

Publikationen und Patente

Prof. Dr. Gerhard Sextl

- (1) Settelein, J., Oehm, J., Bozkaya, B., Leicht, H., Wiener, B., Reichenauer, G., Sextl, G.:
“The external surface area of carbon additives as key to enhance the dynamic charge acceptance of lead-carbon electrodes”
Journal of Energy Storage 15 (2018) 196 - 204
- (2) Schug, B., Mandel, K., Schottner, G., Shmeliov, A., Nicolosi, V., Baese, R., Pietschmann, B., Biebl, M., Sextl, G.:
„A mechanism to explain the creep behavior of gypsum plaster“
Cement and Concrete Research 98 (2017) 122 – 129
- (3) Boaretto, N., Horn, T., Popall, M., Sextl, G.:
“Optimization of the transport and mechanical properties of polysiloxane/polyether hybrid polymer electrolytes”
Electrochimica Acta 241 (2017) 477 – 486
- (4) Ebert, F., Sextl, G., Adermann, J., Reiter, C., Lienkamp, M.:
„Detection of cell-stack inhomogeneities via mechanical SOC and SOH measurement“
Transportation Electrification Conference and Expo ITEC (2017) IEEE 545 – 549
- (5) Ebert, F., Sextl, G., Lienkamp, M.:
„Effect of a flexible battery module bracing on cell aging“
12th Intern. Conf. on Ecological Vehicles and Renewable Energies EVER (2017)
- (6) Wehner, T., Seuffert, MT., Sorg, JR., Schneider, M., Mandel, K., Sextl, G.:
„Composite materials combining multiple luminescent MOFs and superparamagnetic microparticles for ratiometric water detection”
Journal of Materials Chemistry C 5 (39) (2017) 10133 – 10142
- (7) Brockmann, N., Bokelmann, K., Rose, K., Herling, M., Gunschera, J., Sextl, G.:
„Composite coating composed of zeolite Y (FAU) and binder prepared from bis(triethoxysilyl) ethane”
Journal of Coatings Technology and Research 14 (1) (2017) 153 - 162
- (8) Flegler, A., Hartmann, S., Settelein, J., Mandel, K., Sextl, G.:
„Screen printed bifunctional gas diffusion electrodes for aqueous metal-air batteries: Combining the best of the catalyst and binder world”
Electrochimica Acta xxx (2017) 1 - 9
- (9) Straßer, M., Schrauth, J., Dembski, S., Haddad, D., Ahrens, B., Schweizer, S., Christ, B., Cubukova, A., Metzger, M., Walles, H., Jakob, P., Sextl, G.:
„Calcium fluoride based multifunctional nanoparticles for multimodal imaging“

Beilstein J. Nanotechnol. (2017), 8, 1484 – 1493

- (10) Settelein, J., Lormann H., SEXTL, G.:
„Evaluating the lead affinity of graphite additives in lead-acid batteries by electrochemical deposition“
Electrochimica Acta 233 (2017) 173 – 180
- (11) Flegler, A., Müssig, S., Prieschl, J., Mandel, K., SEXTL, G.:
„Towards core-shell bifunctional catalyst particles for aqueous metal-air batteries: NiFe-layered double hydroxide nanoparticle coatings on γ -MnO₂ microparticles“
Electrochimica Acta 231 (2017) 216 - 222
- (12) Gold, L., Bach, T., Virsik, W., Schmitt, A., Mueller, J., Staab, Torsten, and SEXTL, G.:
„Probing lithium-ion batteries' state-of-charge using ultrasonic transmission – Concept and laboratory testing“
Journal of Power Sources (2017) 536 – 544
- (13) Schneider, F., Drenkova-Tuhtan, A., Szczerba, W., Gellermann, C., Meyer, C., Steinmetz, H. Mandel, K., SEXTL, G.:
“Nanostructured ZnFeZr oxyhydroxide precipitate as efficient phosphate adsorber in waste water: understanding the role of different material-building-blocks“
Environmental Science: Nano (2017)
- (14) Drenkova-Thutan, A., Schneider, M., Franzreb, M., Meyer, C., Gellermann, C., SEXTL, G., Mandel, K., Steinmetz, H.:
„Pilot-scale removal and recovery of dissolved phosphate from secondary wastewater effluents with reusable ZnFeZr adsorbent@ Fe₃O₄/SiO₂ particles with magnetic harvesting“
Water Research 109 (2017) 77 – 87
- (15) Stichel, T., Hecht, B., Steenhusen, S., Houbertz, R., SEXTL, G.:
“Tow-photon polymerization setup enables experimental mapping and correction of spherical aberrations for improved macroscopic structure fabrication”
Optic Letters 41 (18) (2016) 4269 – 4276
- (16) Brede, F., Mühlbach, F., SEXTL, G., Müller-Buschbaum, K.:
“Mechanochemical and thermal formation of 1H-benzotriazolecoordination polymers and complexes of 3d-transition metals with intriguing dielectric properties”
Dalton Transactions 26 (2016)
- (17) Brede, F., Heine, J., SEXTL, G., Müller-Buschbaum, K.:
„Mechanochemical Synthesis of 3d Transition–Metal–1,2,4–Triazole Complexes as Precursors for Microwave–Assisted and Thermal Conversion to Coordination Polymers with a High Influence on the

