

List of publications - Prof. Jürgen Janek (January 2011)

Remarks:

Publications without peer review are listed separately at the end of this document.

The sequence of authors to a publication corresponds to their individual contribution. In the case of experimental studies usually a graduate student or Post-Doc is the first author, according to the major experimental contribution. In the case of theoretical or review papers this can vary from case to case.

Patents

- (1) *“Abscheidung von nanoskaligen Metallen, Halbmetallen, und Verbindungen dieser Metalle und/oder Halbmetalle an der Grenzfläche zwischen einer Niedertemperaturentladung und einer ionischen Flüssigkeit“*
J. Janek, F. Endres, M. Rohnke, S. A. Meiss; Justus-Liebig-University Giessen, German Patent, 21.3.2007, DE2007/000524

“Deposition of Nanoscale Metals, Semimetals and Compounds of Said Metals and/or Semimetals on the Boundary surface between a Low Temperature discharge and an Ionic Liquid“

J. Janek, F. Endres, M. Rohnke, S. A. Meiss; Justus-Liebig-University Giessen International Patent, PCTR/DE2007/000524, WO 2007/107152 A2

- (2) *“Method for producing a conductor/non-conductor transition“*
M. Martin, R. De Souza, D. Samuelis, I. Valov, J. Janek, A. Börger, K. D. Becker, P. C. Schmidt, L. Nagarajan. PCT Int. Appl. (2009), 28 pp; WO 2009121540 A1 20091008

“Method for producing a conductor/non-conductor transition“

M. Martin, R. De Souza, D. Samuelis, I. Valov, J. Janek, A. Börger, K. D. Becker, P. C. Schmidt, L. Nagarajan. Ger. Offen. (2009), 11 pp; DE 102008016694 A1 20091001

- (3) *“Gas sensor for determining reactive gases based on the Seebeck effect.“*
J. Janek, C. Korte, R. Moos, F. Rettig, K. Sahner, U. Roeder-Roith, Ger. Offen. (2010), 9pp. DE 102008045856 A1 20100602

Original papers in scientific journals with peer review (last five years)

- (1) *Cross effect between electronic and ionic flows in semiconducting transition metal oxides*
H.-I. Yoo, H. Schmalzried, M. Martin and J. Janek
Z. Phys. Chem. N. F. **168** (1990) 129-142
- (2) *Electrotransport in ionic crystals: I. Application of liquid electrolyte theory*
J. Janek and M. Martin
Ber. Bunsenges. Phys. Chemie **98** (1994) 655-664
- (3) *Electrotransport in ionic crystals: II. A dynamical model*
J. Janek and M. Martin
Ber. Bunsenges. Phys. Chemie **98** (1994) 665-673

- (4) *Experimental evidence of the interference between ionic and electronic flows in an oxide with prevailing electronic conduction*
H.-I. Yoo, J.-H. Lee, M. Martin, J. Janek and H. Schmalzried
Solid State Ionics **67** (1994) 317-322
- (5) *Coupling between ionic and electronic fluxes in mixed ionic/electronic conductors: Experiments on $\text{Co}_{1-\delta}\text{O}$*
J. Janek
Ber. Bunsenges. Phys. Chem. **98** (1994) 1213-1223
- (6) *Investigation of charge transport across the Ag| α -AgI-interface:
I. Occurrence of periodic phenomena during anodic dissolution of silver*
J. Janek and S. Majoni
Ber. Bunsenges. Phys. Chem. **99** (1995) 14-20
- (7) *Thermal diffusion in crystalline binary compounds with narrow range of homogeneity:
I. A new experiment for the determination of the heat of transport*
J. Janek
Ber. Bunsenges. Phys. Chem. **99** (1995) 920-931
- (8) *Thermal diffusion in crystalline binary compounds with narrow range of homogeneity: II. Stationary thermal diffusion in $\beta\text{-Ag}_{2+\delta}\text{S}$*
J. Janek and C. Korte
Ber. Bunsenges. Phys. Chem. **99** (1995) 932-939
- (9) *Determination of local potentials in mixed conductors - Two examples*
C. Rosenkranz and J. Janek
Solid State Ionics **82** (1995) 95-106
- (10) *Matter transport in temperature gradients - The heat of transport of silver in $\beta\text{-Ag}_{2+\delta}\text{S}$*
J. Janek and C. Korte
Solid State Ionics **85** (1996) 305-311
- (11) *Periodic oscillations at a solid-solid electrode*
S. Majoni and J. Janek
Solid State Ionics **85** (1996) 247-250
- (12) *Influence of mechanical pressure on ionic charge transport across the Ag/AgI-interface - Periodic oscillations of interfacial properties*
J. Janek and S. Majoni
Defects Diff. Forum **129-130** (1996) 243-252
(Proc. Workshop Diff. Stresses, Balatonfüred, Hungary)
- (13) *Thermal diffusion in crystalline binary compounds with narrow range of homogeneity - III. Experimental study of the Soret effect in $\beta\text{-Ag}_{2+\delta}\text{S}$*
C. Korte and J. Janek
Ber. Bunsenges. Phys. Chem. **100** (1996) 425-432
- (14) *Cross effect between heat and matter fluxes in mixed conducting solids - Definition of the heats of transport*
J. Janek and C. Korte
Z. Phys. Chem. **196** (1996) 187-208

