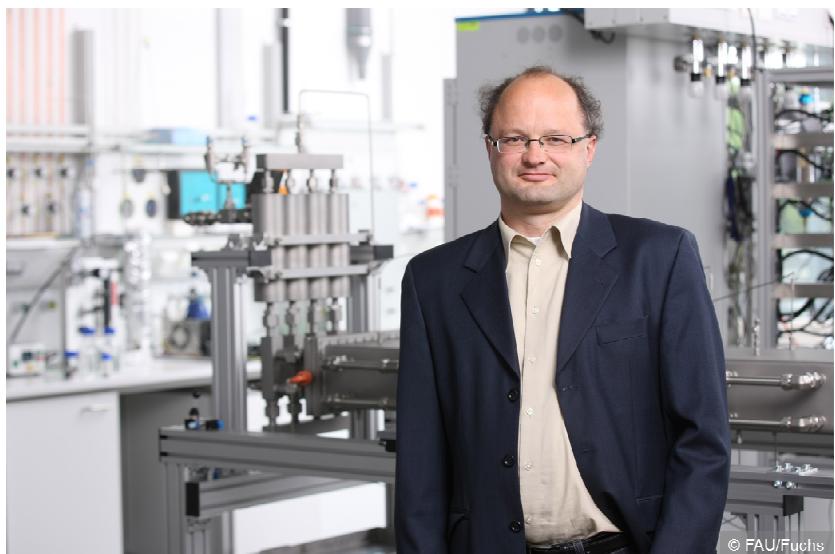


Institut für Chemie- und Bioingenieurwesen

**Lehrstuhl für
Chemische Reaktionstechnik**

Telefon Erlangen, den
+49 9131 85-27420

E-Mail
wasserscheid@crt.cbi.uni-erlangen.de



© FAU/Fuchs

Lebenslauf

Persönliche Daten

Name:	Prof. Dr. Peter Wasserscheid
Geburtsdatum:	23.10.1970
Geburtsort	Würzburg
Staatsangehörigkeit:	deutsch
Familienstand:	verheiratet, drei Töchter (* 2000, 2002, 2005)

Schulbildung

1977-1981	Grundschule St. Martin, Bamberg
1981-1990	Kaiser-Heinrich-Gymnasium, Bamberg

Grundwehrdienst

7/1990-7/1991	Deutsch-Französische Brigade, Böblingen
---------------	---

Studium und wissenschaftlicher Werdegang

4/1991	Studienbeginn an der RWTH Aachen: Chemie/Diplom
1/1993	Diplom-Vorprüfung
3/1995	Diplom-Hauptprüfung
4/1995-10/1995	Diplomarbeit am Institut für Technische Chemie und Petrolchemie der RWTH Aachen bei Herrn Prof. Dr. W. Keim: <i>"Zur Ni-katalysierten Lineardimerisierung von 1-Buten in ionischen Flüssigkeiten".</i> (mit Auszeichnung)
10/1995-5/1998	Promotion am Institut für Technische Chemie und Petrolchemie der RWTH Aachen bei Herrn Prof. Dr. W. Keim: <i>"Zur Verwendung ionischer Flüssigkeiten – am Beispiel der Dimerisierung von 1-Buten".</i> (mit Auszeichnung)
4/1998-8/1998	Industrie-postdoc bei BP Chemicals Sunbury/Großbritannien
8/1998-1/2003	Habilitation am Institut für Technische Chemie und Makromolekulare Chemie der RWTH Aachen. <i>"Ionic liquids – a new Solvent Concept for Catalysis".</i>

9/1999-8/2001	Mitglied der Geschäftsführung der Solvent Innovation GmbH, Köln
seit 9/2001	Scientific Supervisor bei der Solvent Innovation GmbH, Köln (heute 10 Mitarbeiter)
seit 9/2003	C4-Professor am Lehrstuhl für Chemische Reaktionstechnik der Universität Erlangen/Nürnberg (Nachfolge Prof. G. Emig)
11/2003 – 9/2005	Stellvertretender geschäftsführender Vorstand des Instituts für Chemie- und Bioingenieurwesen der Universität Erlangen-Nürnberg.
10/2005 – 9/2010	Geschäftsführender Vorstand des Instituts für Chemie- und Bioingenieurwesen der Universität Erlangen-Nürnberg.
7/2009	Ruf an die EPFL Lausanne, Schweiz auf die Stelle eines Full Professors für Chemische Reaktionstechnik – Ruf abgelehnt.
seit 10/2010	Stellvertretender geschäftsführender Vorstand des Instituts für Chemie- und Bioingenieurwesen der Universität Erlangen-Nürnberg.
1/2013	Gründungsgesellschafter der Hydrogenious Technologies GmbH, Nürnberg
3/2014	Gründungsdirektor des Helmholtz-Instituts Erlangen-Nürnberg für „Erneuerbare Energien“ (HI ERN) und Direktor des Instituts für Energie und Klimaforschung 11 (IEK-11) des Forschungszentrums Jülich

Funktionen

Gutachter für zahlreiche wissenschaftliche Zeitschriften (u. a. Nature, Angewandte Chemie, JACS etc.) und für zahlreiche Einrichtungen zur Forschungsförderung (national und international);

Vertrauensdozent der Bayrischen Eliteakademie (seit 2003);

Sprecher des DECHEMA-Arbeitskreises „Alternative Lösungsmittelsysteme für technische Anwendungen / Advanced Fluids“ (seit April 2005);

Mitglied des Koordinationskreises des Elitestudiengangs „Advanced Materials and Processes“ an der Universität Erlangen-Nürnberg (seit Oktober 2005);

Initiator und Koordinator des DFG Schwerpunktprogramms „Ionische Flüssigkeiten“ (SPP 1191, www.dfg-spp1191.de, 2006 - 2013);

DFG-Fachkollegiat (2008-2016);

Vertreter des Koordinators des Exzellenzclusters „Engineering of Advanced Materials“

Arbeitsfelder

- Reaktionstechnik;
- Nachhaltige und Ressourcen-schonende Chemie;
- Komplexe Katalysatorsysteme und kontinuierliche katalytische Verfahren;
- Ionische Flüssigkeiten;
- Katalysatorsysteme mit geträgerten Flüssig- und Salzfilmen (Supported Ionic Liquid Phase (SILP) catalysis; Solid catalyst with Ionic Liquid Layer (SCILL) catalysis) und flüssig-flüssig-Mehrphasenkatalyse mit ionischen Flüssigkeiten;
- Chemische Energiespeicherung;
- Hydrier- und Dehydrierkatalyse von Liquid Organic Hydrogen Carrier (LOHC)-Systemen;
- Verfahrensentwicklung zur Biomassekonversion zu Ameisensäure;
- Selektive C-C-Verknüpfungsreaktionen mit Chromkomplex-Katalysatoren.

Preise und Auszeichnungen

1989	3. Preis beim Landeswettbewerb (Bayern) "Jugend forscht" in der Sparte Chemie mit der Arbeit: " <i>Elektrisch leitfähige Polymere</i> ".
1990	1. Preis beim Bundeswettbewerb "Jugend forscht" in der Sparte Umwelt mit der Arbeit: " <i>Natürliche</i>

- Polymermatrixverbunde- eine neue Anwendung für Lignin aus dem Organosolv-Verfahren".*
- 1990** 1. Preis beim internationalen **Wettbewerb "Europa's Jugend forscht für die Umwelt"**.
- 1990-1995** Stipendiat im Rahmen der **Hochbegabten-Förderung des Freistaats Bayern**.
- 1990-1995** Stipendiat der **Studienstiftung des deutschen Volkes**.
- 1996** **Springorum-Gedenkmünze** der RWTH Aachen für die mit Auszeichnung bestandene Diplomprüfung.
- 1996** **Friedrich-Wilhelm-Preis** der RWTH Aachen für herausragende wissenschaftliche Leistungen im Rahmen der Diplomarbeit.
- 1996** **DECHEMA-Studentenpreis** für effizienten Studienabschluß im Fach "Technische Chemie".
- 1999** **Borchers-Plakette** der RWTH Aachen für die mit Auszeichnung abgeschlossene Promotion.
4. Preis beim bundesweiten Unternehmensgründer-Wettbewerb „**Science4Life**“ der hessischen Landesregierung (mit der Solvent Innovation GmbH, Köln).
- 2000** **Haltermann-Innovationspreis 2000** (1. Preis) der Haltermann Ascot GmbH, Hamburg für den Beitrag: "*Ionische Flüssigkeiten mit Hexafluorophosphationen - Neue, umweltfreundliche Lösungsmittel für die Zweiphasenkatalyse und zur Stofftrennung*".
- 2000** **Carl-Zerbe-Preis** der DGMK für "*herausragende Arbeiten auf dem Gebiet der Nutzung ionischer Flüssigkeiten als Katalysatoren und zur Katalysatorabtrennung*".
- 2001** **Hochschullehrer-Nachwuchs-Preis** (Technische Chemie) verliehen von der DECHEMA.
- 2001** **DECHEMA-Preis der Max-Buchner-Forschungsstiftung** für "*richtungsweisende Beiträge zur Verwendung ionischer Flüssigkeiten in der Technischen Chemie und der Biotechnologie*".
- 2003** **Innovationspreis der Deutschen Wirtschaft**; Kategorie „start-up“-Unternehmen, mit der Solvent Innovation GmbH, Köln
- 2006** **Gottfried-Wilhelm-Leibniz-Preis** (Förderpreis für deutsche Wissenschaftler im Gottfried-Wilhelm-Leibniz-Programm der Deutschen Forschungsgemeinschaft)
- 2006** Nominiert für den „**Degussa European Science-to-Business Award 2006**“ (dotiert mit 100.000€) gemeinsam mit Dr. Anders Riisager (DTU, Lyngby, Dänemark)

2010	ERC Advanced Investigator Grant: "Engineering of Supported Molten Salt Catalysts for Dehydrogenation Reactions and Hydrogen Production Technologies", H2-SMS-CAT, grant agreement no.: 267376, duration: 1.1.2011 – 31.12.2015; 1.862.400 €.
2013	Honorary Professor at the "Institute for Process Engineering", Chinese Academy of Science, Beijing, China.
2014	Bayerischer Gründerpreis mit der Hydrogenious Technologies GmbH, Erlangen
2014	1. Platz beim deutschlandweiten Science4Life Venture Cup 2014 (Preisgeld 25.000 €) mit der Hydrogenious Technologies GmbH, Erlangen
2016	CATSA Eminent Visitor Award der South African Catalysis Society
2016	Innovationspreis der Deutschen Wirtschaft ; Kategorie „start-up“-Unternehmen, mit der Hydrogenious Technologies GmbH, Erlangen