Dielectric Properties“

Chemistry 18 (2016) 2708 – 2718

- (18) Drenkova–Tuhtan, A., Schneider, M., Mandel, K., Meyer, C., Gellermann, C., Sextl, G., Steinmetz, H.:
„Influence of cation building blocks of metal hydroxide precipitates on their adsorption and desorption capacity for phosphate in wastewater – A screening study“
Colloids and Surface A: Physicochemical and Engineering Aspects 488 (2016) 145 - 153
- (19) Mandel, K., Granath, T., Wehner, T., Rey, M., Stracke, W., Vogel, N., Sextl, G., Müller-Buschbaum, K.:
„Smart Optical Composite Materials: Dispersions of Metal-Organic Framework@ Superparamagnetic Microrods for Switchable Isotropic-Anisotropic Optical Properties“
ACS nano (2016)
- (20) Röder, M., Beleke, A., Guntow, U., Bünsow, J., Guerfi, A., Posset, U., Lormann, H., Zaghbi, K., Sextl, G.:
“Li₄Ti₅O₁₂ and LiMn₂O₄ thin-film electrodes on transparent conducting oxides for all-solid-state and electrochromic applications”
Journal of Power Sources 301 (2016) 35 -40
- (21) Flegler, A., Hartmann, S., Weinrich, H., Kapuschinski, M., Settelein, J., Lormann, H., and Sextl, G.:
„Manganese Oxide Coated Carbon Materials as Hybrid Catalysts for the Application in Primary Aqueous Metal-Air Batteries“
Journal of Carbon Research (2016) C2
- (22) Bach, T. C., Schuster, S. F., Fleder, E., Müller, J., Brand, M. J., Lormann, H., Jossen, A., Sextl, G.:
“Nonlinear aging of cylindrical lithium-ion cells linked to heterogeneous compression.”
Journal of Energy Storage Vol. 5 (2016) 215 – 223
- (23) Schuster, S. F., Bach, T., Fleder, E., Müller, J., Sextl, G., Jossen, A.:
“Nonlinear aging characteristics of lithium-ion cells under different operational conditions.”
Journal of Energy Storage Vol. 1 (2015) 44 - 53
- (24) Mandel, K.; Straßer, M.; Granath, T.; Dembski, S.; Sextl G.:
“Surfactant free superparamagnetic iron oxide nanoparticles for stable ferrofluids in physiological solutions.”
Chemical Communications 51 (2015)