- (15) *Study of the Soret effect in mixed conductors by the measurement of ionic and electronic thermopower*
J. Janek and C. Korte
Solid State Ionics **92** (1996) 193-204
- (16) *Nonisothermal transport properties of α -Ag_{2+ δ} S: Partial thermopowers of electrons and ions, the Soret effect and the heat of transport*
C. Korte and J. Janek
J. Phys. Chem. Solids **58** (1997) 623-637
- (17) *Plasma-electrochemical growth of AgBr layers on AgCl substrates*
J. Janek and C. Rosenkranz
J. Phys. Chem. B. **101** (1997) 5909-5912
- (18) *Transport processes in temperature gradients: Thermal diffusion and the Soret effect in crystalline compounds*
C. Korte, J. Janek and H. Timm
Solid State Ionics **101-103** (1997) 465-470
- (19) *Oscillating reactions at metal electrodes in solid electrolytes*
J. Janek
Solid State Ionics **101-103** (1997) 721-727
- (20) *Ionic conductivity, partial thermopowers, heats of transport and the Soret effect of α -Ag_{2+ δ} Se - An experimental study*
C. Korte and J. Janek
Z. Phys. Chem. **206** (1998) 129-163
- (21) *Thermal diffusion and Soret effect in (U,Me)O_{2+x} - The heat of transport of oxygen*
J. Janek and H. Timm
J. Nucl. Mater. **255** (1998) 116-127
- (22) *Investigation of charge transport across the Ag| α -AgI-interface: II. Dilatometric study of the anodic dissolution of silver*
S. Majoni and J. Janek
Ber. Bunsenges. Phys. Chem. **102** (1998) 756-762
- (23) *Thermal diffusion in mixed conductors*
J. Janek and C. Korte
In: Proc. Third Inter. Symp. Ionic and Mixed Conducting Ceramics, Ed.: T. A. Ramanarayanan, The Electrochemical Society, Proc. Vol. **97-24** (1998) 304-328
- (24) *Chemical Kinetics of Solid/Solid Interfaces (Aspects and Topics)*
H. Schmalzried and J. Janek
Ber. Bunsenges. Phys. Chem. **102** (1998) 127-143
- (25) *Electrochemically induced surface changes on microstructured Pt films on a solid YSZ electrolyte*
J. Poppe, A. Schaak, J. Janek and R. Imbihl
Ber. Bunsenges. Phys. Chem. **102** (1998) 1019-1022

- (26) *Electrochemical blackening of yttria-stabilized zirconia - morphological instability of a moving reaction front*
J. Janek and C. Korte
Solid State Ionics **116** (1999) 181-195
- (27) *Ionic Thermopower of composite electrolytes. I. Theory*
M. Vennekamp and J. Janek
Solid State Ionics **118** (1999) 43-66
- (28) *Oscillatory Kinetics at Solid/Solid Boundaries in ionic crystals*
J. Janek
Solid State Ionics **131** (2000) 129-142
- (29) *Spatially resolved measurements of electrochemically induced spillover on porous and microstructured Pt/YSZ catalysts*
R. Imbihl and J. Janek
Solid State Ionics **136/137** (2000) 699-705
- (30) *Electrochemical promotion of catalytic CO oxidation on platinum under low pressure conditions*
S. Völkening, E. Schütz, J. Janek, and R. Imbihl
Physical Chemistry - Chemical Physics **1** (1999) 5241-5249
- (31) *Photoelectron spectromicroscopy of electrochemically induced oxygen spillover at the Pt/YSZ interface*
B. Luerßen, S. Günther, H. Marbach, M. Kiskinova, J. Janek and R. Imbihl
Chem. Phys. Lett. **316** (2000) 331-335
- (32) *Promotion of catalytic reactions by electrochemical polarisation*
J. Janek, M. Rohnke, B. Luerssen and R. Imbihl
Physical Chemistry - Chemical Physics **2** (2000) 1935-1941
- (33) *Periodische Phänomene an fest/fest-Phasengrenzen*
J. Janek
Nova Acta Leopoldina NF **83** (317) (2000) 175-197
- (34) *Electrocatalysis on Pt/YSZ electrodes*
B. Luerssen, J. Janek and R. Imbihl
Solid State Ionics **141-142** (2001) 701-707
- (35) *Plasma-electrochemical growth of ion-conducting AgBr and AgCl*
M. Vennekamp and J. Janek
Solid State Ionics **141-142** (2001) 71-80
- (36) *Microspectroscopy at a moving reduction front in zirconia solid electrolyte*
B. Luerßen, J. Janek, S. Günther, M. Kiskinova and R. Imbihl
Phys. Chem. Chem. Phys. **4** (2002) 2673-2679
- (37) *Thermodiffusion in ionic solids - Model Experiments and theory*
J. Janek, C. Korte and A. B. Lidiard
Review, in: Thermal Nonequilibrium Phenomena in Fluid Mixtures
W. Köhler and S. Wiegand (eds.), series: Lecture Notes in Physics,
Springer-Verlag, Berlin 2002, pp. 146-183

