **Holmestad R**, Einarsrud MA, Grande T, [*Mechanical properties of mixed conducting \$La_{0.5}Sr_{0.5}Fe_{1-x}Co_xO_{3-\delta}\$ \(\$0 \leq x \leq 1\$ \) materials*](#), Journal of solid state Electrochemistry 10, 635-642, 2006.

Marioara CD, Nordmark H, Andersen SJ and **Holmestad R**, [*Post-beta" phases and their influence on microstructure and hardness in 6xxx Al-Mg-Si alloys*](#), Journal of Materials Science 41, 471-478, 2006.

Nordmark H, Ulyashin A, **Walmsley JC**, Tøtdal B and **Holmestad R**, [*Evolution of hydrogen induced defects during annealing of plasma treated Czochralski silicon*](#), Nuclear Instruments and Methods in Physics Research B 253, 176–181, 2006.

Nes E, Holmedal B, **Forbord B**, [*The effect of boundary structure on the mechanical properties of aluminium alloys*](#), Materials Science Forum 519-521, 63-70, 2006.

Sandberg N and **Holmestad R**, [*First principles calculation of impurity diffusion barriers in Al*](#), Physical Review B, 73, Art. No. 014108, 2006.

Svenningsen G, Larsen MH, **Walmsley JC**, Nordlien JH and Nisancioglu K, [*Effect of artificial aging on intergranular corrosion of extruded AlMgSi alloy with small Cu content*](#), Corrosion Science 48, 1528-1543, 2006.

Tanem, BS, Kvien, I, **van Helvoort, ATJ**, Oksman, K, [*Morphology of Cellulose and its Nanocomposites*](#), Cellulose Nanocomposites; Processing, Characterization and Properties. Washington: American Chemical Society, 48-62, ISBN 0-8412-3980-0, 2006.

Vullum PE, Mastin, J, Wright J, Einarsrud MA, **Holmestad R** Grande T, [*In-situ synchrotron X-ray diffraction of ferroelastic \$La_{0.8}Ca_{0.2}CoO_3\$ ceramics during uniaxial compression*](#), Acta Materialia 54, 2615-2624, 2006.

12 accepted journal papers

Andersen SJ, **Marioara CD**, **Vissers R**, **Frøseth AG**, Zandbergen HW, *The structural relation between precipitates in Al-Mg-Si alloys, the Al-matrix and diamond silicon, with emphasis on the trigonal phase $U1-MgAl_2Si_2$* , Accepted, Mat. Sci. Eng .A.

Chytil S, Glomm WR, Kvande I, Zhao T, **Walmsley JC** and E. Blekken E, *Platinum incorporation into the SBA-15 mesostructure via deposition-precipitation method: Pt nanoparticle size estimation and catalytic testing*, Accepted, Topics in Catalysis.

Hasting HS, Lefebvre W, **Marioara CD**, **Walmsley JC**, **Andersen SJ**, **Holmestad R** and Danoix F *Comparative study of β' in 6xxx Al-alloy with Atom probe and HRTEM*, Accepted, Surface and Interface Analysis.

Huber F, Yu Z, **Walmsley JC**, Venvik H, Holmen A, *Nanocrystalline Cu-Ce-Zr mixed oxide catalysts for clean fuel applications: Carbon nanofibers as dispersant for the mixed oxide particles*, Accepted, Applied Catalysis B: Environmental.

Iojoiu EE, Miachon S, Landrison E, **Walmsley JC**, Raeder H, Dalmon JA, Wet air oxidation in catalytic membrane reactor: model and industrial wastewaters in single tubes and multichannel contactors, Accepted, Applied Catalysis B: Environmental.

Mottern ML, Tyholt F, Ulyashin A, **van Helvoort ATJ**, Verwey H and Bredesen R, *Textured ITO thin films by chemical solution deposition and rapid thermal processing*, Accepted, Thin Solid films.

Ochoa-Fernández E, Lacalle-Vilà C, Christensen KO, **Walmsley JC**, Rønning M, Holmen A and Chen D, *Ni Catalysts for Sorption Enhanced Steam Methane Reforming*, Accepted, Topics in Catalysis.

Vissers R, van Huis MA, Jansen J, Zandbergen HW, **Marioara CD**, **Andersen SJ**, *The Crystal Structure of the β' Phase in Al-Mg-Si Alloys* Accepted, Acta Mater.