- (25) Drenkova–Tuhtan, A., Mandel, K., Paulus, A., Meyer, C., Hutter, F., Gellermann, G., SEXTL, G., Franzreb, M, Steinmetz, H.:
 “Phosphate recovery from wastewater using engineered superparamagnetic particles modified with layered double hydroxide ion exchangers.”
 Journal of Water Research 47 15 (2013) 5670–5677
- (26) Brede, F.; Mandel, K.; Schneider, M.; SEXTL, G.; Müller-Buschbaum, K.:
 “*Mechanochemical surface functionalisation of superparamagnetic microparticles with in-situ formed crystalline metal-complexes: a fast novel core-shell-particle Information method.*”
 Chemical Communications 51 (2015) 8687-8690
- (27) Brand, M. J., Schuster, S. F., Bach, T., Fleder, E., Stelz, M., Gläser, S., Müller, J., SEXTL, G., Jossen, A.:
 “*Effects of mechanical vibrations on lithium-ion cells.*”
 Journal of Power Sources, Vol. 288 (2015) 62-69
- (28) Stichel, T., Hecht, B., Houbertz, R. & SEXTL, G.:
 “*Compensation of spherical aberration influences for two-photon polymerization patterning of large 3D scaffolds. Applied Physics A, Material Science & Processing.*”
 ISSN 0947-8396, Springer Applied Physics A (2015)
- (29) Milde, M., Dembski, S., Osvet, A., Batentschuk, M., Winnacker, A., SEXTL, G.:
 “*Polymer-assisted sol-gel process for the preparation of photostimulable core/shell structured SiO₂/Zn₂SiO₄:Mn²⁺ particles*”
 Materials Chemistry and Physics 148 (2014) 1055 - 1064
- (30) Settelein, J., Hartmann, S., Güthlein, F., Gelbke, M., Wagner, R., Trapp, V., SEXTL, G.:
 “*Influence of the interactions between carbon and organic expanders on the crystallization behavior of lead in lead-acid battery electrodes*”
 Conference Paper ELBC (2014)
- (31) Mandel K., Kolb C., Straßer M., Dembski S., SEXTL G.:
 “*Size controlled iron oxide nano octahedra obtained via sonochemistry and natural ageing.*”
 Colloids and Surfaces A: Physicochemical and Engineering Aspects, 457 (2014) 27–32
- (32) Oertel, T., Hutter, F., Helbig, U., SEXTL, G.:
 “*Amorphous silica in ultra-high performance concrete:First hour of hydration.*”
 Journal Cement and Concrete Research 58 (2014) 131–142

- (33) Oertel, T., Hutter, F., SEXTL, G., Helbig, U., Kletti, H.:
"Influence of amorphous silica on the hydration in ultra-high Performance concrete."
 Journal Cement and Concrete Research 58 (2014) 121–130
- (34) SEXTL, G.:
"Employing instead of consuming Resources"
 Nachrichten aus der Chemie 61 (2013) 1034
- (35) K. Mandel, A. Drenkova–Tuhtan, F. Hutter, C. Gellermann, H. Steinmetz, G. SEXTL
"Layered double hydroxide ion exchangers on superparamagnetic microparticles for recovery of phosphate from waste water"
 Journal of Materials Chemistry A 1 (2013) 1840 – 1848
- (36) J.–Ch. Rybak, M. Hailmann, P. R. Matthes, A. Zurawski, J. Nitsch, A. Steffen, J. G. Heck, C. Feldmann, S. Götzendörfer, J. Meinhardt, G. SEXTL, H. Kohlmann, S. J. Sedlmaier, W. Schnick, K. Müller–Buschbaum
"Metal–Organic Framework Luminescence in the Yellow Gap by Codoping of the Homoleptic Imidazolate $^3_{\infty}[Balm_2]:Eu^{2+}$ with Divalent Europium"
 J. Am. Chem. Soc. 135 (18) (2013) 6896 – 6902
- (37) K. Mandel, F. Hutter, C. Gellermann, G. SEXTL
 „Reusable superparamagnetic nanocomposite particles for magnetic separation of iron hydroxide precipitates to remove and recover heavy metal ions from aqueous solutions“
 Separation and Purification Technology 109 (2013) 144 – 147
- (38) D. Platte, U. Helbig, R. Houbertz, G. SEXTL
 “Microencapsulation of Alkaline Salt Hydrate Melts for Phase Change Applications by Surface Thiol–Michael Addition Polymerization”
 Macromol. Mater. Eng 298 (2013) 67 – 77
- (39) K. Mandel, F. Hutter, C. Gellermann, G. SEXTL
 „Stabilisation effects of superparamagnetic nanoparticles on clustering in nanocomposite microparticles and on magnetic behaviour“
 Journal of Magnetism and Magnetic Materials 331 (2013) 269 – 275