- (38) *Positive and negative magnetoresistance in the system silver-selenium*
G. Beck and J. Janek
Physica B **308 – 310** (2001) 1086-1089
- (39) *Chemie und Licht – Eine weihnachtliche Experimentalvorlesung*
B. Albert and J. Janek
ChiuZ **35**(6) (2001) 390-401
- (40) *Plasma Electrochemistry in RF-discharges: Oxidation of Silver in a Chlorine Plasma*
M. Vennekamp and J. Janek
J. Electrochem. Soc. **150**(10) (2003) C723-C729
- (41) *Surface oxygen exchange between yttria-stabilised zirconia and a low-temperature oxygen RF-plasma*
M. Rohnke, J. Janek, R. Chater, and J. Kilner
Solid State Ionics **166**/1 – 2 (2004) 89 – 102
- (42) *On the Reactivity of Silver Electrodes in a Chlorine Radiofrequency Plasma – Plasma Oxidation vs. Thermal Oxidation*
M. Vennekamp and J. Janek
Z. Anorg. Allg. Chemie **629** (2003) 1851 – 1862
- (43) *Von der Verbrennung zum Herzschlag – Chemische Triebkräfte*
J. Janek, A. Seibert, J. P. Hofmann und H. Schwertfeger
Chemie in unserer Zeit **38**(1) (2004) 10 – 23
- (44) *In situ observation of electrode reactions probed by microspectroscopy*
B. Luerssen, H. Fischer, S. Günther and J. Janek
In: Solid State Ionics: Science and Technology of Ions in Motion;
(Eds.) B. V. R. Chowdari, H.-I. Yoo, G. M. Choi and I.-H. Lee.
Proc. of Asian Conf. Solid State Ionics **9** (2004) 139 – 149
- (45) *Coulometric titration at low temperatures - Nonstoichiometric silver selenide*
G. Beck and J. Janek
Solid State Ionics **170**(1/2) (2004) 129 - 133
- (46) *The magnetoresistance of homogeneous and heterogeneous silver-rich silver selenide*
G. Beck, C. Korte, J. Janek, Fr. Gruhl and M. von Kreutzbruck
J. Appl. Phys. **96**(10) (2004) 5619 – 5624
- (47) *Magneto resistance Effect in α -Ag_{2+ δ} Se with high silver excess*
M. von Kreutzbruck, B. Mogwitz, F. Gruhl, C. Korte and J. Janek
Appl. Phys. Lett. **86** (2005) 072102
- (48) *Controlled electrochemical growth of silver microwires*
M. Rohnke, T. Best and J. Janek
J. Solid State Electrochem. **9** (2005) 239 – 243
- (49) *Control of the surface morphology of solid electrolyte films during field-driven growth in a reactive plasma*
M. Vennekamp and J. Janek
Phys. Chem. Chem. Phys. **7** (2005) 666 - 677

- (50) *On the Soret effect in binary nonstoichiometric oxides – Kinetic demixing of cuprite in a temperature gradient*
H. Timm and J. Janek
Solid State Ionics **176** (2005) 1131 - 1143
- (51) *Nitrogen tracer diffusion in yttria doped zirconium oxynitride*
M. A. Taylor, M. Kilo, C. Argirusis, G. Borchardt, I. Valov, C. Korte, J. Janek, T. C. Roedel, M. Lerch,
Diffusion in Materials: DIMAT 2004, Pt. 1 and 2 (Part. 1);
in: Defect and Diffusion Forum **237-240** (2005) 479-484
- (52) *The magnetoresistance of metal-rich Ag_{2+x}Se - A prototype nanoscale metal/semiconductor dispersion?*
J. Janek, B. Mogwitz, G. Beck, M. v. Kreutzbruck, L. Kienle, C. Korte
In: *Hybrid Nanostructured Materials and their Applications*, T. Ohashi, S. Sominatac, M. Wada (eds.), World Publ. House, Kyoto 2005 (ISBN: 4-9902429-0-4)
- (53) *The magnetoresistance of metal-rich Ag_{2+x}Se - A prototype nanoscale metal/semiconductor dispersion?*
J. Janek, B. Mogwitz, G. Beck, M. v. Kreutzbruck, L. Kienle, C. Korte
Progress in Solid State Chemistry **32** (3-4) (2006) 179-205
- (54) *The influence of non-equilibrium defects on the anodic dissolution of a metal into a solid electrolyte*
M. Rohnke, C. Rosenkranz, and J. Janek
Solid State Ionics **177**(5-6) (2006) 447-456
- (55) *In situ imaging of Electrochemical Induced oxygen spillover on Pt/YSZ Catalysts*
B. Luerßen, E. Mutoro, H. Fischer, S. Günther, R. Imbihl, J. Janek
Angew. Chem. Int. Ed. **45**(9) (2006) 1473-1476
- (56) *Electrochemical incorporation of nitrogen into zirconia solid electrolyte*
I. Valov, C. Korte, R. A. De Souza, J. Janek, M. Martin
Electrochem. Solid State Lett. **9**(5) (2006) F23-F26
- (57) *Reactive Sputter Deposition and metal-semiconductor transition of FeS films*
G. H. Fu, A. Polity, W. Kriegseis, D. Hasselkamp, B. K. Meyer, B. Mogwitz, J. Janek
Appl. Phys. A **84** (2006) 309 - 312
- (58) *Cathodic deposition of silver on silver bromide at microelectrodes*
K. Pepler and J. Janek
Solid State Ionics, **177** (19-25) (2006) 1643-1648
- (59) *Kinetic studies of the electrochemical nitrogen reduction and incorporation into yttria stabilized zirconia*
I. Valov and J. Janek
Solid State Ionics **177** (19-25) (2006) 1619-1624
- (60) *Electrodeposition of metals for micro- and nanostructuring at interfaces between solid, liquid and gaseous conductors: Dendrites, whiskers and nanoparticles*
K. Pepler, M. Pölleth, S. A. Meiss, and J. Janek
Z. Phys. Chem. **220** (2006) 1507-1527