Veröffentlichungen

- (1) B. Driess-Hölscher, P. Wasserscheid, W. Keim, „Recycle of homogeneous transition metal catalysts in two liquid phases“, *CATTECH* **1998**, 3, 47-52.
- (2) P. Wasserscheid, „Zur Verwendung ionischer Flüssigkeiten – am Beispiel der Dimerisierung von 1-Buten“, Dissertation RWTH Aachen **1998**.
- (3) W. Keim, M. Vogt, P. Wasserscheid, B. Driess-Hölscher, „Perfluorinated polyethers for the immobilisation of homogeneous Nickel-catalyst“, *J. Mol. Cat.* **1999**, 171-175.
- (4) B. Ellis, W. Keim, P. Wasserscheid, „Linear dimerisation of 1-butene in biphasic mode using buffered chloroaluminate ionic liquid solvents“, *Chem. Commun.* **1999**, 337-338.
- (5) W. Keim, D. Vogt, H. Waffenschmidt, P. Wasserscheid, „New method to recycle homogeneous catalysts from monophasic reaction mixtures by using an ionic liquid exemplified for the Rh-catalysed hydroformylation of methyl-3-pentenoate“, *J. Catal.* **1999**, 186, 481-484.
- (6) A. Jess, W. Leuchtenberger, W. Reschetilowski, P. Wasserscheid, „Trendbericht Technische Chemie 1999“, *Nachrichten aus der Chemie* **2000**, 48, 359-363.
- (7) S. Steines, P. Wasserscheid, B. Driess-Hölscher, „An ionic liquid as catalyst medium for stereoselective hydrogenations of sorbic acid with ruthenium complexes“, *J. Prakt. Chem.* **2000**, 342, 348-354.
- (8) P. Wasserscheid, W. Keim, „Ionische Flüssigkeiten – neue „Lösungen“ für die Übergangsmetallkatalyse“, *Angew. Chem.* **2000**, 112, 3926-3945.
- (9) P. Wasserscheid, H. Waffenschmidt, „Ionic liquids in regioselective, Platinum catalysed hydroformylation“, *J. Mol. Cat.* **2000**, 164, 61-67.
- (10) C. C. Brasse, U. Englert, A. Salzer, H. Waffenschmidt, P. Wasserscheid, „Ionic Phosphine Ligands with Cobaltocenium-Backbone – Novel Ligands for Highly

- Selective, Biphasic , Rh-catalysed Hydroformylation of 1-Octene using ionic liquids“, Organometallics **2000**, 19, 3818-3823.
- (11) P. Wasserscheid, A. Jess, M. Eichmann, „Zweiphasige Dimerisierung von Propen in ionischen Flüssigkeiten“, Chem.-Ing.-Technik **2000**, 72, 991-992.
 - (12) R. D. Köhn, M. Haufe, G. Kociok-Köhn, S. Grimm, P. Wasserscheid, W. Keim, „Eine neuartige Umsetzung für α -Olefine: Selektive Trimerisierung mit Triazacyclohexan-Komplexen des Chroms als Katalysatoren“, Angew. Chem. **2000**, 112, 4519-4522.
 - (13) P. Wasserscheid, „Ionische Flüssigkeiten – innovative Lösungsmittel“, Nachrichten aus der Chemie **2001**, 49, 12-16.
 - (14) P. Wasserscheid, M. Eichmann, „Selective dimerisation in biphasic mode using buffered chloroaluminate ionic liquid solvents – design and application of a continuous loop reactor“, Catalysis Today **2001**, 66(2-4), 309-316.
 - (15) M. Medved, P. Wasserscheid, T. Melin, „Potential Use of Ionic Liquids in Membrane Technology Applications“, Proceedings of the 8th Aachener Membran Kolloquium **2001**, II-123 – II-127.
 - (16) S. H. Schöfer, N. Kaftzik, P. Wasserscheid, U. Kragl, „Enzyme catalysis in ionic liquids II: Lipase catalysed kinetic resolution of 1-phenylethanol with improved enantioselectivity“, Chem. Commun. **2001**, 425-426.
 - (17) P. Wasserscheid, H. Waffenschmidt, P. Machnitzki, K. W. Kottsieper, O. Stelzer, „Cationic Phosphine Ligands with Guanidiniumphenyl Modified Xanthene Moieties – A Successful Concept for Highly Regioselective, Biphasic Hydroformylation of Oct-1-ene in Hexafluorophosphate Ionic Liquids“, Chem. Commun. **2001**, 451-452.
 - (18) P. Wasserscheid, C. M. Gordon, C. Hilgers, M. J. Muldoon, I. R. Dunkin, „Ionic liquids: Polar, but Weakly Coordinating solvents for the First Biphasic Oligomerisation of Ethene to Higher α -Olefins with cationic Ni-Complexes“, Chem. Commun. **2001**, 1186-1187.
 - (19) M. Medved, P. Wasserscheid, T. Melin, „Ionic Liquids as Active Separation Layer in Supported Liquid Membranes“, Chem.-Ing.-Technik **2001**, 73, 715.
 - (20) A. Bösmann, G. Franciò, E. Janssen, M. Solinas, W. Leitner, P. Wasserscheid, „Activation, Tuning and Immobilisation of Homogeneous Catalysts in an Ionic Liquid/Compressed CO₂ Continuous Flow System“, Angew. Chem. **2001**, 113, 2769-2771 (**Very Important Paper**).
 - (21) D. J. Brauer, K. W. Kottsieper, C. Liek, O. Stelzer, H. Waffenschmidt, P. Wasserscheid, „Phosphines with 2-Imidazolium and para-Phenyl-2-imidazolium Moieties . Synthesis and Application in Two-Phase Catalysis“, J. Organomet. Chem. **2001**, 630(2), 177-184.
 - (22) U. Kragl, N. Kaftzik, S. H. Schöfer, M. Eckstein, P. Wasserscheid, C. Hilgers „Enzyme Catalysis in the Presence of Ionic Liquids“, Chemistry Today **2001**, 19(7/8), 22-24.
 - (23) K. W. Kottsieper, O. Stelzer, P. Wasserscheid, „1-Vinylimidazole – a Versatile Building Block for the Synthesis of Cationic Phosphines Useful in Ionic Liquids Biphasic Catalysis“, J. Mol. Catal. **2001**, 175(1-2), 285-288.
 - (24) A. Bösmann, L. Datsevich, A. Jess, A. Lauter, C. Schmitz, P. Wasserscheid, „Deep desulphurization of diesel fuel by extraction with ionic liquids“, Chem. Commun. **2001**, 2494-2495.

- (25) P. Wasserscheid, S. Grimm, R. Köhn, M. Haufe „Synthesis of Synthetic Lubricants by Homogeneous Cr-catalyzed Trimerisation of 1-Decene and 1-Dodecene“, *Adv. Synth. Catal.* **2001**, 343, 814-818.
- (26) D. S. McGuinness, W. Müller, P. Wasserscheid, K. J. Cavell, B. Skelton, A. H. White, U. Englert, „Ni^{II} Heterocyclic Carbene Complexes as Catalysts for Olefin Dimerisation in an Imidazolium Chloroaluminate Ionic Liquid“, *Organometallics* **2002**, 21, 175-181.
- (27) Peter Wasserscheid, „Application of cationic Nickel(II) complexes with biphenylphosphine monoxide ligands Ph₂P(CH₂)_nP(O)Ph₂ (n= 1-3) in ethylene oligomerization“ in W. A. Herrmann (Hrsg.) „Synthetic Methods of Organometallic and Inorganic Chemistry“ **2002**, 10, 180-184, Thieme, Stuttgart.
- (28) P. Wasserscheid, A. Bösmann, C. Bolm, „Synthesis and Properties of Ionic Liquids Derived From the Chiral Pool“, *Chem. Commun.* **2002**, 200-201.
- (29) J. Zimmermann, P. Wasserscheid, I. Tkatchenko, S. Stutzmann, „Biphasic Dimerisation of Methacrylate – Immobilisation and Stabilisation of Cationic Pd-catalysts in Ionic Liquids by an Ammoniumphosphine Ligand“, *Chem. Commun.* **2002**, 760-761.
- (30) P. Wasserscheid, M. Sesing, W. Korth, „Hydrogensulfate- and Tetrakis(hydrogensulfato)borate Ionic Liquids – Synthesis and Catalytic Application in Highly Brønsted-acidic systems for Friedel-Crafts Alkylation“, *Green Chem.* **2002**, 4, 134-138.
- (31) M. Eckstein, P. Wasserscheid, U. Kragl, „Enhanced enantioselectivity of lipase from *Pseudomonas* sp. at high temperatures and fixed water activity in the ionic liquid, 1-butyl-3-methylimidazolium bis(trifluoromethylsulfonyl)amide“, *Biotechn. Lett.* **2002**, 24, 763-767.
- (32) N. Kaftzik, P. Wasserscheid, U. Kragl, „Use of Ionic Liquids to Increase the Yield and Enzyme Stability in the β-Galactosidase Catalysed Synthesis of N-Acetylglucosamine“, *Org. Proc. Res. & Develop.* **2002**, 6(4), 553-557.
- (33) P. Wasserscheid, R. van Hal, A. Bösmann, „1-n-butyl-3-methylimidazolium([BMIM]) octylsulfate – an even ‘greener’ ionic liquid“, *Green Chem.* **2002**, 4, 400-404.
- (34) P. Wasserscheid, "Biphasic hydroformylation of 1-octene using ionic liquids as catalyst phase" in R. Rogers, K. R. Seddon (Eds.) „Ionic Liquids – Industrial Applications to Green Chemistry“, ACS Symposium Series 818, The American Chemical Society, Washington D.C., **2002**, 373-387.
- (35) A. Jess, P. Wasserscheid, „Tiefenschwefelte Kraftstoffe“, *Umweltwissenschaften und Schadstoff-Forschung, Zeitschrift für Umweltchemie und Ökotoxikologie (UWSF – Z. Umweltchem. Ökotox.)* **2002**, 14, 145-154.
- (36) M. Krummen, P. Wasserscheid, J. Gmehling, „Measurement of Activity Coefficients at Infinite Dilution in Ionic Liquids Using the Dilutor Technique“, *J. Chem. Eng. Data* **2002**, 47, 1411-1417.
- (37) P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis“, Wiley-VCH, Weinheim, **2002**, Buch mit 355 Seiten.
- (38) C. Hilgers, P. Wasserscheid in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis“; „Quality Aspects and Other Questions Related to Commercial Ionic Liquid Production“, Wiley-VCH, Weinheim, **2002**, pp. 21-33.
- (39) P. Wasserscheid in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis“; „Ionic Liquids in Transition Metal Catalysis“, Wiley-VCH, Weinheim, **2002**, pp. 281-288.