- (40) T. Oertel, F. Hutter, R. Tänzer, U. Helbig, G. SEXTL
“Primary particle size and agglomerate size effects of amorphous silica
in ultra-high performance concrete.”
Cement Concrete Comp (2013)
- (41) G. SEXTL, T. Brämer, C. Gellermann, A. Reller
„Technologien für die Zukunft – Anorganische Rohstoffbasis im Wandel“
Chemie Ingenieur Technik 85 (2012) 977 – 985
- (42) K. Mandel, F. Hutter, C. Gellermann, G. SEXTL
„Superparamagnetische Partikel für Abwasserreinigung“
Proc. ProcessNet-Jahrestagung 2012, Chemie Ingenieur Technik 84
(2012) 1382 – 1383
- (43) U. Posset, M. Harsch, A. Rougier, B. Herbig, G. Schottner, G. SEXTL
„Environmental assessment of electrically controlled variable light
transmittance devices“
RSC Advances 2 (2012) 5990 – 5996
- (44) K. Mandel, F. Hutter, C. Gellermann, G. SEXTL
„Modified Superparamagnetic Nanocomposite Microparticles for Highly
Selective Hg(II) and Cu(II) Separation and Recovery from Aqueous
Solutions“
ACS Applied Materials and Interfaces 4 (2012) 5633 – 5642
- (45) K. Mandel, W. Szczerba, A. F. Thünemann, H. Riesemeier, M. Girod, G.
SEXTL
„Nitric acid-stabilized superparamagnetic iron oxide nanoparticles
studied with X-rays“
Journal of Nanoparticles Research 14 (2012) 1066– 1075
- (46) D. Platte, U. Helbig, R. Houbertz, G. SEXTL
“Localization of Critical Molar Ratio Intervals for Highly Branched Step-
Growth Michael Addition Networks”
Macromolecules 44 (2011) 5123 – 5126
- (47) K. Mandel, F. Hutter, C. Gellermann, G. SEXTL
„Synthesis and stabilisation of superparamagnetic iron oxide
nanoparticle dispersions“

Colloids and Surfaces A: Physicochemical and Engineering Aspects, 390 (2011) 3748 – 3752

- (48) R. Houbertz, S. Steenhusen, T. Stichel, G. Sextl
“Two-Photon Polymerization of Inorganic–Organic Hybrid Polymers as Scalable Technology Using Ultra-Short Laser Pulses”
Book “Coherence and Ultrashort Pulse Laser Emission”, ISBN 978–953–307–242–5, edited by F. J. Duarte
- (49) A. Bock, R. Houbertz, G. Sextl
“Correlation of organic cross-linking behavior and optical properties of inorganic–organic hybrid polymers”
Proc. Photonoc West (2010)
- (50) T. Stichel, B. Hecht, R. Houbertz, G. Sextl
“Two-photon Polymerization as Method for the Fabrication of Large Scale Biomedical Scaffold Applications”
JLMN–Journal of Laser Micro/Nanoengineering, Vol. 5, No. 3 (2010) 209 – 212
- (51) S. Steenhusen, Th. Stichel, R. Houbertz, G. Sextl
“Multi-Photon polymerization of inorganic– organic hybrid polymers using visible or IR ultra-fast laser pulses for optical or (opto-)electronic devices”
Proc. SPIE, Vol. 7591, 759114 (2010)
- (52) S. Steenhusen, R. Houbertz, G. Sextl
“3D sub-diffraction limit patterning of hybrid polymers with visible and infrared laser pulses”
Proc. LMP (Laser Precision Microfabrication) 2010
- (53) S. M. Kumbar, T. Selvam, C. Gellermann, T. Ballweg, J. Breu, G. Sextl
“Fabrication of ORMOCER–zeolite Beta mixed matrix membranes using dimethyldiethoxysilane (DMDES) as ORMOCER siloxane network modifier”