- (61) *Electrochemistry in plasmas - The application of gaseous electrodes in materials science*
M. Rohnke, H. Reinshagen and J. Janek
Proc. 16th Iketani Conference on "Electrochemistry and Thermodynamics of Materials Processing for Sustainable Production/Masuko Symposium", Hrsg.: S. Yamaguchi, Tokyo, Japan, (2006) 599-625
- (62) *Adjustable metal-semiconductor transition of FeS thin films by thermal annealing*
G. H. Fu, A. Polity, N. Volbers, B. K. Meyer, B. Mogwitz, J. Janek
Appl. Phys. Lett. **89**(26) (2006) 262113-1/3
- (63) *Plasma-Electrochemical Deposition of Nanoscale Metals and Semiconductors in Ionic Liquids*
S. A. Meiss, M. Rohnke, L. Kienle, S. Z. El Abedin, F. Endres, and J. Janek
ChemPhysChem. **8** (2007) 50-53
- (64) *Ionic conductivity and activation energy for oxygen ion transport in superlattices – The multilayer system CSZ (ZrO₂+CaO)/Al₂O₃*
A. Peters, C. Korte, D. Hesse, N. Zakharov and J. Janek
Solid State Ionics **178**(1-2) (2007) 67-76
- (65) *Epitaxial Pt(111) thin film electrodes on YSZ(111) and YSZ(100) – Preparation and characterisation*
G. Beck, H. Fischer, E. Mutoro, V. Srot, K. Petrikowski, E. Tchernychova, M. Wuttig, M. Rühle, B. Luerßen, J. Janek
Solid State Ionics **178** (2007) 327-337
- (66) *Nondestructive analysis of silver selenide films obtained by pulsed laser deposition (PLD) with micro-XRF*
M. Azeroual, R. Dargel, B. Mogwitz, J. Janek and C. Vogt
J. Mater. Sci. **42** (2007) 7375-7380
- (67) *Preparation and magnetoresistance of Ag₂Se thin films deposited via Pulsed Laser Deposition*
B. Mogwitz, C. Korte, L. Kienle, M. von Kreutzbruck, J. Janek
J. Appl. Phys. **101** (2007) 043510
- (68) *Template assisted solid state electrochemical growth of silver micro- and nanowires*
K. Peppler and J. Janek
Electrochim. Acta **53**(2) (2007) 319-323
- (69) *Preparation of nitrogen doped YSZ thin films by pulsed laser deposition and their characterisation*
I. Valov, R. A. De Souza, Ch. Wang, A. Börger, C. Korte, M. Martin, K. D. Becker, J. Janek
J. Mater. Sci. **42** (2007) 1931-1941
- (70) *Ionic liquids as green electrolytes for electrodeposition of nanomaterials*
S. Zein El Abedin, M. Pölleth, J. Janek, F. Endres
Green Chemistry **9**(6) (2007) 549-553

- (71) *In-situ Imaging of Electrode Processes on Solid Electrolytes by Photoelectron Microscopy and Microspectroscopy – The Role of the Three-Phase Boundary*
J. Janek, B. Luerßen, E. Mutoro, H. Fischer, S. Günther
Topics in Catalysis **44** (3) (2007) 399-407
- (72) *Nanocarving of titania as a diffusion-driven morphological instability*
D.-K. Lee and J. Janek
Adv. Funct. Mater. **18** (2008) 422-431
- (73) *Plasma electrochemistry with ionic liquids*
J. Janek, M. Rohnke, M. Pölleth, S. A. Meiss,
In: Electrodeposition from Ionic Liquids (Hrsg.: F. Endres, D. MacFarlane, A. Abbott),
Wiley-VCH, Weinheim 2008, 259-285
- (74) *Negative and linear positive magnetoresistance effect
in a non-magnetic semiconductor at room temperature*
G. Beck and J. Janek
Solid State Sciences **10** (2008) 776-789
- (75) *Highly Non-Stoichiometric Amorphous Gallium Oxide -
Prototype Material for a Chemically driven Insulator-Metal Transition*
N. Lakshmi, R. A. De Souza, D. Samuelis, I. Valov, A. Börger, J. Janek,
K. D. Becker, P. C. Schmidt, M. Martin
Nature Materials **7**(5) (2008) 391-198
- (76) *Phasengrenzen fester Ionenleiter*
E. Mutoro, B. Luerßen, and J. Janek
Chemie in unserer Zeit **42** (2008) 80-90
- (77) *Ion-conducting probes for low temperature plasmas*
S. A. Meiss, M. Rohnke, F. Rettig, R. Moos, and J. Janek
Contributions to Plasma Physics **48** (5-7) (2008) 473-479
- (78) *Structural, morphological and kinetic properties of model type thin film platinum
electrodes on YSZ*
E. Mutoro, B. Luerßen, S. Günther, J. Janek
Solid State Ionics **179** (2008) 1214-1218
- (79) *Ionic Conductivity and Activation Energy for Oxygen Ion Transport in Superlattices –
The Semicohherent Multilayer System YSZ (ZrO₂ + 9.5 mol% Y₂O₃)/Y₂O₃*
C. Korte, A. Peters, D. Hesse, N. Zakharov, and J. Janek
Physical Chemistry – Chemical Physics **10** (2008) 4623-4635
- (80) *Field driven migration of bipolar metal electrodes on solid electrolytes*
K. Pepler, C. Reitz, and J. Janek
Appl. Phys. Lett. **93**(7) (2008) 074104
- (81) *Electrode activation and degradation: Morphology changes of platinum electrodes
on YSZ during electrochemical polarisation*
E. Mutoro, S. Günther, B. Luerßen, I. Valov, J. Janek
Solid State Ionics **179** (2008) 1835-1848