- (40) P. Wasserscheid in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis“; „Outlook“, Wiley-VCH, Weinheim, **2002**, pp. 348-355.
- (41) P. Wasserscheid, „Ionic liquids – innovative Lösungsmittel für die Zweiphasenkatalyse“, Chemie in unserer Zeit **2003**, 37, 52-63.
- (42) D. S. McGuinness, P. Wasserscheid, W. Keim, C. Hu, U. Englert, J. T. Dixon, C. Grove, „Novel Cr-PNP complexes as catalysts for the trimerisation of ethylene“, Chem. Commun. **2003**, 334-335.
- (43) P. Wasserscheid in D. Rogers, K. R. Seddon (eds.) „Green Industrial Applications of Ionic Liquids“, „Potential to Apply Ionic Liquids in Industry“, NATO Science Series, II: Mathematics, Physics and Chemistry, **2003**, 92, 29-47.
- (44) M. P. Atkins, C. Bowlas, B. Ellis, F. Hubert, A. Rubatto, P. Wasserscheid in D. Rogers, K. R. Seddon (eds.) „Green Industrial Applications of Ionic Liquids“, „Ionic Liquids as catalyst for ethylbenzene production“, NATO Science Series, II: Mathematics, Physics and Chemistry, **2003**, 92, 49-66.
- (45) J. Zimmermann, I. Tkatchenko, P. Wasserscheid, „Mono- and bidentate phosphine ligands in the palladium-catalyzed methylacrylate dimerization“, Adv. Synth. & Catal. **2003**, 345, 402-409.
- (46) M. Picquet, S. Stutzmann, I. Tkatchenko, I. Tommasi, J. Zimmermann, P. Wasserscheid, „Selective palladium-catalysed dimerisation of methyl acrylate in ionic liquids: towards a continuous process“, Green Chemistry **2003**, 5, 153-162.
- (47) D. Ballivet-Tkatchenko, M. Picquet, M. Solinas, G. Francio, P. Wasserscheid, W. Leitner, „Acrylate dimerisation under ionic liquid-supercritical carbon dioxide conditions“, Green Chemistry **2003**, 5, 232-235.
- (48) D. S. McGuinness, P. Wasserscheid, W. Keim, D. Morgan, J. T. Dixon, A. Bollmann, H. Maumela, F. Hess, U. Englert, „First Cr(III)-SNS Complexes and Their Use as Highly Efficient Catalysts for the Trimerization of Ethylene to 1-Hexene“, J. Am. Chem. Soc. **2003**, 125, 5272-5273.
- (49) J. Hoffmann, M. Nüchter, B. Ondruschka, P. Wasserscheid, „Ionic liquids and their heating behaviour during microwave irradiation - a state of the art report and challenge to assessment“, Green Chemistry **2003**, 5(3), 296-299.
- (50) J. H. Antony, D. Mertens, A. Dölle, P. Wasserscheid, W. R. Carper, „Molecular reorientational dynamics of the neat ionic liquid 1-butyl-3-methylimidazolium hexafluorophosphate by measurement of ¹³C nuclear magnetic relaxation data“, ChemPhysChem **2003**, 4(6), 588-594.
- (51) P. Wasserscheid, B. Drießen-Hoelscher, R. van Hal, H. C. Steffens, J. Zimmermann, „New, functionalised ionic liquids from Michael-type reactions-a chance for combinatorial ionic liquid development“, Chem. Commun. **2003**, 2038-2039.
- (52) W. R. Carper, Z. Meng, Zhizhong, P. Wasserscheid, A. Dölle, „NMR relaxation studies and molecular modeling of 1-butyl-3-methylimidazolium PF₆ [BMIM][PF₆]“, Proceedings - Electrochemical Society **2002**, 2002-19(Molten Salts XIII), 973-982 [Chem. Abstr. **2003**, 684263].
- (53) P. Wasserscheid, R. van Hal, A. Bösmann, „New, halogen-free ionic liquids - synthesis, properties, and applications“, Proceedings - Electrochemical Society **2002**, 2002-19(Molten Salts XIII), 146-154 [Chem. Abstr. **2003**, 684180].
- (54) P. Wasserscheid in H.-G. Schmalz, T. Wirth (eds.) “Organic Synthesis Highlights V”, „Recent developments in using ionic liquids as solvents and catalysts for organic synthesis“ **2003**, pp. 105-117, Wiley-VCH, Weinheim.

- (55) M. Picquet, I. Tkatchenko, I. Tommasi, P. Wasserscheid, J. Zimmermann, „Ionic liquids, synthesis and utilisation of protic imidazolium salts in homogeneous catalysis“, *Adv. Synth. & Catal.* **2003**, 345(8), 959-962.
- (56) A. Riisager, P. Wasserscheid, R. van Hal, R. Fehrmann „Propene and 1-Octene Hydroformylation with Silica-Supported, Ionic Liquid-Phase (SILP) Rh-Phosphine Catalysts in Continuous Fixed-Bed Mode“, *Catalysis Letters* **2003**, 90(3-4), 149-153.
- (57) A. Riisager, P. Wasserscheid, R. van Hal, R. Fehrmann, „Continuous fixed-bed gas-phase hydroformylation using supported ionic liquid-phase (SILP) Rh catalysts“. *J. Catal.* **2003**, 219(2), 452-455.
- (58) A. Jess, P. Wasserscheid, J. Esser, „Hydrogen-free deep desulfurization of diesel oil by extraction with ionic liquids“, *DGMK-Tagungsbericht* **2003**, 2, 313-320.
- (59) J. Antony, D. Mertens, T. Breitenstein, A. Dölle, P. Wasserscheid, W. R. Carper, „Molecular structure, reorientational dynamics, and intermolecular interactions in the neat ionic liquid 1-butyl-3-methylimidazolium hexafluorophosphate“, *Pure and Applied Chemistry* **2004**, 76(1), 255-261.
- (60) P. Wasserscheid, C. Hilgers, W. Keim, „Ionic Liquids – weakly coordinating solvents for the biphasic ethylene oligomerization to alpha-olefins using cationic Ni-complexes“, *J. Mol. Catal. A: Chemical* **2004**, 214(1), 83-90.
- (61) W. R. Carper, P. G. Wahlbeck, J. H. Antony, D. Mertens, A. Dölle, „A Bloembergen-Purcell-Pound ^{13}C -NMR relaxation study of the ionic liquid 1-butyl-3-methylimidazolium hexafluorophosphate“, *Analytical and Bioanalytical Chemistry* **2004**, 378(6), 1548-1554.
- (62) M. Picquet, D. Poinsot, S. Stutzmann, I. Tkatchenko, I. Tommasi, P. Wasserscheid, J. Zimmermann, „Ionic Liquids: Media for Better Molecular Catalysis“, *Topics in Catalysis* **2004**, 29(3-4), 139-143.
- (63) N. Brausch, A. Metlen, P. Wasserscheid, „New, highly acidic ionic liquid systems and their application in the carbonylation of toluene“, *Chem. Commun.* **2004**, 1552-1553.
- (64) J. Esser, P. Wasserscheid, A. Jess, „Deep desulphurization of oil refinery streams by extraction with ionic liquids“, *Green Chem.* **2004**, 6(7), 316-322.
- (65) A. Bollmann, K. Blann, J. T. Dixon, F. Hess, E. Killian, H. Maumela, D. S. McGuinness, D. H. Morgan, A. Neveling, S. Otto, M. Overett, A. M. Z. Slawin, P. Wasserscheid, S. Kuhlmann, „Ethylene Tetramerization: A New Route to Produce 1-Octene in Exceptionally High Selectivities“, *J. Am. Chem. Soc.* **2004**, 126(45), 14712-14713.
- (66) A. Jess, P. Wasserscheid, J. Esser, „Use of ionic liquids for desulfurization of product streams in petroleum refining“, *Chem.-Ing.-Technik* **2004**, 76(9), 1407-1408.
- (67) P. Wasserscheid in M. Beller, C. Bolm (eds.), „Transition Metals for Organic Synthesis (2nd Edition)“, „Transition metal catalysis using ionic liquids“, Wiley-VCH, Weinheim, **2004**, 2, 559-572.
- (68) A. Riisager, R. Fehrmann, S. Flicker, R. van Hal, M. Haumann, P. Wasserscheid, „Very Stable and Regioselective Supported Ionic Liquid Phase (SILP) Catalysis: Continuous-Flow Fixed-Bed Hydroformylation of Propene“, *Angew. Chem., Int. Ed.* **2005**, 44, 815-819 (**Very Important Paper**).
- (69) D. S. McGuinness, P. Wasserscheid, D. H. Morgan, J. T. Dixon, „Ethylene Trimerization with Mixed-Donor Ligand (N,P,S) Chromium Complexes: Effect of Ligand Structure on Activity and Selectivity“, *Organometallics* **2005**, 24, 552-556.

- (70) J. H. Antony, A. Dölle, D. Mertens, P. Wasserscheid, W. R. Carper, P. G. Wahlbeck, „¹³C NMR Relaxation Rates in the Ionic Liquid 1-Methyl-3-nonylimidazolium Hexafluorophosphate”, *J. Phys. Chem. A* **2005**, 109, 6676-6682.
- (71) G. Müller, E. Schlücker, P. Wasserscheid, „Das Neue geschieht an den Grenzflächen“, *Chem.-Ing.-Technik* **2005**, 77(7), 811.
- (72) P. Illner, A. Zahl, R. Puchta, N. van Eikema Hommes, P. Wasserscheid, R. van Eldik, „Mechanistic studies on the formation of Pt(II) hydroformylation catalysts in imidazolium-based ionic liquids“, *J. Organomet. Chem.* **2005**, 690, 3567-3576.
- (73) A. Riisager, R. Fehrman, P. Wasserscheid, R. van Hal, „Supported ionic liquid-phase catalysis - heterogenization of homogeneous rhodium phosphine catalysts“, ACS Symposium Series (Ionic Liquids IIIB: Fundamentals, Progress, Challenges, and Opportunities) **2005**, 902, 334-349.
- (74) A. Riisager, R. Fehrman, R. W. Berg, R. van Hal, P. Wasserscheid, „Thermomorphic phase separation in ionic liquid-organic liquid systems-conductivity and spectroscopic characterization“, *Phys. Chem. Chem. Phys.* **2005**, 7(16), 3052-3058.
- (75) S. Himmler, P. Wasserscheid, R. van Hal, „Neue ionische Flüssigkeiten mit Alkylsulfationen – Reaktionstechnische Untersuchungen zur Optimierung ihrer Herstellung und wichtige physiko-chemische Eigenschaften“, *Chem.-Ing.-Technik* **2005**, 77(8), 985.
- (76) P. Wasserscheid, N. Brausch, N. Hofmann, „A new Concept in Continuous Friedel-Crafts-Alkylation – Biphasic Catalysis Using Acidic Ionic Liquids in a Loop Reactor“, *Chem.-Ing.-Technik* **2005**, 77(8), 986.
- (77) A. Riisager, S. Flicker, R. Fehrman, M. Haumann, B.S.K. Gorle, P. Wasserscheid, „A Truly Homogeneous Catalyst in Heterogeneous Form – The Supported Ionic Liquid Phase (SILP) Catalyst Concept for Continuous, Gas-Phase Propene Hydroformylation“, *Chem.-Ing.-Technik* **2005**, 77(8), 1210.
- (78) A. Große Böwing, A. Jess, P. Wasserscheid, „Kinetik und Reaktionstechnik der Synthese ionischer Flüssigkeiten“, *Chem.-Ing.-Technik* **2005**, 77(9), 1430-1439.
- (79) C. F. Weber, R. Puchta, N. J. R. van Eikema Hommes, P. Wasserscheid, R. van Eldik, „Transition-State Effects of Ionic Liquids in Substitution Reactions of Pt(II) Complexes“, *Angew. Chem.* **2005**, 117, 6187-6192.
- (80) A. Riisager, R. Fehrman, M. Haumann, B. S. K. Gorle, P. Wasserscheid, „Stability and Kinetic Studies of Supported Ionic Liquid Phase Catalysts for Hydroformylation of Propene“, *Industrial Engineering Chemical Research* **2005**, 44(26), 9853-9859.
- (81) D. Gerhard, S. C. Alpaslan, H. J. Gores, M. Uerdingen, P. Wasserscheid, „Trialkylsulfonium dicyanamides - a new family of ionic liquids with very low viscosities“, *Chem. Commun.* **2005**, 5080-5082.
- (82) A. Riisager, R. Fehrman, M. Haumann, P. Wasserscheid, „Supported Ionic Liquid Phase (SILP) Catalysis: An Innovative Concept for Homogeneous Catalysis in Continuous Fixed-Bed Reactors“, *Eur. J. Inorg. Chem.* **2006**, 695-706.
- (83) P. Wasserscheid, „Volatile times for ionic liquids“, *Nature* **2006**, 439(7078), 797.
- (84) P. Wasserscheid, M. Haumann in D. Cole-Hamilton, R. Tooze (eds.), „Catalyst, Separation, Recovery and Recycling“, Springer, Dordrecht, **2006**, pp. 183-214.
- (85) A. Riisager, B. Jørgensen, P. Wasserscheid, R. Fehrman, „First application of supported ionic liquid phase (SILP) catalysis for continuous methanol carbonylation“, *Chem. Commun.* **2006**, 994-996.