- To be submitted to Journal of Membrane Science (2010)
- (54) S. M. Kumbar, T. Selvam, C. Gellermann, T. Ballweg, H. Wolter, G. Sextl
„Influence of processing parameters on the photopolymerization of glycerinedimethacrylateurethanetriethoxysilane (GUS)–based ORMOCER®s”
To be submitted to Journal of Sol–Gel Science and Technology (2010)
- (55) S. M. Kumbar, T. Selvam, C. Gellermann, W. Storch, T. Ballweg, J. Brey, G. Sextl
„ORMOCER®s (organic–inorganic hybrid copolymers)–zeolite Beta (BEA) nanocomposite membranes for gas separation applications”
Journal of Membrane Science, 347 (2010) 132 – 140
- (56) Bock, T. Pieper, R. Houbertz, G. Sextl
“Impact of technological processing conditions on optical properties of inorganic–organic hybrid polymers”
Proc. Photonic West (2009)
- (57) B. Pietschmann, M. Weiß, T. Selvam, G. Sextl
“Immobilization of ionic liquids within micro– and mesoporous materials”
Studies in Surface Science and Catalysis 174A (Zeolites and Related Materials) (2008) 325 – 328
- (58) Sextl, G., Haas, K.–H.
“Maßgeschneiderte Nanomaterialien/–partikel als Schlüssel für innovative Bauwerkstoffe”
Schriftenreihe Baustoffe und Massivbau der Universität Kassel, Heft 8, 16 – 24
- (59) Sextl, G., Righi, M.–L.
“Neue Materialien – Starke Schlüsseltechnologien in Bayern”
Wirtschaftsstandort Freistaat Bayern, Europ. Wirtschaftsverlag

(2007/2008) 90 – 95

- (60) M. Duisberg, M. Lopez, K. Seitz, G. Sextl
„Brennstoffzellen“, Winnacker und Küchler: Chemische Technik – Prozesse und Produkte, 5. Auflage, Band 4, Wiley-VCH (2005) 1107
- (61) Albers, P., M. Lopez, G. Sextl, G. Jeske, S.F. Parker
„Inelastic neutron scattering investigation on the site-occupation of atomic hydrogen on platinum particles of different size“
J. Catal. 22 (2004) 44
- (62) Reuter, R., R. Zimmermann, G. Sextl, P. Kleinschmit und R. Schwarz (Degussa AG), „Verfahren zur Aufbereitung von Fällungskieselsäure und deren Verwendung zur Wärmedämmung“, EP 0 355 295 (1994), Jap. Pat. 2 592 960 (1996), Taiwan-Pat. 053 479 (1992)
- (63) Albers, P., Lennon, D., Lopez, M., McInroy, A., Parker, S., Sextl, G., Sutherland, I., Taylor, J.
“Inelastic neutron scattering studies of hydrogen on fuel cell catalysts.”
Vibrational Spectroscopy 35 (2004) 179
- (64) K. A. Starz, J. Koehler, K. Ruth, G. Sextl and M. Vogt
“Dynamic and Steady-State Methods for Evaluation of CO-Tolerant Electrocatalysts and Membrane-Electrode-Assemblies”
Fuel Cells 2 (2002) 20
- (65) H. Dziallas, G. Sextl, K.-A. Starz and S. Wieland
“OMG – a new member of the fuel cell community with a lot of experience and a large technological background”
Fuel Cells Bulletin (2002) 9
- (66) Evers, J., G. Oehlinger and G. Sextl
“LiSi, a unique Zintl phase – although stable, it long evaded synthesis”
Eur. J. Solid State Inorg. Chem. t. 34, (1997) 773
- (67) Knorr, R., Thi Phung Hoang, J. Mehlstäubl, M. Hintermeyer-Hilpert, H.D. Lüdemann, E.W. Lang, G. Sextl, W. Rattay, P. Böhler
“Lone-Electron Pair Donor Quality of the Imino Function: Increased Front

Strain and Electronic Substituent Effects on Sterically Accelerated Nitrogen Inversion in Imino-cyclopentanes