- (82) *The bridge to redox switches* (News & Views)
J. Janek
Nature Materials **8** (2009) 88-89
- (83) *Control of linear magnetoresistance in Ag_{2+x}Se thin films by microstructural design*
M. von Kreutzbruck, G. Lembke, B. Mogwitz, C. Korte, and J. Janek
Phys. Rev. B **79** (2009) 035204
- (84) *Thick-film solid electrolyte oxygen sensors using the direct ionic thermoelectric effect*
U. Röder-Roith, F. Rettig, T. Röder, J. Janek, R. Moos, K. Sahner,
Sensors and Actuators B **136** (2009) 530-535
- (85) *Defect chemistry of the cage compound, $\text{Ca}_{12}\text{Al}_{14}\text{O}_{33-\delta}$ —understanding the route from a solid electrolyte to a semiconductor and electride*
D.-K. Lee, L. Kogel, S. G. Ebbinghaus, I. Valov, H.-D. Wiemhoefer, M. Lerch,
and J. Janek
Phys. Chem. Chem. Phys. **11** (2009) 3105-3114
- (86) *Influence of Interface Structure on Mass Transport in Phase Boundaries between different Ionic Materials – Experimental Studies and Formal Considerations*
C. Korte, N. Schichtel, D. Hesse, and J. Janek
Chem. Monthly (Monatshefte für Chemie) **140** (2009) 1068-1080
- (87) *Elastic Strain at Interfaces and its Influence on Ionic Conductivity —Theoretical Considerations and Experimental Studies*
N. Schichtel, C. Korte, D. Hesse, and J. Janek
Phys. Chem. Chem. Phys. **11** (2009) 3043-3048
- (88) *Influence of Impurities and Electrode Morphology on Cyclic Voltammetry: The model system Platinum on YSZ oxygen electrolyte*
E. Mutoro, B. Luerßen, S. Günther, and J. Janek
Solid State Ionics **180** (2009) 1019-1033
- (89) *Ionic and Electronic Conductivity of Nitrogen-doped YSZ Single Crystals*
I. Valov, V. Rührup, R. Klein, T.-C. Rödel, A. Stork, S. Berendts, M. Dogan,
H. -D. Wiemhöfer, M. Lerch and J. Janek
Solid State Ionics **180** (2009) 1463-1470
- (90) *Physical Chemistry of Solids – The Science behind Materials Engineering*
J. Janek, K. D. Becker, and M. Martin
Z. Phys. Chem. **223**(10/11) (2009) 1239-1258
- (91) *Ionic Solid Solutions – Mixing in the Solid State Systems, Methods, Models and Applications (Editorial)*
J. Janek, M. Binnewies, A. Reller
Progress Solid State Chem. **37** (2009) 55-56
- (92) *Oxide nitrides: From oxides to solids with mobile nitrogen ions*
M. Lerch, J. Janek, K. D. Becker, S. Berendts, H. Boysen, T. Bredow,
R. Dronskowski, S. G. Ebbinghaus, M. Kilo, M. W. Lumey, M. Martin,
C. Reimann, E. Schweda, I. Valov, H. D. Wiemhöfer
Progress Solid State Chem. **37** (2009) 81-131