Vullum PE, **van Helvoort ATJ**, Mastin J, Andersen ØE, Einarsrud MA, Grande T, **Holmestad R**, *Grain boundary analysis and secondary phases in LaCoO₃-based perovskites*, Accepted, Journal of Materials Science

Walmsley JC, Sævik Ø, Graver B, Mathiesen RH, Yu Y and Nisancioglu K *Nature of Segregated Lead on Electrochemically Active ALPb Model Alloy*, Accepted, Journal of Electrochem. Soc.

Wang G, **Sæterli R**, Rørvik PM, **van Helvoort ATJ**, **Holmestad R**, Grande T and Einarsrud MA *Hierarchical nanostructures of PbTiO₃ through mesocrystal formation*, Accepted, Journal of Nanoscience and Nanotechnology

Wang G, **Sæterli R**, Rørvik PM, **van Helvoort ATJ**, **Holmestad R**, Grande T and Einarsrud MA *Self-Assembled Growth of PbTiO₃ Nanoparticles into Microspheres and Bur-Like Structures*, Accepted, Chem. Mater.

8 submitted journal papers

Albertsen JZ, Grong Ø, **Walmsley JC**, Mathiesen RH, van Beek W and Schmid B, *Surface degradation of nickel-based alloys during long time exposure to syngas in an industrial plant for methanol production*, Submitted to Metallurgical and Materials Transactions.

Albertsen JZ, Grong Ø, **Walmsley JC**, and Mathiesen RH, *A model for metal dusting corrosion in nickel-based alloys involving internal precipitation of carbides, oxides and graphite*, Submitted to Metallurgical Transactions.

Hasting HS, **Frøseth AG**, **Vissers R**, **Andersen SJ**, **Marioara CD**, **Walmsley JC**, **Holmestad R** and Lefebvre W, *Composition of β'' -precipitates in Al-Mg-Si alloys by atom probe tomography and first principle calculations*, Submitted to Acta Mat.

Marioara CD, **Andersen SJ**, **Stene TN**, **Hasting HS**, **Walmsley JC**, **van Helvoort ATJ** and **Holmestad R**, *The effects of Cu on Precipitation in Al-Mg-Si Alloys*, Submitted to Phil. Mag.

Vullum PE, **Holmestad R**, Lein HL, Mastin J, Einarsrud MA and Grande T, *Ferroelastic nanotwinned domains in LaCoO₃-based perovskites*, Submitted to Advanced Materials.

Rørvik PM, Lyngdal T, **Sæterli R, van Helvoort ATJ, Holmestad R**, Grande T and Einarsrud MA, *Synthesis of ternary oxide nanorods by molten salt flux method*, Submitted to Journal of Materials Chemistry.

van Helvoort ATJ, Soleim BG, Dahl Ø, **Holmestad R** and Tybell T, *Low, medium and high angle annular dark field scanning transmission electron microscopy of PbTiO₃ thin films*, Submitted to Ultramicroscopy.

Borg Ø, **Walmsley JC, Tanem BS**, Storsæter S, Blekkan EA, Eri S, Rytter E, Holmen A, *Electron microscopy study of α -Al₂O₃ supported cobalt Fischer-Tropsch synthesis catalysts*, submitted to Green Chemistry.

1 PhD thesis

Håkon Stokka Hasting: Clustering and precipitation in 6xxx Al alloys, TEM and APT studies
November 2006

5 master theses

Asgeir Birkeland; *Crystallographic orientations of silicon precipitates in aluminium alloys*.

Åsmund Monsen; *TEM characterisation of LaFeO₃ thin films*.

Inger Marie Skoe; *TEM/STEM studies of catalyst systems with Pt nanoparticles supported on carbon nanofibers*.

Elin Stubhaug; *Investigations of dislocation clusters in solar grade silicon with TEM*.

Ragnhild Sæterli; *TEM characterisation of lead titanate nanorods synthesized under hydrothermal conditions*.

34 conference contributions/ proceedings, talks and posters

Andersen SJ, *Silicium styrer utherdning i Al-Mg-Si og Al-Mg-Si-Cu legeringer*, Presentation at Norsk Metallurgisk Selskaps Sommermøte 4-5 mai, 2006.

Andersen SJ, Marioara CD, Vissers R, Holmestad R, Zandbergen HW, *How the precipitate crystal structures in AlMgSi(Cu)-alloys are related and may be interpreted as different orderings on Si-planes*, Poster and Proceedings of the 16th int. Micr. Congress, Sapporo, Japan, Sep 3-8, IMC16 3, 1685, 2006.

Arslan I, Tong JR, **Walmsley JC**, Rytter E, Bergene E and Midgley PA, *High resolution single and dual axis tomography to solve materials problems in three dimensions*, Paper presented at the fourth international congress on electron tomography, November 5-8, San Diego, 2006.