Chem. Ber. 126 (1993) 217

- (68) Evers, J., G. Oehlinger und G. Sextl
„Hochdruck-Synthese von LiSi: Raumnetzstruktur aus dreibindigen Si⁻-Ionen“
Angew. Chem. 105 (1993) 1532; Angew. Chem. Int. Ed. Engl. 32 (1993) 1442
- (69) Reuter, R., G. Sextl und H. Strack
„Vakuumisolation auf Kieselsäurebasis“
Die Kälte und Klimatechnik 45 (1992) 782
- (70) Sextl, G.
„Hochdruck-Untersuchungen an Alkalimonosiliciden und -monogermaniden“
Dissertation der Fakultät für Chemie und Pharmazie der Ludwig-Maximilians-Universität München (1987)
- (71) Evers, J., G. Oehlinger, G. Sextl, H.-O. Becker
„Hochdruck-LiGe mit Schichten aus zwei- und vierbindigen Ge-Atomen“
Angew. Chem. 99 (1987) 69; Angew. Chem. Int. Ed. Engl. 26 (1987) 76
- (72) Evers, J., G. Oehlinger, G. Sextl, A. Weiß
„NaGe bei hohen Drücken auch im NaPb-Typ“
Angew. Chem. 97 (1985) 499; Angew. Chem. Int. Ed. Engl. 24 (1985) 500
- (73) Evers, J., G. Oehlinger, G. Sextl, A. Weiß
„Hochdruck-Phasen von KSi, KGe, RbSi, RbGe, CsSi und CsGe im NaPb-Typ“
Angew. Chem. 96 (1984) 512; Angew. Chem. Int. Ed. Engl. 23 (1984) 528
- (74) Frank, E., G. Sextl, W. Weigand
„Singulett-Sauerstoff“
Praxis (Chemie) 32 (1983) 71

- (75) Sextl, G.
„Chemische Oszillationen – katalysierte Bromierung von Malonsäure“
Praxis (Chemie) 29 (1980) 97
- (76) Sextl, G., R. Schwankner, M. Eiswirth
„Das Experiment: Abiogene Bildung von Aminosäuren“
Biol. Unserer Zeit 10 (1980) 23
- (77) Sextl, G., R. Schwankner
*„Ein Beitrag zur Neufassung des Stanley-Miller-Experiments zur
abiogenen Aminosäuresynthese“*
Praxis (Chemie) 26 (1977) 309

Patente

- [1] R. Houbertz-Krauß, G. Sextl, U. Helbig, D. Platte, A. Punnoose
„Verfahren zum Verkapseln von Latentwärmespeichermaterialien sowie damit erhaltende Produkte“,
DE 10-2008-015302 A1 (2009)

- [2] R. Houbertz-Krauß, G. Sextl, U. Helbig, D. Platte, A. Punnoose
„Method for Encapsulating Latent Heat Storage Material and Products obtained thereby“
WO 2009-115468 A1 (2009)

- [3] H. Böse, A. Trendler, M. Binnewies, L. Müller
„Magnetorheologische Materialien mit oberflächenfunktionalisierten Partikeln“
zum Patent angemeldet

- [4] Sextl, G., S. Bartelt, K. Wilmes, R. Reuter, R. Schwarz, F. Worch (Degussa AG)
„Verfahren zum Verdichten von pulverförmigen Stoffen“
EP 0 618 065 (1996), US-Pat. 5,580,537 (1996), Jap. Pat. 2 519 021 (1996), Taiwan-Pat. 070 299 (1995), Austral. Pat. 671 714 (1996)

- [5] Reuter, R., G. Sextl, H. Strack (Degussa AG)
„Vakuuminisationspanel mit asymmetrischem Aufbau“
EP 0 463 311 (1993), US-Pat. 5,316,816 (1994), Jap. Pat. 2 599 515 (1997)

- [6] Sextl, G., R. Reuter, H. Strack, P. Kleinschmit, R. Schwarz (Degussa AG)
„Formkörper zur Wärmedämmung“
EP 0 446 486 (1993), US-Pat. 5,236,758 (1993), Jap. Pat. 2 518 972 (1996)

- [7] Sextl, G., H. Strack, I. Fuß, R. Reuter, P. Kleinschmit, R. Schwarz (Degussa AG)
„Formkörper zur Wärmedämmung“

EP 0 396 961 (1992), *US-Pat. 5,316,816* (1994), *Jap. Pat. 2 619 970* (1997)

[8] Sextl, G., R. Reuter, P. Kleinschmit, R. Schwarz, I. Sporys (Degussa AG)
„Formkörper zur Wärmedämmung“
US-Pat. 5,362,541 (1994), *Taiwan-Pat. 43 054* (1991)

[9] Reuter, R., R. Zimmermann, G. Sextl, P. Kleinschmit, R. Schwarz
(Degussa AG)
*„Verfahren zur Aufbereitung von Fällungskieselsäure und deren
Verwendung zur Wärmedämmung“*
EP 0 355 295 (1994), *Jap. Pat. 2 592 960* (1996), *Taiwan-Pat. 053 479*
(1992)