- (93) *Thermodynamics, structure and kinetics in the system Ga-O-N*
M. Martin, R. Dronskowski, J. Janek, K.-D. Becker, D. Röhrens, J. Brendt,
M. W. Lumey, L. Nagarajan, I. Valov, A. Börger
Progress Solid State Chem. **37** (2009) 132-152
- (94) *Porous model type electrodes by induced dewetting
of thin Pt films on YSZ substrates*
N. Baumann, E. Mutoro, and J. Janek
Solid State Ionics **181** (2010) 7-15
- (95) *Plasma Electrochemistry in Ionic Liquids: Deposition of Copper Nanoparticles*
M. Brettholle, O. Höfft, L. Klarhöfer, S. Mathes, W. Maus-Friedrichs,
S. Zein El Abedin, S. Krischok, J. Janek and F. Endres
Phys. Chem. Chem. Phys. **12** (2010) 1750-1755
- (96) *Mesoporous TiO₂: Comparison of classical sol-gel and nanoparticle based
photoelectrodes for the water splitting reaction*
P. Hartmann, D.-K. Lee, B. M. Smarsly and J. Janek
ACS Nano **4**(6) (2010) 3147-3154
- (97) *Realization of high luminous efficacy at low voltages in the plasma display panel
with SrO-MgO double layer*
H. Y. Jung, T. H. Lee, O. Y. Kwon, H. W. Cheong, S. O. Steinmüller,
J. Janek, K. W. Whang
IEEE Electron Devices Letters **31**(7) (2010) 686-688
- (98) *Janus-faced SiO₂: Activation and Passivation in the Electrode System Pt/YSZ*
E. Mutoro, N. Baumann, and J. Janek
J. Phys. Chem. Lett. **1** (2010) 2322-2326
- (99) *Perovskite-Type Proton Conductor for Novel Direct Ionic Thermoelectric
Hydrogen Sensor*
U. Röder-Roith, F. Rettig, K. Sahner, T. Röder, J. Janek, R. Moos
Solid State Ionics (2010), available online
- (100) *Thermoelectric Measurements on Sputtered ZnO/ZnS Multilayers*
G. Homm, M. Piechotka, A. Kronenberger, A. Laufer, F. Gather, D. Hartung,
C. Heiliger, B. K. Meyer, P. J. Klar, S. O. Steinmüller, and J. Janek
J. Electronic Mater. **39**(9) (2010) 1504-1509
- (101) *Microstructure and Magnetoresistance of heterogeneous gold-rich Ag₃Au_{1,1}Te₂*
L. Kienle, V. Duppel, G. Lembke, B. Mogwitz, J. Janek, M. v. Kreutzbruck, A. Simon
Solid State Sciences **12**(10) (2010) 1770-1778
- (102) *In-CuInS₂ nanocomposite film prepared by Pulsed Laser Deposition using a single
source precursor*
W. Bensch, E. Quiroga-González, L. Kienle, V. Duppel, D. K. Lee, J. Janek
Solid State Sciences **12** (2010) 1953-1959
- (103) *Electrochemical promotion of Pt(111)/YSZ(111) and Pt-FeO_x/YSZ(111)
thin catalyst films: Electrocatalytic, catalytic and morphological studies*
E. Mutoro, C. Koudsodontis, B. Luerßen, C. G. Vayenas, J. Janek
Appl. Catal. B: Environmental **100** (2010) 328

- (104) *On the Influence of Strain on Ion Transport: Microstructure and Ionic Conductivity of Nanoscale YSZ/Sc₂O₃ Multilayers*
N. Schichtel, C. Korte, D. Hesse, N. Zakharov, B. Butz, D. Gerthsen, and J. Janek
Phys. Chem. Chem. Phys. **12** (2010) 14596-14608
- (105) *Characterization of chemical composition and electronic structure of Pt/YSZ interfaces by analytical transmission electron microscopy*
V. Srot, M. Watanabe, C. Scheu, P. A. van Aken, U. Salzberger, B. Luerßen, J. Janek, M. Rühle
Solid State Ionics **181** (2010) 1616-1622
- (106) *A New Heterogeneous Photocathode Based on Ruthenium(II)quaterpyridinium Complexes at TiO₂ Particles*
N. Baumann, P. S. Gamage, T. N. Samarakoon, J. Hodgson, J. Janek, and S. H. Bossmann
J. Phys. Chem. C **114** (2010) 22763-22772.
- (107) *An EMF Cell with a Nitrogen Solid Electrolyte – On the Transference of Nitrogen Ions in Yttria-stabilized Zirconia*
D. K. Lee, C. C. Fischer, I. Valov, J. Reinacher, A. Stork, M. Lerch, and J. Janek
Phys. Chem. Chem. Phys. **13** (2010) 1239-1242
- (108) *Electrochemical activation of dinitrogen at Iridium/zirconia solid electrolyte interfaces*
I. Valov, B. Luerßen, E. Mutoro, L. Gregoratti, R. A. De Souza, S. Günther, A. Barinov, P. Dudin, M. Martin, and J. Janek
Phys. Chem. Chem. Phys., in print (2011); DOI:10.1039/C0CP01024C

Manuscripts (submitted):

- (109) *Microstructure of Platinum Films on YSZ Prepared by Pulsed Laser Deposition*
G. Beck, H. Pöpke, B. Luerßen and J. Janek
J. Crystal Growth, submitted (12/2010)
- (110) *Mesoporous tin-doped indium oxide thin films: Synthesis, characterization and functionalization*
T. von Graberg, P. Hartmann, A. Rein, S. Gross, B. Seelandt, C. Röger, R. Zieba, A. Traut, M. Wark, J. Janek and B. M. Smarsly
J. Phys. Chem. C, submitted (12/2010)
- (111) *The Potential of In-situ Scanning Electron Microscopy – Investigation of Thin Film Pt(O₂)/YSZ Model Electrodes*
H. Pöpke, E. Mutoro, B. Luerßen, J. Janek
Solid State Ionics, submitted (12/2010)
- (112) *Plasma Electrochemistry in 1-Butyl-3-methylimidazolium dicyanamide: Copper nanoparticles from CuCl and CuCl₂*
N. Kulbe, O. Höfft, A. Keppler, S. Zein El Abedin, S. Krischok, J. Janek, M. Pölleth and F. Endres
Z. Phys. Chem., submitted (11/2010)