Arslan I, Tong JR, **Walmsley JC**, Rytter E, Bergene E and Midgley PA, *High resolution single and dual axis tomography to solve materials problems in three dimensions*, Paper presented at 2006 Materials Research Society meeting, Symposium KK, Electron Microscopy across Hard and Soft Materials, 27 Nov - 1 Dec, Boston, USA, 2006.

Blomfield C, Roberts AJ and **Walmsley JC**, *Optimised XPS depth profiling of aluminium surfaces*, Paper presented at the AVS 53rd International Symposium and Exhibition, 11-17 Nov, San Fransisco, USA, 2006.

Chytil S, Glomm WH, Kvande I, Tiejun Z, **Walmsley JC**, Blekkan EA *A systematic study on the influence of the deposition-precipitation method when used to incorporate Pt into the SBA-15 mesostructure*, Paper presented at 12th Nordic Symposium on Catalysis, Trondheim, Norway, 28-30th May 2006.

Cojocaru O, Lefebvre W, **Marioara CD**, **Hasting HK**, **Walmsley JC**, Danoix F, *Study of Copper effect on the early stage of precipitation in Al-Mg-Si-Cu alloys*, paper presented at The Joint International Vacuum Nanoelectronics Conference and 50th International Field Emission Symposium, Guilin, China, July 17-20, 2006.

Gjervan T, Prestvik R, **Tøtdal B**, Lyman C, Holmen A *Influence of drying and reduction temperature on the degree of Pt-Re alloy formation and metal particle size on reforming catalysts*, Poster. Fifth Tokyo Conference on Advanced Catalytic Science and Technology; 23. - 28.07.2006.

Graver B, **van Helvoort ATJ**, **Walmsley JC** and Nisancioglu K, *Surface segregation of indium and tin by heat treatment of aluminium*, presentation and conference paper at ICAA10, Vancouver, Canada, 9-13 July 2006.

Graver B, **van Helvoort ATJ**, **Walmsley JC** and Nisancioglu K, *Electrochemical activation of aluminium by trace element indium*, Poster at 4th Int. Symp. Aluminium Surface Science and Technology, Beaune, France, 14-18 May 2006.

Hasting HS, **van Helvoort ATJ**, **Walmsley JC**, **Marioara CD**, **Andersen SJ**, **Holmestad, R** *Z-contrast of precipitation phases in AlMgSiCu alloys*, Talk and proceedings at 16th International Microscopy Conference (IMC16); 03. - 08.09.2006.

van Helvoort ATJ *Practical use of energy filtered electron microscopy*, Invited talk at Scandem2006, 12. - 15.06.2006.

van Helvoort ATJ, **Eberg E**, **Holmestad R**, **Soleim BG**, Dahl Ø, Tybell T *Ferroelectric thin film interfacial characterization*, 4th THIOX meeting; 19.03.2006 - 20.03.2006.

van Helvoort ATJ, **Holmestad R**, **Soleim BG**, **Eberg E**, Dahl Ø, Tybell T *Ferroelectric thin film-substrate interfacial characterisation* Talk at 16th International Microscopy Conference (IMC16); 03- 08.09.2006.

van Helvoort ATJ, **Holmestad R**, **Walmsley JC** *Opportunities of using electrons for (sub) nanometer characterization* Talk at 1st NTNU Nanolab User Meeting; 09. - 10.03.2006.

van Helvoort ATJ, **Soleim BG**, Dahl Ø, **Holmestad R**, Tybell T *Ferroelectric thin films study using various transmission electron microscopy techniques* Talk at Third national FUNMAT meeting; 05- 06.01.2006.

Holmestad R, Jiang B, Zuo JM *STEM image contrast in perovskite materials*, Talk at 16th International Microscopy Conference (IMC16); 03- 08.09.2006.

Huber F, Venvik H, Rønning M, **Walmsley JC**, Holmen A *Nanocrystalline Cu-Ce-Zr mixed oxide catalysts for clean fuel application*, Paper presented at 12th Nordic Symposium on Catalysis, Trondheim, Norway, 28-30th May 2006.

Jensen CM, Cantelli R, Srinivasan SS, Palumbo O, Paolone A, **Andrei C, Holmestad R**, Hauback BC, **Walmsley JC**, Brinks H, Kuba M, Eaton S, Sun D, Murphy K, Wang P *Doped sodium aluminum hydride: Fundamental studies of a promising new hydrogen storage material* ACS National Meeting Book of Abstracts, 230, U1642-U1643, 2005.