- (86) Z. Lei, W. Arlt, P. Wasserscheid, „Separation of 1-hexene and n-hexane with ionic liquids“, *Fluid Phase Equilibria* **2006**, 241, 290-299.
- (87) S. Kuhlmann, J. T. Dixon, M. Haumann, D. H. Morgan, J. Ofili, O. Spuhl, N. Taccardi, P. Wasserscheid, „Influence of elevated temperature and pressure on the chromium-catalysed tetramerisation of ethylene“, *Adv. Synth. & Catal.* **2006**, 348(10+11), 1200-1206.
- (88) M. Zistler, P. Wachter, P. Wasserscheid, D. Gerhard, A. Hinsch, R. Sastrawan, H. J. Gores, „Comparison of electrochemical methods for triiodide diffusion coefficient measurements and observation of non-Stokesian diffusion behaviour in binary mixtures of two ionic liquids“, *Electrochimica Acta* **2006**, 52(1), 161-169.
- (89) J. Huang, A. Riisager, P. Wasserscheid, R. Fehrmann, „Reversible physical absorption of SO₂ by ionic liquids“, *Chem. Commun.* **2006**, 4027-4029.
- (90) S. Himmler, S. Hörmann, R. van Hal, P. S. Schulz, P. Wasserscheid, „Transesterification of methylsulfate and ethylsulfate ionic liquids-an environmentally benign way to synthesize long-chain and functionalized alkylsulfate ionic liquids“, *Green Chemistry* **2006**, 8(10), 887-894.
- (91) G. Nazmutdinova, S. Sensfuss, M. Schrödner, A. Hinsch, R. Sastrawan, D. Gerhard, S. Himmler, P. Wasserscheid, „Quasi-solid state polymer electrolytes for dye-sensitized solar cells: Effect of the electrolyte components variation on the triiodide ion diffusion properties and charge-transfer resistance at platinum electrode“, *Solid State Ionics* **2006**, 177(35-36), 3141-3146.
- (92) F. Maier, J. M. Gottfried, J. Rossa, D. Gerhard, P. S. Schulz, W. Schwieger, P. Wasserscheid, H.-P. Steinrück, „Surface Enrichment and Depletion Effects of Ions Dissolved in Ionic Liquids: An X-ray Photoelectron Spectroscopy Study“, *Angew. Chem.* **2006**, 118, 7942-7944; *Angew. Chem., Int. Ed.* **2006**, 45(46), 7778-7780.
- (93) J. M. Gottfried, F. Maier, J. Rossa, D. Gerhard, P. S. Schulz, P. Wasserscheid, H.-P. Steinrück, „Surface Studies on the Ionic Liquid 1-Ethyl-3-methylimidazolium Ethylsulfate Using X-Ray Photoelectron Spectroscopy (XPS)“, *Z. Phys. Chem.* **2006**, 220, 1439-1453.
- (94) A. Riisager, R. Fehrmann, M. Haumann, P. Wasserscheid, „SILP catalysis in gas-phase hydroformylation and carbonylation“, *DGMK Tagungsbericht*, **2006**, 2006-4 (Proceedings of the DGMK/SCI-Conference "Synthesis Gas Chemistry", 2006), 57-63.
- (95) A. Riisager, R. Fehrmann, M. Haumann, P. Wasserscheid, „Supported ionic liquids: versatile reaction and separation media“, *Topics in Catal.* **2006**, 40(1-4), 91-102.
- (96) P. Wasserscheid, P. Schulz in J. G. de Vries, C. J. Elsevier (eds.) „Handbook of Homogeneous Hydrogenation“, “Catalytic Hydrogenation Using Ionic Liquids as Catalyst Phase”, Wiley-VCH, Weinheim, **2006**, pp. 1389-1421.
- (97) A. Riisager, S. Flicker, M. Haumann, P. Wasserscheid, R. Fehrmann, „Supported ionic liquid-phase (SILP) catalysts in continuous flow processes“, *Proceedings - Electrochemical Society* **2006**, 2004-24(Molten Salts XIV), 630-638.
- (98) S. Kuhlmann, K. Blann, A. Bollmann, J. T. Dixon, E. Killian, M. C. Maumela, H. Maumela, D. H. Morgan, M. Pretorius, N. Taccardi, P. Wasserscheid, „N-substituted diphosphinoamines: Toward rational ligand design for the efficient tetramerization of ethylene“, *J. Catal.* **2007**, 245(2), 279-284.
- (99) P. S. Schulz, N. Müller, A. Bösmann, P. Wasserscheid, „Effective Chirality Transfer in Ionic Liquids Through Ion-Pairing Effects“, *Angew. Chem., Int. Ed.* **46**(8), **2007**, 1293-1295.

- (100) M. Haumann, K. Dentler, Joni, A. Riisager, P. Wasserscheid, „Continuous gas-phase hydroformylation of 1-butene using supported ionic liquid phase (SILP) catalysts”, *Adv. Synth. & Catal.* **2007**, 349(3), 425-431.
- (101) E. Kuhlmann, S. Himmller, H. Giebelhaus, P. Wasserscheid, „Imidazolium dialkylphosphates-a class of versatile, halogen-free and hydrolytically stable ionic liquids”, *Green Chemistry* **2007**, 9(3), 233-242.
- (102) V. Landnak, N. Hofmann, N. Brausch, P. Wasserscheid, „Continuous, ionic liquid-catalysed propylation of toluene in a liquid-liquid biphasic reaction mode using a loop reactor concept”, *Adv. Syn. & Catal.* **2007**, 349(4+5), 719-726.
- (103) S. Himmller, S. Hörmann, K. Obert, P. Wasserscheid, „Reaction engineering study of transesterification of the ionic liquid 1-ethyl-3-methylimidazolium ethyl sulfate ([EMIM][EtOSO₃])”, *Chem.-Ing.-Technik* **2007**, 79(4), 421-428.
- (104) E. Killian, K. Blann, A. Bollmann, J. T. Dixon, S. Kuhlmann, M. C. Maumela, H. Maumela, D. H. Morgan, P. Nongodlwana, M. J. Overett, M. Pretorius, K. Höfener, P. Wasserscheid, „The use of bis(diphenylphosphino)amines with N-aryl functionalities in selective ethylene tri- and tetramerization”, *J. Mol. Catal. A: Chemical* **2007**, 270(1-2), 214-218.
- (105) T. Herzig, C. Schreiner, D. Gerhard, P. Wasserscheid, H. J. Gores, „Characterisation and properties of new ionic liquids with the difluoromonooxalato(2-)O,O'borate anion”, *J. Fluorine Chem.* **2007**, 128(6), 612-618.
- (106) P. Wasserscheid, „Continuous reactions using ionic liquids as catalytic phase”, *J. Ind. & Engin. Chem.* **2007**, 13(3), 325-338.
- (107) K. Blann, A. Bollmann, H. de Bod, J. T. Dixon, E. Killian, P. Nongodlwana, M. C. Maumela, H. Maumela, A. E. McConnell, D. H. Morgan, M. Overett, M. Pretorius, S. Kuhlmann, P. Wasserscheid, „Ethylene tetramerisation: Subtle effects exhibited by N-substituted diphosphinoamine ligands”, *J. Catal.* **2007**, 249(2), 244-249.
- (108) M. Zistler, P. Wachter, C. Schreiner, M. Fleischmann, D. Gerhard, P. Wasserscheid, A. Hinsch, H. J. Gores, „Temperature Dependent Impedance Analysis of Binary Ionic Liquid Electrolytes for Dye-Sensitized Solar Cells”, *J. Electrochem. Soc.* **2007**, 154(9), B925-B930.
- (109) S. Himmller, A. König, P. Wasserscheid, „Synthesis of [EMIM]OH via bipolar membrane electrodialysis - precursor production for the combinatorial synthesis of [EMIM]-based ionic liquids”, *Green Chem.* **2007**, 9(9), 935-942.
- (110) Z. Lei, W. Arlt, P. Wasserscheid, „Selection of entrainers in the 1-hexene/n-hexane system with a limited solubility”, *Fluid Phase Equilibria* **2007**, 260(1), 29-35.
- (111) P. Wasserscheid, T. Weiß, F. Agel, C. Werth, A. Jess, R. Forster, „Highly efficient and selective C-H activation in gallium-containing molten-salt systems”, *Angew. Chem., Int. Ed.* **2007**, 46(38), 7281-7285.
- (112) A. P. Fröba, P. Wasserscheid, D. Gerhard, H. Kremer, A. Leipertz, „Revealing the Influence of the Strength of Coulomb Interactions on the Viscosity and Interfacial Tension of Ionic Liquid Cosolvent Mixtures”, *J. Phys. Chem. B* **2007**, 111(44), 12817-12822.
- (113) P. Wasserscheid, „Advanced fluids. Intensification of catalytic processes with ionic liquids”, *Chemie Ingenieur Technik* **2007**, 79(9), 1284-1285.
- (114) P. Wasserscheid, D. Gerhard, S. Himmller, S. Hörmann, P. S. Schulz, „New ionic liquids based on anion functionalization”, *ACS Symposium Series* **2007**, 975(Ionic Liquids IV), 258-271.

- (115) A. Bösmann, P. S. Schulz, P. Wasserscheid, „Enhancing Task Specific Ionic Liquids' Thermal Stability by Structural Modification”, Monatshefte für Chemie, **2007**, 138(11), 1159-1161.
- (116) M. Haumann, K. Höfener, S. Kuhlmann, C. Paetz, P. Wasserscheid, „Homogeneous chromium catalyzed tetramerization of ethylene - influence of mass transfer in kinetic studies of an optimized catalytic system”, DGMK Tagungsbericht, **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 289-295.
- (117) B. U. Melcher, M. Eichmann, P. Wasserscheid, „Liquid-liquid biphasic dimerisation of propene and 1-butene using acidic chloroaluminate ionic liquids”, DGMK Tagungsbericht, **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 283-288.
- (118) V. Ladnak, J. Joni, P. Wasserscheid, „Friedel-Crafts alkylation in acidic ionic liquids - from ionic liquid evaluation to miniplant experiments”, DGMK Tagungsbericht, **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 253-257.
- (119) N. Hofmann, A. Bauer, T. Frey, M. Auer, V. Stanjek, P. Schulz, P. Wasserscheid, „Liquid-liquid-biphasic hydrosilylation in a continuous loop reactor: from ionic liquid solvent selection to a miniplant design” DGMK Tagungsbericht **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 247-252.
- (120) J. Joni, V. Ladnak, P. Wasserscheid, „Acidic room temperature ionic liquids vs. acidic molten salts - a comparative study in cumene isopropylation”, DGMK Tagungsbericht **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 241-245.
- (121) A. Riisager, R. Fehrmann, M. Haumann, M. Jakuttis, J. Joni, P. Wasserscheid, „Supported ionic liquid phase (SILP) systems - novel fixed bed reactor concepts for homogeneous catalysis”, DGMK Tagungsbericht **2007**, 2007-2(Preprints of the DGMK/SCI-Conference "Opportunities and Challenges at the Interface between Petrochemistry and Refinery", 2007), 139-143.
- (122) P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis”, 2nd edition, Wiley-VCH, Weinheim, **2007**, Buch mit 800 Seiten, 2 Bände.
- (123) P. Wasserscheid, P.S. Schulz in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis”, 2nd edition, „Transition metal catalysis in ionic liquids”, Wiley-VCH, Weinheim, **2007**, pp. 369-463.
- (124) P. Wasserscheid, P.S. Schulz in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis”, 2nd edition, „Multiphasic catalysis using ionic liquids in combination with compressed CO₂”, Wiley-VCH, Weinheim, **2007**, pp. 558-569.
- (125) P. Wasserscheid, T. Welton in P. Wasserscheid, T. Welton (eds.), „Ionic Liquids in Synthesis”, 2nd edition, „Outlook”, Wiley-VCH, Weinheim, **2007**, pp. 689-704.
- (126) T. Predel, E. Schlücker, P. Wasserscheid, D. Gerhard, W. Arlt, „Ionic liquids as operating fluids in high pressure applications”, Chemical Engineering & Technology **2007**, 30(11), 1475-1480.
- (127) S. B. Rasmussen, J. Huang, A. Riisager, H. Hamma, J. Rogez, J. Winnick, P. Wasserscheid, R. Fehrmann, „Flue gas cleaning with alternative processes and reaction media”, ECS Transactions **2007**, 3(35), 49-59.