Other Publications (without peer review), extended Abstracts:

- (1) *Electrochemical oscillations at solid|solid-electrodes*
J. Janek
GIT - Fachzeitschrift für Labor und Technik **3**, 265 - 266 (1997)
- (2) *Oxidationsprozesse*
J. Janek
in: Dynamik und Strukturbildung in kondensierter Materie, Vorlesungsmanuskripte des 28. IFF-Ferienkurses vom 3. - 14. März 1997, Forschungszentrum Jülich, Jülich 1997
- (3) *Book review: „Kinetic Peculiarities of Solid Phase Reactions“*
by E. Ya. Davydov et al.
J. Janek
Adv. Mater. **11**(15), 1317 - 1318 (1999)
- (4) *Trendbericht Festkörperchemie 1998*
J. Janek and M. Ruck
Nachr. Labor und Technik 1999
- (5) *Prof. Wolfgang Laqua, zum 65. Geburtstag*
J. Janek and H. Schmalzried
Bunsen-Magazin **2**(4), 98 – 99 (2000)
- (6) *Je mehr Fehler, desto besser ...*
J. Janek
UNI-Forum der JLU Gießen, Ausgabe 2, 4 (2001)
- (7) *Book review: „Festkörper – Fehler und Funktion“* by J. Maier
J. Janek
Angew. Chemie **113**(6), 3170 – 3171 (2001)
- (8) *Physikalische Chemie und Computeralgebra*
M. Vennekamp and J. Janek
ChiuZ **35**(4), 275 (2001)
- (9) *Bunsen unterm Dach!*
J. Janek und B. Luerßen
Bunsenmagazin 3 (2002) 64
- (10) *Book review: „Electrochemical activation of catalysis: promotion, electrochemical promotion, and metal-support interaction“* by C.G. Vayenas, S. Bebelis, C. Pliangos, S. Brosda, D. Tsiplakides; Kluwer/Plenum, New York, 2001. 574 pp
J. Janek
J. Solid State Electrochem. **6** (2002)
- (11) *Nichtstöchiometrische Festkörper mit Ionen- und Elektronenleitfähigkeit – Objekte und Spielzeuge der Festkörperelektrochemie*
J. Janek
Z. Anorg. Allg. Chem. **628** (2002) 2134

- (12) *Elektrochemie mit Gasplasmen: Die Kinetik der Oxidation von Silber in Chlorplasmen und die Morphologie der Produktschichten*
Vennekamp and J. Janek
Z. Anorg. Allg. Chem. **628** (2002) 2152
- (13) *Magnetoresistance in Non-stoichiometric silver chalcogenides*
B. Mogwitz, G. Beck, F. Gruhl, M. von Kreutzbruck and J. Janek
Z. Anorg. Allg. Chemie **628** (2002) 2223
- (14) *Mikrowellen-Plasmen als kontaktfreie Elektroden – Eine Anwendung bei der Metalloxidation in einem elektrischen Feld*
H. Reinshagen and J. Janek
Z. Anorg. Allg. Chemie **628** (2002) 2231
- (15) *„Liebig und sein Umfeld“; Book review: „Liebig und seine Schüler – die neue Schule der Chemie“ by G. Schwedt*
J. Janek
ChiuZ **37** (2003) 364
- (16) *Liebig als „Studienreformer“ – Das erste moderne Unterrichtslaboratorium der Chemie*
in: Historische Stätten der Chemie – Lustus von Liebig; Broschüre anlässlich der Verleihung der Plakette „Historische Stätten der Chemie“ am 16. Mai 2003; GDCh und Liebig-Gesellschaft, Gießen
- (17) *Chemie im Vierten Aggregatzustand*
HighChem
- (18) *An Electrochemically Controlled Surface Reaction*
B. Luerßen, H. Fischer, J. Janek, S. Günther, L. Gregoratti and M. Kiskinova
Elettra Highlights 2002 – 2003, Sincrotrone Trieste, Trieste, Italy, 2003, pp. 64 – 66
- (19) *Oxygen exchange at the interface between an oxygen plasma and an oxygen ion-conducting solid electrolyte (YSZ)*
M. Rohnke, J. Janek, R. Chater, J. Kilner,
International Conference on Phenomena in Ionized Gases, Proceed. 26th, Greifswald, Germany, July 15-20, 2003 (2003), Vol. 2, 19-20.
- (20) *Microwave plasmas as contactless electrodes - applied to electric field driven reactions*
H. Reinshagen and J. Janek
International Conference on Phenomena in Ionized Gases, Proceed. 26th, Greifswald, Germany, July 15-20, 2003 (2003), 2 17-18
- (21) *Solid state electrochemistry in low temperature plasmas*
J. Janek and M. Vennekamp
International Conference on Phenomena in Ionized Gases, Proceed. 26th, Greifswald, Germany, July 15-20, 2003 (2003), 2 13-14
- (22) *Forschung macht Mut!* (Editorial)
J. Janek
ChiuZ 38 (2004) 83