Jensen CM, Srinivasan SS, Cantelli R, Palumbo O, Paolone A, **Andrei C, Holmestad R**, **Walmsley JC**, Hauback BC, Brinks H, Kuba M, Eaton S, Sun D, Murphy K, Wang P *Doped sodium aluminum hydride: Fundamental studies of a promising new hydrogen storage material*, ACS Division of Fuel Chemistry, Preprints, 50, 503-504, 2005.

Larsen MH, **Walmsley JC**, Lunder O and Nisancioglu K, *Effect of heat treatment on grain boundary nanostructure and corrosion of low copper alloys*, Paper presented at 210th Electrochemical Society Meeting, Oct 29- Nov 03, 2006, Cancun, Mexico.

Marioara CD, Andersen SJ, Stene T, Hasting H and Holmestad R, *Transmission electron microscope microstructure characterisation of two Al-Mg-Si alloys with 0.3 wt% Cu addition*, Poster and proceedings of The 16th int. Micr. Congress, Sapporo, Japan, Sep 3-8, IMC16, 3, 1687, 2006.

Nordmark H, Walmsley JC, Tøtdal B, Holmestad R and Ulyashin A, *Evolution of hydrogen induced defects during annealing of plasma treated Crochralski silicon*, Paper presented at European Materials Research Society Spring Meeting, Nice, France, May 29- June 2, 2006.

Rytter E, Schanke D, Eri S, Wigum H, Hulsund Skagseth T, Bergene E, **Walmsley JC**, Olafsen A, Myrstad R, Lindvåg A, Midgley P, Arslan I, Shannon M, *Catalyst structure as a basis for development, performance and scaleup, of the Statoil FT-catalyst*, Paper presented at 12th Nordic Symposium on Catalysis, Trondheim, Norway, 28-30th May 2006.

Rørvik PM, Einarsrud MA, Grande T, Lyngdal T, **Holmestad R, van Helvoort ATJ, Sæterli R**, *Chemical preparation of ferroelectric nanorods*. Talk at Third national FUNMAT meeting; 05. - 06.01.2006.

Stenstad P, Syverud K, **Tanem BS**, Moe ST, Andresen M, Stenius P, *Chemical surface modification of cellulose microfibrils* Abstracts of papers of the American Chemical society 231, 120, 2006.

Sævik Ø, Yu Y, Graver B, **Walmsley JC** and Nisancioglu K, *Activation of Aluminium alloys by low melting point trace elements*, Keynote lecture at ASST Conference, Beaune, France, 14-18 May 2006.

Tucho WM, Holmestad R, Walmsley JC, Arstad B, Klette H, Venvik H, *Microstructural Characterization of Free-Standing Pd/Ag Membranes for Hydrogen Separation*, Poster presented at 9th International Conference on Inorganic Membranes, Lillehammer – Norway June 25-29, 2006.

Tyholt F, Mottern M, Ulyashin A, **van Helvoort ATJ**, Haavik C, Fagerberg R. *Optical thin films*, Talk at Third national FUNMAT meeting; 05. - 06.01.2006.

Tyholt F, Ulyashin A, Mottern M, **van Helvoort ATJ**, Bredesen R, Ræder H. *Chemical solution deposition of oriented ITO films* Poster at Piezoceramics for end-users II; 06 - 08.03.2006.

Ulyashin A, **Nordmark H**, **Walmsley JC**, **Tøtdal B**, **Holmestad R**, *Influence of an intensive hydrogenation on structural and point defect formation in silicon*, Presentation and proceedings at 21st European Photovoltaic Solar Energy Conference, 4-8 September 2006, Dresden, Germany, p.1448-1451.

Venvik HJ, Mejdell AL, Aardal BF, Klette H, Arstad B, Bredesen R, **Tucho WM**, **Walmsley JC**, **Holmestad R**, Borg A, Holmen A. *Pd-based thin films in catalytic membrane reactor applications*. Energy and Environmental Catalysis. Catalysis in Nordic Countries. Extended Abstracts. Trondheim, Norway: Department of Chemical Engineering, NTNU, 2006. ISBN 82-995569-1-0. 3 s.

Walmsley JC, Graver B, Larsen MH, Sævik Ø, Svenningsen G, Yu Y and Nisancioglu K, *Interface studies relevant to corrosion processes in aluminium*, Keynote lecture at ASST Conference, Beaune, France, 14-18 May 2006.

Vullum PE, Pitt MP, Hauback BC, **Walmsley J**, **Holmestad R**, *TEM characterization of NaAlH₄ and Ti doped NaAlH₄*, Poster. MH2006, International Symposium on Metal-Hydrogen Systems, Lahaina, Maui, Hawaii, 1-6th of October, 2006.