- (128) P. Wachter, C. Schreiner, M. Zistler, D. Gerhard, P. Wasserscheid, H. J. Gores, „A microelectrode study of triiodide diffusion coefficients in mixtures of room temperature ionic liquids, useful for dye-sensitised solar cells”, *Microchimica Acta* **2008**, 160(1-2), 125-133.
- (129) M. Zistler, C. Schreiner, P. Wachter, P. Wasserscheid, D. Gerhard, H. J. Gores, „Electrochemical characterization of 1-ethyl-3-methylimidazolium thiocyanate and measurement of triiodide diffusion coefficients in blends of two ionic liquids”, *International Journal of Electrochemical Science* **2008**, 3(3), 236-245.
- (130) P. Wachter, M. Zistler, C. Schreiner, M. Berginc, U. O. Krasovec, D. Gerhard, P. Wasserscheid, A. Hinsch, H. J. Gores, „Characterisation of DSSC-electrolytes based on 1-ethyl-3-methylimidazolium dicyanamide: Measurement of triiodide diffusion coefficient, viscosity, and photovoltaic performance”, *J. of Photochem. and Photobiol., A: Chemistry* **2008**, 197(1), 25-33.
- (131) J. Kiefer, K. Obert, A. Bösmann, T. Seeger, P. Wasserscheid, A. Leipertz, „Quantitative Analysis of Alpha-D- glucose in an Ionic Liquid by Using Infrared Spectroscopy“, *ChemPhysChem* **2008**, 9, 1317-1322.
- (132) A. Riisager, R. Fehrmann, P. Wasserscheid, „Supported liquid catalysts”, *Handbook of Heterogeneous Catalysis* (2nd Edition), Wiley-VCH, Weinheim **2008**, 1, 631-644.
- (133) A. Riisager, R. Fehrmann, M. Haumann, P. Wasserscheid, „Catalytic SILP Materials“, *Top. Organomet. Chem.* **2008**, 23, 149-161.
- (134) C. Kolbeck, M. Killian, F. Maier, N. Paape, P. Wasserscheid, H.-P. Steinrück, „Surface Characterization of Functionalized Imidazolium-Based Ionic Liquids”, *Langmuir* **2008**, 24(17), 9500-9507.
- (135) J. Joni, D. Schmitt, P. S. Schulz, T. J. Lotz, P. Wasserscheid, „Detailed kinetic study of cumene isopropylation in a liquid-liquid biphasic system using acidic chloroaluminate ionic liquids”, *Journal of Catalysis* **2008**, 258(2), 401-409.
- (136) N. Paape, W. Wei, A. Bösmann, C. Kolbeck, F. Maier, H.-P. Steinrück, P. Wasserscheid, P. S. Schulz, „Chloroalkylsulfonate ionic liquids by ring opening of sultones with organic chloride salts”, *Chem. Commun.* **2008**, 3867-3869.
- (137) P. Wasserscheid, „Ionic Liquid “solutions” for catalytic transformations”, *VDI-Berichte* 2039, **2008**, VDI-Verlag GmbH, Düsseldorf, 125-135.
- (138) T. Cremer, M. Killian, M. J. Gottfried, N. Paape, P. Wasserscheid, F. Maier, H.-P. Steinrück, „Physical vapor deposition of [EMIM][Tf₂N]: a new approach to the modification of surface properties with ultrathin ionic liquid films”, *ChemPhysChem* **2008**, 9(15), 2185-2190.
- (139) J. Kiefer, K. Obert, S. Himmler, P. S. Schulz, P. Wasserscheid, A. Leipertz, „Infrared spectroscopy of a Wilkinson catalyst in a room-temperature ionic liquid”, *ChemPhysChem* **2008**, 9(15), 2207-2213.
- (140) P. Wachter, M. Zistler, C. Schreiner, M. Fleischmann, D. Gerhard, P. Wasserscheid, J. Barthel, H. J. Gores, „Temperature Dependence of the Non-Stokesian Charge Transport in Binary Blends of Ionic Liquids”, *Journal of Chemical & Engineering Data*, **2008**, 54(2), 491-497.
- (141) N. Hofmann, A. Bauer, T. Frey, M. Auer, V. Stanjek, P. S. Schulz, N. Taccardi, P. Wasserscheid, „Liquid-liquid biphasic, platinum-catalyzed hydrosilylation of allyl chloride with trichlorosilane using an ionic liquid catalyst phase in a continuous loop reactor”, *Advanced Synthesis & Catalysis* **2008**, 350(16), 2599-2609.

- (142) K. R. J. Lovelock, C. Kolbeck, T. Cremer, N. Paape, P. S. Schulz, P. Wasserscheid, .F. Maier, H.-P. Steinrück, „Influence of Different Substituents on the Surface Composition of Ionic Liquids Studied Using AR-XPS” Journal of Physical Chemistry B **2009**, 113(9), 2854-2864.
- (143) K. Obert, D. Roth, M. Ehrig, A. Schönweiz, D. Assenbaum , H. Lange, P. Wasserscheid, „Selectivity enhancement in the catalytic hydrogenation of propionitrile using ionic liquid multiphase reaction systems”, Applied Catalysis A: General **2009**, 356, 43–51.
- (144) W. R. Carper, K. Langenwalter, N. S. Nooruddin, M. J. Kullman, D. Gerhard, P. Wasserscheid, „Aggregation Models of Potential Cyclical Trimethylsulfonium Dicyanamide Ionic Liquid Clusters”, Journal of Physical Chemistry B **2009**, 113(7), 2031-2041.
- (145) S. Kuhlmann, C. Paetz, C. Hägele, K. Blann, R. Walsh, J. T. Dixon, J. Scholz, M. Haumann, P. Wasserscheid, „Chromium catalyzed tetramerization of ethylene in a continuous tube reactor-Proof of concept and kinetic aspects”, Journal of Catalysis **2009**, 262(1), 83-91.
- (146) E. Öchsner, B. Etzold, K. Junge, M. Beller, P. Wasserscheid, „Kinetic study of the asymmetric hydrogenation of methyl acetoacetate in the presence of a ruthenium binaphthophosphepine complex”, Advanced Synthesis & Catalysis **2009**, 351(1+2), 235-245.
- (147) J. Joni, M. Haumann, P. Wasserscheid, “Development of a supported ionic liquid phase (SILP) catalyst for slurry-phase Friedel-Crafts alkylations of cumene”, Advanced Synthesis & Catalysis **2009**, 351(3), 423-431.
- (148) K. Schneiders, A. Bösmann, P. S. Schulz, P. Wasserscheid, „Chirality transfer in imidazolium camphorsulfonate ionic liquids through ion pairing effects”, Advanced Synthesis & Catalysis **2009**, 351(3), 432-440.
- (149) M. Haumann, M. Jakuttis, S. Werner, P. Wasserscheid, „Supported ionic liquid phase (SILP) catalyzed hydroformylation of 1-butene in a gradient-free loop reactor”, Journal of Catalysis **2009**, 263(2), 321-327.
- (150) E. Öchsner, K. Schneiders, K. Junge, M. Beller, P. Wasserscheid, „Highly enantioselective Ru-catalyzed asymmetric hydrogenation of .beta.-keto ester in ionic liquid/methanol mixtures”, Applied Catalysis, A: General **2009**, 364(1-2), 8-14.
- (151) B. Hasse, J. Lehmann, D. Assenbaum, P. Wasserscheid, A. Leipertz, A. P. Fröba, „Viscosity, Interfacial Tension, Density, and Refractive Index of Ionic Liquids [EMIM][MeSO₃], [EMIM][MeOHPO₂]₂, [EMIM][OcSO₄], and [BBIM][NTf₂] in Dependence on Temperature at Atmospheric Pressure”, Journal of Chemical & Engineering Data **2009**, 54(9), 2576-2583.
- (152) C. Kolbeck, T. Cremer, K. R. J. Lovelock, N. Paape, P. S. Schulz, P. Wasser-scheid, F. Maier, H.-P. Steinrück, „Influence of Different Anions on the Surface Composition of Ionic Liquids Studied Using ARXPS”, Journal of Physical Chemistry B **2009**, 113(25), 8682-8688.
- (153) J. Kiefer, K. Obert, J. Fries, A. Bösmann, P. Wasserscheid, A. Leipertz, „Determination of glucose and cellobiose dissolved in the ionic liquid 1-ethyl-3-methylimidazolium acetate using fourier transform infrared spectroscopy”, Applied Spectroscopy **2009**, 63(9), 1041-1049.
- (154) E. Kuhlmann, M. Haumann, A. Jess, A. Seeberger, P. Wasserscheid, „Ionic Liquids in Refinery Desulfurization: Comparison between Biphasic and Supported Ionic Liquid Phase Suspension Processes” ChemSusChem **2009**, 2(10), 969-977.