- (23) *Ionic conduction in nano-sized oxide multi-layers*
A. Peters, C. Korte and J. Janek
Z. Anorg. Allg. Chem. **630**(11) (2004) 1694
- (24) *Magnetoresistance of silver selenide thin films – Size effect and composition dependence*
B. Mogwitz, F. Gruhl, M. von Kreutzbruck, C. Korte and J. Janek
Z. Anorg. Allg. Chem. **630**(11) (2004) 1744
- (25) *Gas-tight platinum thin films on YSZ for in situ studies of the electrode kinetics*
H. Fischer, B. Luerßen, F. Schneider, S. Günther, A. Weidenkaff, M. Kiskinova and J. Janek
Z. Anorg. Allg. Chem. **630**(11) (2004) 1722
- (26) *Electrochemical Reduction and Incorporation of Nitrogen into Oxygen conducting Oxides*
I. Valov, J. Janek, C. Korte, R. De Souza, M. Martin
Z. Anorg. Allg. Chem. **630**(11) (2004) 1763
- (27) *Diffusion und Reaktion in dotierten Zirkoniumoxonitriden*
M. Kilo, J. Janek, M. Lerch, G. Borchardt
Z. Anorg. Allg. Chem. **630**(11) (2004) 1734
- (28) *Forschung und Lehre im Schatten von Samsung und Toyota*
(Klaus Funke zum 60. Geburtstag)
J. Janek
Bunsen-Magazin **6**(6) (2004) 150-151
- (29) *84th International Bunsen Discussion Meeting: Structure and Dynamics of Disordered Ionic Materials in Münster*
K. Funke and J. Janek
Bunsen-Magazin **7**(1) (2005) 11 (mit Titelbild)
- (30) *Realstrukturen in Filmen und bulk-Proben von Ag_{2+x}Se und verwandten Verbindungen*
L. Kienle, B. Mogwitz, M. Kreutzbruck, C. Korte, J. Janek, V. Duppel
Z. Kristallogr. Suppl., accepted 2005
- (31) *Festkörperelektrochemie*
J. Janek, B. Franz, S. A. Meiss, K. Peppler, E. Mutoro
Wochenschau Elektrochemie der GDCh
- (32) *Electrochemically controlled reduction of molecular nitrogen at iridium micro-electrodes on zirconia solid electrolyte*
I. Valov, B. Luerßen, E. Mutoro, J. Janek, S. Günther, L. Gregoratti, M. Kiskinova
ELETTRA Highlights 2005-2006, ELETTRA, Trieste/Italy, 2006
- (33) *Festkörperelektrochemie - Im Brennpunkt von Elektrochemie, Festkörperchemie und Materialforschung*
J. Janek
Nachrichten aus der Chemie **55** (2007) 27-32

- (34) *Photoelectron Microscopy*
E. Mutoro, B. Luerßen, S. Günther, J. Janek
Bunsen-Magazin **9**(2) (2007) 18-34
- (35) *Ion-conducting electrodes and probes for low temperature plasmas*
S. A. Meiss, S. O. Steinmüller, M. Rohnke, F. Rettig, R. Moos, J. Janek
International Conference on Phenomena in Ionized Gases, Proceed. 28th,
Prague, Czech Republic, July 15-20, 2007 (2007), XX
- (36) *Solid State Reactivity – From Macro to Nano* (Editorial)
J. Janek, M. Martin and K. D. Becker
Solid State Sciences **10** (2008) 669
- (37) *Reactions at Interfaces between Ionic Liquids and Low Temperature Plasmas*
M. Pölleth, S. A. Meiss, M. Rohnke, J. Janek
Proc. Intern. Interdisc. Symp. Gaseous and Liquid Plasmas, Sept. 5-6th 2008,
Akiu/Sendai, p. 226
- (38) *Batterien*, in Sonderheft „Chemie und Energie“, Dechema, GDCh, DBG (2008)
- (39) *Analytical TEM investigations of Pt/YSZ interfaces*
Srot, M. Watanabe, C. Scheu, P. A. van Aken, E. Mutoro, J. Janek, M. Rühle
EMC 2008, Vol. 2: Materials Science, Springer-Verlag Berlin Heidelberg, 2008, 369 -
370
- (40) *Unsere Lehre ist nicht schlecht*
J. Janek, C. Remenyi
Nachrichten aus der Chemie **57**(2) (2009) 129-131
- (41) *Physical Chemistry – The Science behind Materials Engineering*
J. Janek, M. Martin, K. D. Becker
Bunsen-Magazin **11**(2) (2009) 52-58
- (42) *Mehr Aufmerksamkeit* (Editorial)
J. Janek
Nachrichten aus der Chemie **57**(3) (2009) 213
- (43) *Physical Chemistry – The Science behind Materials Engineering*
J. Janek, M. Martin and K. D. Becker
PCCP **11** (2009) 3010