- (155) M. Eichmann, W. Keim, M. Haumann, B. U. Melcher, P. Wasserscheid, „Nickel catalyzed dimerization of propene in chloroaluminate ionic liquids: Detailed kinetic studies in a batch reactor”, *Journal of Molecular Catalysis A: Chemical* **2009**, 314(1-2), 42-48.
- (156) X. Wang, F. W. Heinemann, M. Yang, B. U. Melcher, M. Fekete, A.-J. Mudring, P. Wasserscheid, K. Meyer, “A new class of double alkyl-substituted, liquid crystalline imidazolium ionic liquids - a unique combination of structural features, viscosity effects, and thermal properties”, *Chemical Communications* **2009**, (47), 7405-7407.
- (157) S. Werner, N. Szesni, R. W. Fischer, M. Haumann, P. Wasserscheid, “Homogeneous ruthenium-based water-gas shift catalysts via supported ionic liquid phase (SILP) technology at low temperature and ambient pressure”, *Physical Chemistry Chemical Physics* **2009**, 11(46), 10817-10819.
- (158) P. S. Schulz, K. Schneiders, P. Wasserscheid, „Aggregation behaviour of chiral ionic liquids”, *Tetrahedron: Asymmetry* **2009**, 20(21), 2479-2481.
- (159) J. Joni, M. Haumann, P. Wasserscheid, “Continuous gas-phase isopropylation of toluene and cumene using highly acidic Supported Ionic Liquid Phase (SILP) catalysts”, *Applied Catalysis, A: General* **2010**, 372(1), 8-15.
- (160) V. Mokrushin, D. Assenbaum, N. Paape, D. Gerhard, L. Mokrushina, P. Wasserscheid, W. Arlt, H. Kistenmacher, S. Neuendorf, V. Göke, „Ionic Liquids for Propene-Propane Separation”, *Chemical Engineering & Technology* **2010**, 33(1), 63-73.
- (161) F. Maier, T. Cremer, C. Kolbeck, K. R. J. Lovelock, N. Paape, P. S. Schulz, P. Wasserscheid, H.-P. Steinrück, „Insights into the surface composition and enrichment effects of ionic liquids and ionic liquid mixtures”, *Physical Chemistry Chemical Physics* **2010**, 12(8), 1905-1915.
- (162) S. Werner, N. Szesni, A. Bittermann, M. J. Schneider, P. Härtter, M. Haumann, P. Wasserscheid, „Screening of Supported Ionic Liquid Phase (SILP) catalysts for the very low temperature water-gas-shift reaction”, *Applied Catalysis, A: General* **2010**, 377(1-2), 70-75.
- (163) D. Gerhard, F. Fick, P. Wasserscheid, „Ionic liquid-ionic liquid biphasic systems” in “Molten Salts and Ionic Liquids: Never the Twain?”, [EuChem Conferences on Molten Salts and Ionic Liquids], 21st, Hammamet, Tunisia, Sept. 17-22, 2006; **2010**, 143-150.
- (164) M. Sobota, I. Nikiforidis, W. Hieringer, N. Paape, M. Happel, H.-P. Steinrück, A. Görling, P. Wasserscheid, M. Laurin, J. Libuda, „Towards Ionic-Liquid-Based Model Catalysis: Growth, Orientation, Conformation, and Interaction Mechanism of the $[Tf_2N]^-$ Anion in $[BMIM][Tf_2N]$ Thin Films on a Well-Ordered Alumina Surface”, *Langmuir*, **2010**, 26(10), 7199-720.
- (165) V. Mokrushin, L. Mokrushina, W. Arlt, D. Assenbaum, P. Wasserscheid, M. Petri, W. Wewers, „Ionic Liquids for Chloromethane/Isobutane Distillative Separation: Express Screening”, *Chemical Engineering & Technology* **2010**, 33(6), 993-997.
- (166) M. Sobota, X. Wang, M. Fekete, M. Happel, K. Meyer, P. Wasserscheid, M. Laurin, J. Libuda, „Ordering and Phase Transitions in Ionic Liquid-Crystalline Films”, *ChemPhysChem* **2010**, 11(8), 1632-1636.
- (167) F. Kohler, D. Roth, E. Kuhlmann, P. Wasserscheid, M. Haumann, „Continuous gas-phase desulfurisation using supported ionic liquid phase (SILP) materials” *Green Chemistry* **2010**, 12(6), 979-984.
- (168) K. Stärk, N. Taccardi, A. Bösmann, P. Wasserscheid, „Oxidative Depolymerization of Lignin in Ionic Liquids”, *ChemSusChem* **2010**, 3(6), 719-723.

- (169) N. Taccardi, D. Assenbaum, M. E. M. Berger, A. Bösmann, F. Enzenberger, R. Wölfel, S. Neuendorf, V. Göke, N. Schödel, H.-J. Maass, H. Kistenmacher, P. Wasserscheid, "Catalytic production of hydrogen from glucose and other carbohydrates under exceptionally mild reaction conditions", *Green Chemistry* **2010**, 12(7), 1150-1156.
- (170) T. Cremer, C. Kolbeck, K. R. J. Lovelock, N. Paape, R. Wölfel, P. S. Schulz, P. Wasserscheid, H. Weber, J. Thar, B. Kirchner, F. Maier, H.-P. Steinrück, „Towards a Molecular Understanding of Cation-Anion Interactions-Probing the Electronic Structure of Imidazolium Ionic Liquids by NMR Spectroscopy, X-ray Photoelectron Spectroscopy and Theoretical Calculations”, *Chemistry-A European Journal* **2010**, 16(30), 9018-9033.
- (171) S. J. Sachnov, K. Schneiders, P. S. Schulz, P. Wasserscheid, „Chirality transfer in mandelate ionic liquids through ion pairing effects”, *Tetrahedron: Asymmetry* **2010**, 21(15), 1821-1824.
- (172) M. Sobota, M. Schmid, M. Happel, M. Amende, F. Maier, H.-P. Steinrück, N. Paape, P. Wasserscheid, M. Laurin, J. M. Gottfried, J. Libuda, „Ionic liquid based model catalysis: interaction of [BMIM][Tf₂N] with Pd nanoparticles supported on an ordered alumina film”, *Physical Chemistry Chemical Physics* **2010**, 12(35), 10610-10621.
- (173) S. Werner, M. Haumann, P. Wasserscheid, “Ionic Liquids in Chemical Engineering”, *Annual Reviews of Chemical and Biomolecular Engineering*, **2010**, 1, 203-230.
- (174) C. Meyer, P. Wasserscheid, „Effective n-octane isomerization under exceptionally mild conditions using a novel class of superacidic ionic liquids” *Chemical Communications* **2010**, 46(40), 7625-7627.
- (175) C. Kolbeck, N. Paape, T. Cremer, P. S. Schulz, F. Maier, H.-P. Steinrück, P. Wasserscheid, „Ligand Effects on the Surface Composition of Rh-Containing Ionic Liquid Solutions Used in Hydroformylation Catalysis”, *Chemistry-A European Journal* **2010**, 16(40), 12083-12087.
- (176) K. Noack, P. S. Schulz, N. Paape, J. Kiefer, P. Wasserscheid, A. Leipertz, „The role of the C2 position in interionic interactions of imidazolium based ionic liquids: a vibrational and NMR spectroscopic study”, *Physical Chemistry Chemical Physics* **2010**, 12(42), 14153-14161.
- (177) S. Werner, N. Szesni, M. Kaiser, R. W. Fischer, M. Haumann, P. Wasserscheid, „Ultra-Low-Temperature Water-Gas Shift Catalysis using Supported Ionic Liquid Phase (SILP) Materials”, *ChemCatChem* **2010**, 2(11), 1399-1402.
- (178) P. Wasserscheid, A. Stark (eds.), “Handbook of Green Chemistry, Volume 6: Ionic Liquids”, Wiley-VCH, Weinheim, Germany **2010**, Buch mit 352 Seiten.
- (179) P. Wasserscheid, “Transition metal catalysis in ionic liquids” in P. Wasserscheid, A. Stark (eds.) “Handbook of Green Chemistry, Volume 6: Ionic Liquids”, Wiley-VCH, Weinheim, Germany **2010**, pp. 65-91.
- (180) P. Wasserscheid, J. Joni, “Green organic synthesis in ionic liquids” in P. Wasserscheid, A. Stark (eds.) “Handbook of Green Chemistry, Volume 6: Ionic Liquids”, Wiley-VCH, Weinheim, Germany **2010**, pp. 41-63.
- (181) A. P. Fröba, M. H. Rausch, K. Krzeminski, D. Assenbaum, P. Wasserscheid, A. Leipertz, „Thermal Conductivity of Ionic Liquids: Measurement and Prediction”, *International Journal of Thermophysics* **2010**, 31(11-12), 2059-2077.
- (182) C. Kolbeck, J. Lehmann, K. R. J. Lovelock, T. Cremer, N. Paape, P. Wasserscheid, A. P. Fröba, F. Maier, H.- P. Steinrück, „Density and Surface Tension of Ionic Liquids”, *Journal of Physical Chemistry B* **2010**, 114(51), 17025-17036.

- (183) F. Agel, F. Pitsch, F. F. Krull, P. Schulz, M. Wessling, T. Melin, P. Wasserscheid, „Ionic liquid silver salt complexes for propene/propane separation”, *Physical Chemistry Chemical Physics* **2010**, 13(2), 725-731.
- (184) M.-M. Huang, K. Schneiders, P. S. Schulz, P. Wasserscheid, H. Weingärtner, „Ion speciation driving chirality transfer in imidazolium-based camphorsulfonate ionic liquid solutions”, *Physical Chemistry Chemical Physics*, **2011**, 13, 4126–4131.
- (185) M. Distaso, R. N. Klupp Taylor, N. Taccardi, P. Wasserscheid, W. Peukert, „Influence of the Counterion on the Synthesis of ZnO Mesocrystals under Solvothermal Conditions”, *Chemistry--A European Journal* **2011**, 17(10), 2923-2930.
- (186) P. Wasserscheid, M. Seiler, „Leveraging Gigawatt Potentials by Smart Heat-Pump Technologies Using Ionic Liquids”, *ChemSusChem* **2011**, 4(4), 459-463.
- (187) X. Wang, C. S. Vogel, F. W. Heinemann, P. Wasserscheid, K. Meyer, “Solid-State Structures of Double-Long-Chain Imidazolium Ionic Liquids: Influence of Anion Shape on Cation Geometry and Crystal Packing”, *Crystal Growth & Design* **2011**, 11(5), 1974-1988.
- (188) M. Jakuttis, A. Schönweiz, S. Werner, R. Franke, K.-D. Wiese, M. Haumann, P. Wasserscheid, „Rhodium-Phosphite SILP Catalysis for the Highly Selective Hydroformylation of Mixed C4 Feedstocks”, *Angewandte Chemie, International Edition* **2011**, 50(19), 4492-4495.
- (189) N. Taccardi, M. Fekete, M. E. Berger, V. Stanjek, P. S. Schulz, P. Wasserscheid, „Catalyst recycling in monophasic Pt-catalyzed hydrosilylation reactions using ionic liquids”, *Applied Catalysis, A: General* **2011**, 399(1-2), 69-74.
- (190) E. Öchsner, M. J. Schneider, C. Meyer, M. Haumann, P. Wasserscheid, “Challenging the scope of continuous, gas-phase reactions with supported ionic liquid phase (SILP) catalysts - Asymmetric hydrogenation of methyl acetoacetate”, *Applied Catalysis, A: General* **2011**, 399(1-2), 35-41.
- (191) M. E. M. Berger, D. Assenbaum, N. Taccardi, E. Spiecker, P. Wasserscheid, “Simple and recyclable ionic liquid based system for the selective decomposition of formic acid to hydrogen and carbon dioxide”, *Green Chemistry* **2011**, 13(6), 1411-1415.
- (192) M. Sobota, M. Happel, M. Amende, N. Paape, P. Wasserscheid, M. Laurin, J. Libuda, „Ligand Effects in SCILL Model Systems: Site-Specific Interactions with Pt and Pd Nanoparticles”, *Advanced Materials*, **2011**, 23, 2617-2621.
- (193) H.-P. Steinrück, J. Libuda, P. Wasserscheid, T. Cremer, C. Kolbeck, M. Laurin, F. Maier, M. Sobota, P. S. Schulz, M. Stark, „Surface Science and Model Catalysis with Ionic Liquid-Modified Materials”, *Advanced Materials*, **2011**, 23, 2571-2587.
- (194) W. Peukert, P. Wasserscheid, A. Hirsch, „From Molecules to Materials: the Cluster of Excellence "Engineering of Advanced Materials" at Friedrich-Alexander University of Erlangen-Nuremberg” - Editorial, *Advanced Materials*, **2011**, 23, 2508-2513.
- (195) D. Teichmann, W. Arlt, P. Wasserscheid, R. Freymann, „A future energy supply based on Liquid Organic Hydrogen Carriers (LOHC)”, *Energy & Environmental Science* **2011**, 4(8), 2767-2773.
- (196) N. Wellner, K. Siebeneck, M. Ramunno, P. Wasserscheid, S. Scholl, „Dewatering of Ionic Liquids in a Falling Film Evaporator”, *Chemie Ingenieur Technik* **2011**, 83(9), 1493-1501.
- (197) E. Schlücker, P. Wasserscheid, „Ionic Liquids in Mechanical Engineering”, *Chemie Ingenieur Technik* **2011**, 83(9), 1476-1484.

- (198) M. H. Rausch, K. Krzeminski, D. Assenbaum, P. Wasserscheid, A. Leipertz, A. P. Fröba, „Measurement and Prediction of the Thermal Conductivity of Ionic Liquids”, *Chemie Ingenieur Technik* **2011**, 83(9), 1510-1514.
- (199) M. Sobota, I. Nikiforidis, M. Amende, B. S. Zanon, T. Staudt, O. Höfert, Y. Lykhach, C. Papp, W. Hieringer, M. Laurin, D. Assenbaum, P. Wasserscheid, H.-P. Steinrück, A. Görling, J. Libuda, „Dehydrogenation of Dodecahydro-N-ethylcarbazole on Pd/Al₂O₃ Model Catalysts”, *Chemistry--A European Journal* **2011**, 17(41), 11542-11552.
- (200) B. Müller, B., W. Arlt, P. Wasserscheid, „A new concept for the global distribution of solar energy: Energy carrying compounds”, *Energy and Environmental Science* **2011**, 4(10), 4322-4331.
- (201) S. J. Sachnov, P. S. Schulz, P. Wasserscheid, „A convenient method to access long-chain and functionalised mixed methylphosphonate esters and their application in the synthesis of ionic liquids”, *Chemical Communications* **2011**, 47(40), 11234-11236.
- (202) J. Scholz, S. Loekman, N. Szesni, W. Hieringer, A. Görling, M. Haumann, P. Wasserscheid, „Ethene-Induced Temporary Inhibition of Grubbs Metathesis Catalysts”, *Advanced Synthesis & Catalysis* **2011**, 353(14-15), 2701-2707.
- (203) R. Wölfel, N. Taccardi, A. Bösmann, P. Wasserscheid, „Selective catalytic conversion of biobased carbohydrates to formic acid using molecular oxygen”, *Green Chemistry* **2011**, 13(10), 2759-2763.
- (204) M. Haumann, M. Jakuttis, R. Franke, A. Schönweiz, P. Wasserscheid, „Continuous Gas-Phase Hydroformylation of a Highly Diluted Technical C4 Feed using Supported Ionic Liquid Phase Catalysts”, *ChemCatChem* **2011**, 3(11), 1822-1827.
- (205) C. Meyer, V. Hager, D. Geburtig, C. Kohr, M. Haumann, P. Wasserscheid, „Acidic ionic liquids for n-alkane isomerization in a liquid-liquid or slurry-phase reaction mode”, DGMK Tagungsbericht, 2011-2(Preprints of the DGMK-Conference "Catalysis: Innovative Applications in Petrochemistry and Refining", 2011), **2011**, 37-44.
- (206) F. T. U. Kohler, B. Morain, A. Weiss, M. Laurin, J. Libuda, V. Wagner, B. U. Melcher, X. Wang, K. Meyer, P. Wasserscheid, „Surface-Functionalized Ionic Liquid Crystal-Supported Ionic Liquid Phase Materials: Ionic Liquid Crystals in Mesopores”, *ChemPhysChem* **2011**, 12(18), 3539-3546.
- (207) X. Wang, M. Sobota, F. T. U. Kohler, B. Morain, B. U. Melcher, M. Laurin, P. Wasserscheid, J. Libuda, K. Meyer, „Functional nickel complexes of N-heterocyclic carbene ligands in pre-organized and supported thin film materials”, *Journal of Materials Chemistry* **2012**, 22(5), 1893-1898.
- (208) A. M. Cubillas, M. Schmidt, M. Scharrer, T. Euser, B.J. M. Etzold, N. Taccardi, P. Wasserscheid, P. S. J. Russel, „Ultra-Low Concentration Monitoring of Catalytic Reactions in Photonic Crystal Fiber”, *Chemistry--A European Journal* **2012**, 18(6), 1586-1590.
- (209) T. Koller, M. H. Rausch, P. S. Schulz, M. Berger, P. Wasserscheid, I. G. Economou, A. Leipertz, A. P. Fröba, „Viscosity, Interfacial Tension, Self-Diffusion Coefficient, Density, and Refractive Index of the Ionic Liquid 1-Ethyl-3-methylimidazolium Tetracyanoborate as a Function of Temperature at Atmospheric Pressure” *Journal of Chemical & Engineering Data* **2012**, 57(3), 828-835.
- (210) C. Kolbeck, I. Niedermaier, N. Taccardi, P. S. Schulz, F. Maier, P. Wasserscheid, H.-P. Steinrück, „Monitoring of Liquid-Phase Organic Reactions by Photoelectron Spectroscopy“, *Angewandte Chemie (VIP)* **2012**, 124(11), 2664-2667.

- (211) J. Li, W. Wei, L. C. Nye, P. S. Schulz, P. Wasserscheid, I. Ivanovic-Burmazovic, T. Drewello, „Zwitterionic clusters with dianion core produced by electrospray ionisation of Bronsted acidic ionic liquids”, *Physical Chemistry Chemical Physics* **2012**, 14(15), 5115-5121.
- (212) I. Niedermaier, C. Kolbeck, N. Taccardi, P. S. Schulz, J. Li, T. Drewello, P. Wasserscheid, H.-P. Steinrück, F. Maier, „Organic Reactions in Ionic Liquids Studied by in Situ XPS”, *ChemPhysChem* **2012**, 13(7), 1725-1735.
- (213) J. Kiefer, M. A. Congevel, D. Roth, K. Obert, P. Wasserscheid, A. Leipertz, “Attenuated total reflection infrared difference spectroscopy (ATR-IRDS) for quantitative reaction monitoring”, *Applied Spectroscopy* **2012**, 66(6), 685-688.
- (214) N. Taccardi, I. Niedermaier, F. Maier, H.-P. Steinrück, P. Wasserscheid, „Cyclic Thiouronium Ionic Liquids: Physicochemical Properties and their Electronic Structure Probed by X-Ray Induced Photoelectron Spectroscopy”, *Chemistry - A European Journal* **2012**, 18(27), 8288-8291.
- (215) S. Thiemann, S. Sachnov, S. Porscha, P. Wasserscheid, J. Zaumseil, „Ionic Liquids for Electrolyte-Gating of ZnO Field-Effect Transistors”, *Journal of Physical Chemistry C*, **2012**, 116(25), 13536-13544.
- (216) F. Pitsch, F. F. Krull, F. Agel, P. Schulz, P. Wasserscheid, T. Melin, M. Wessling, „An Adaptive Self-Healing Ionic Liquid Nanocomposite Membrane for Olefin-Paraffin Separations”, *Advanced Materials*, **2012**, 24(31), 4306-4310.
- (217) J. Albert, R. Wölfel, A. Bösmann, P. Wasserscheid, „Selective oxidation of complex, water-insoluble biomass to formic acid using additives as reaction accelerators”, *Energy & Environmental Science* **2012**, 5(7), 7956-7962.
- (218) M. Sobota, S. Schernich, H. Schulz, W. Hieringer, N. Paape, P. Wasserscheid, A. Görling, M. Laurin, J. Libuda, „Preparation and characterization of ultrathin $[\text{Ru}(\text{CO})_3\text{Cl}_2]_2$ and $[\text{BMIM}][\text{Tf}_2\text{N}]$ films on $\text{Al}_2\text{O}_3/\text{NiAl}(110)$ under UHV conditions”, *Physical Chemistry Chemical Physics* **2012**, 14(30), 10603-10612.
- (219) C. Meyer, V. Hager, W. Schwieger, P. Wasserscheid, „Enhanced activity and selectivity in n-octane isomerization using a bifunctional SCILL catalyst”, *Journal of Catalysis*, **2012**, 292, 157–165.
- (220) D. Teichmann, K. Stark, K. Müller, G. Zöttl, P. Wasserscheid, W. Arlt, „Energy storage in residential and commercial buildings via Liquid Organic Hydrogen Carriers (LOHC)”, *Energy & Environmental Science* **2012**, 5(10), 9044-9054.
- (221) S. Werner, N. Szesni, M. Kaiser, M. Haumann, P. Wasserscheid, „A Scalable Preparation Method for SILP and SCILL Ionic Liquid Thin-Film Materials”, *Chemical Engineering & Technology* **2012**, 35(11), 1962-1967.
- (222) D. Teichmann, W. Arlt, P. Wasserscheid, „Liquid Organic Hydrogen Carriers as an efficient vector for the transport and storage of renewable energy”, *International Journal of Hydrogen Energy* **2012**, 37(23), 18118-18132.
- (223) S. Bajus, A. Deyko, A. Bösmann, F. Maier, H.-P. Steinrück, P. Wasserscheid, „Low melting Li/K/Cs acetate salt mixtures as new ionic media for catalytic applications - first physico-chemical characterization”, *Dalton Transactions* **2012**, 41(47), 14433-14438.
- (224) S. Schernich, M. Laurin, Y. Lykhach, H.-P. Steinrück, N. Tsud, T. Skala, K. C. Prince, N. Taccardi, V. Matolin, P. Wasserscheid, J. Libuda, „Functionalization of Oxide Surfaces through Reaction with 1,3-Dialkylimidazolium Ionic Liquids”, *Journal of Physical Chemistry Letters* **2013**, 4(1), 30-35.

- (225) M. Schmidt, A. M. Cubillas, N. Taccardi, T. G. Euser, T. Cremer, F. Maier, H.-P. Steinrück, P. S. J. Russell, P. Wasserscheid, B. J. M. Etzold, „Chemical and (Photo)-Catalytical Transformations in Photonic Crystal Fibers”, *ChemCatChem* **2013**, 5(3), 641-650.
- (226) D. H. Zaitsau, A. V. Yermalayeu, V. N. Emel'yanenko, N. Vladimir, C. Schick, S. P. Verevkin, A. A. Samarov, S. Schlenk, P. Wasserscheid, „Structure-property relations in ionic liquids: 1,2,3-trimethyl-imidazolium and 1,2,3-trimethyl-benzimidazolium bis-(trifluorsulfonyl)imide”, *Zeitschrift für Physikalische Chemie*, **2013**, 227(2-3), 205-215.
- (227) A. Jess, P. Wasserscheid, “Chemical Technology”, Wiley-VCH, Weinheim, **2013**, textbook with 850 pages.
- (228) M. Kusche, F. Enzenberger, S. Bajus, H. Niedermeyer, A. Bösmann, A. Kaftan, M. Laurin, J. Libuda, P. Wasserscheid, „Enhanced Activity and Selectivity in Catalytic Methanol Steam Reforming by Basic Alkali Metal Salt Coatings”, *Angewandte Chemie, International Edition* **2013**, 52(19), 5028-5032.
- (229) R. D. Costa, F. Werner, X. Wang, S. Feihl, F. T. U. Kohler, P. Wasserscheid, S. Hibler, R. Beranek, K. Meyer, D. M. Guldi, „Beneficial effects of liquid crystalline phases in solid-state dye-sensitized solar cells”, *Advanced Energy Materials*, **2013**, 3(5), 657-665.
- (230) C. Gleichweit, M. Amende, S. Schernich, W. Zhao, M. P. A. Lorent, O. Höfert, N. Brückner, P. Wasserscheid, J. Libuda, H.-P. Steinrück, „Dehydrogenation of Dodecahydro-N-ethylcarbazole on Pt(111)”, *ChemSusChem* **2013**, 6(6), 974-977.
- (231) M. J. Schneider, M. Lijewski, R. Wölfele, M. Haumann, P. Wasserscheid, „Continuous Gas-Phase Hydroaminomethylation using Supported Ionic Liquid Phase Catalysts”, *Angewandte Chemie, International Edition* **2013**, 52(27), 6996-6999.
- (232) M. J. Schneider, M. Haumann, P. Wasserscheid, „Asymmetric hydrogenation of methyl pyruvate in the continuous gas phase using Supported Ionic Liquid Phase (SILP) catalysis”, *Journal of Molecular Catalysis A: Chemical* **2013**, 376, 103-110.
- (233) T. M. Koller, M. H. Rausch, J. Ramos, P. S. Schulz, P. Wasserscheid, I. G. Economou, A. O. Fröba, „Thermophysical Properties of the Ionic Liquids [EMIM][B(CN)₄] and [HMIM][B(CN)₄]”, *Journal of Physical Chemistry B* **2013**, 117(28), 8512-8523.
- (234) M. Amende, S. Schernich, M. Sobota, I. Nikiforidis, W. Hieringer, D. Assenbaum, C. Gleichweit, H.-J. Drescher, C. Papp, H.-P. Steinrück, A. Görling, P. Wasserscheid, M. Laurin, J. Libuda, „Dehydrogenation Mechanism of Liquid Organic Hydrogen Carriers: Dodecahydro-N-ethylcarbazole on Pd(111)”, *Chemistry - A European Journal* **2013**, 19(33), 10854-10865.
- (235) S. Vasylyev, C. Damm, D. Segets, M. Hanisch, N. Taccardi, P. Wasserscheid, W. Peukert, „Synthesis of silver nanoparticles in melts of amphiphilic polyesters”, *Nanotechnology* **2013**, 24(11), 115004/1-115004/10.
- (236) I. Niedermaier, N. Taccardi, P. Wasserscheid, F. Maier, H.-P. Steinrück, „Probing a Gas/Liquid Acid-Base Reaction by X-ray Photoelectron Spectroscopy”, *Angewandte Chemie, International Edition* **2013**, 52(34), 8904-8907.
- (237) A. Schönweiz, J. Debuschewitz, S. Walter, R. Wölfele, H. Hahn, K. M. Dyballa, R. Franke, M. Haumann, P. Wasserscheid, „Ligand-Modified Rhodium Catalysts on Porous Silica in the Continuous Gas-Phase Hydroformylation of Short-Chain Alkenes-Catalytic Reaction in Liquid-Supported Aldol Products”, *ChemCatChem* **2013**, 5(10), 2955-2963.

- (238) J. C. Kuschnerow, K. Titze-Frech, P. S. Schulz, P. Wasserscheid, S. Scholl, „Continuous Transesterification with Acidic Ionic Liquids as Homogeneous Catalysts”, *Chemical Engineering & Technology* **2013**, 36(10), 1643-1650.
- (239) K. Titze-Frech, N. Ignatiev, M. Uerdingen, P. S. Schulz, P. Wasserscheid, „Highly Selective Aromatic Alkylation of Phenol and Anisole by Using Recyclable Bronsted Acidic Ionic Liquid Systems”, *European Journal of Organic Chemistry* **2013**, 2013(30), 6961-6966.
- (240) A. Deyko, S. Bajus, F. Rietzler, A. Bösmann, P. Wasserscheid, H.-P. Steinrück, F. Maier, „Interface Properties and Physicochemical Characterization of the Low-Temperature Molten Salt Li/K/Cs Acetate”, *Journal of Physical Chemistry C* **2013**, 117(44), 22939-22946.
- (241) S. Schernich, M. Laurin, Y. Lykhach, N. Tsud, M. Sobota, T. Skala, K. C. Prince, N. Taccardi, V. Wagner, H.-P. Steinrueck, V. Matolin, P. Wasserscheid, J. Libuda, “Interactions of Imidazolium-Based Ionic Liquids with Oxide Surfaces Controlled by Alkyl Chain Functionalization”, *ChemPhysChem* **2013**, 14(16), 3673-3677.
- (242) C. Kolbeck, A. Deyko, T. Matsuda, F. T. U. Kohler, P. Wasserscheid, F. Maier, H.-P. Steinrück, „Temperature-Dependent Surface-Enrichment Effects of Imidazolium-Based Ionic Liquids”, *ChemPhysChem* **2013**, 14(16), 3726-3730.
- (243) A. M. Cubillas, S. Unterkofer, T. G. Euser, B. J. M. Etzold, A. C. Jones, P. J. Sadler, P. Wasserscheid, P. S. J. Russell, „Photonic crystal fibres for chemical sensing and photochemistry”, *Chemical Society Reviews* **2013**, 42(22), 8629-8648 (Front Cover).
- (244) J. Albert, D. Lüders, A. Bösmann, D. M. Guldi, P. Wasserscheid, „Spectroscopic and electrochemical characterization of heteropoly acids for their optimized application in selective biomass oxidation to formic acid”, *Green Chemistry* **2014**, 16(1), 226-237.
- (245) M. J. Schneider, M. Haumann, M. Stricker, J. Sundermeyer, P. Wasserscheid, „Gas-phase oxycarbonylation of methanol for the synthesis of dimethyl carbonate using copper-based Supported Ionic Liquid Phase (SILP) catalysts”, *Journal of Catalysis*, **2014**, 309, 71-78.
- (246) I. Niedermaier, M. Bahlmann, C. Papp, C. Kolbeck, W. Wei, K. Calderon, S. Grabau, P. S. Schulz, P. Wasserscheid, H.-P. Steinrück, F. Maier, „Carbon Dioxide Capture by an Amine Functionalized Ionic Liquid: Fundamental Differences of Surface and Bulk Behavior”, *Journal of the American Chemical Society* **2014**, 136(1), 436-441.
- (247) J. Scholz, V. Hager, X. Wang, F. T. U. Kohler, M. Sternberg, M. Haumann, N. Szczesni, K. Meyer, P. Wasserscheid, „Ethylene to 2-Butene in a Continuous Gas Phase Reaction using SILP-Type Cationic Nickel Catalysts”, *ChemCatChem* **2014**, 6(1), 162-169.
- (248) N. Brückner, K. Obesser, A. Bösmann, D. Teichmann, W. Arlt, J. Dungs, P. Wasserscheid, „Evaluation of Industrially Applied Heat-Transfer Fluids as Liquid Organic Hydrogen Carrier Systems”, *ChemSusChem* **2014**, 7(1), 229-235.
- (249) H. Klefer, D. Roth, I. Eckle, C. Schrage, B. Böhringer, M. Haumann, P. Wasserscheid, “Kontinuierliche Gasreinigung mit SILP-Materialien”, *Chemie-Ingenieur-Technik* **2014**, 86(1-2), 92-96.
- (250) M. Amende, C. Gleichweit, K. Werner, S. Schernich, W. Zhao, M. Lorenz, O. Höfert, C. Papp, M. Koch, P. Wasserscheid, J. Libuda, „Model Catalytic Studies of Liquid Organic Hydrogen Carriers: Dehydrogenation and Decomposition Mechanisms of Dodecahydro-N-ethylcarbazole on Pt(111)“, *ACS Catalysis* **2014**, 4(2), 657-665.
- (251) S. Schernich, D. Kostyshyn, V. Wagner, N. Taccardi, M. Laurin, P. Wasserscheid, J. Libuda, „Interactions Between the Room-Temperature Ionic Liquid [C₂C₁Im][OTf] and

- Pd(111), Well-Ordered Al₂O₃, and Supported Pd Model Catalysts from IR Spectroscopy", *Journal of Physical Chemistry C* **2014**, 118(6), 3188-3193.
- (252) S. Thiemann, S. J. Sachnov, F. Pettersson, R. Bollstroem, R. Oesterbacka, P. Wasserscheid, J. Zaumseil, „Cellulose-Based Ionogels for Paper Electronics", *Advanced Functional Materials* **2014**, 24(5), 625-634.
- (253) X. Wang, M. Sternberg, F. T. U. Kohler, B. U. Melcher, P. Wasserscheid, K. Meyer, „Long-alkyl-chain-derivatized imidazolium salts and ionic liquid crystals with tailor-made properties", *RSC Advances* **2014**, 4(24), 12476-12481.
- (254) S. Thiemann, S. J. Sachnov, M. Gruber, F. Gannott, S. Spallek, M. Schweiger, J. Krückel, J. Kaschta, E. Speecker, P. Wasserscheid, J. Zaumseil, „Spray-coatable ionogels based on silane-ionic liquids for low voltage, flexible, electrolyte-gated organic transistors", *Journal of Materials Chemistry C: Materials for Optical and Electronic Devices* **2014**, 2(13), 2423-2430.
- (255) F. T. Kohler, K. Gärtner, V. Hager, M. Haumann, M. Sternberg, X. Wang, N. Szesni, K. Meyer, P. Wasserscheid, „Dimerization of ethene in a fluidized bed reactor using Ni-based Supported Ionic Liquid Phase (SILP) catalysts", *Catalysis Science & Technology* **2014**, 4(4), 936-947.
- (256) C. Kolbeck, I. Niedermaier, A. Deyko, K. R. J. Lovelock, N. Tacardi, W. Wei; P. Wasserscheid, F. Maier, H.-P. Steinrück, „Influence of Substituents and Functional Groups on the Surface Composition of Ionic Liquids", *Chemistry - A European Journal* **2014**, 20(14), 3954-3965.
- (257) M. Amende, C. Gleichweit, S. Schernich, O. Höfert, M. P. A. Lorenz, W. Zhao, M. Koch, K. Obesser, C. Papp, P. Wasserscheid, H.-P. Steinrück, J. Libuda, „Size and Structure Effects Controlling the Stability of the Liquid Organic Hydrogen Carrier Dodecahydro-N-ethylcarbazole during Dehydrogenation over Pt Model Catalysts", *Journal of Physical Chemistry Letters* **2014**, 5(8), 1498-1504.
- (258) C. Kolbeck, N. Taccardi, N. Paape, P. S. Schulz, P. Wasserscheid, H.-P. Steinrück, F. Maier, „Redox chemistry, solubility, and surface distribution of Pt(II) and Pt(IV) complexes dissolved in ionic liquids", *Journal of Molecular Liquids* **2014**, 192, 103–113.
- (259) V. Wagner, P. S. Schulz, P. Wasserscheid, „Asymmetric hydrogenation catalysis via ion-pairing in chiral ionic liquids", *Journal of Molecular Liquids* **2014**, 192, 177–184.
- (260) M. H. Rausch, A. Heller, J. Herbst, T. M. Koller, M. Bahlmann, P. S. Schulz, P. Wasserscheid, A. P. Fröba, „Mutual and Thermal Diffusivity of Binary Mixtures of the Ionic Liquids [BMIM][C(CN)₃] and [BMIM][B(CN)₄] with Dissolved CO₂ by Dynamic Light Scattering", *Journal of Physical Chemistry B* **2014**, 118(17), 4636-4646.
- (261) T. M. Koller, S. R. Schmid, S. J. Sachnov, M. H. Rausch, P. Wasserscheid, A. P. Fröba, „Measurement and Prediction of the Thermal Conductivity of Tricyanomethanide- and Tetracyanoborate-Based Imidazolium Ionic Liquids", *International Journal of Thermophysics* **2014**, 35(2), 195-217.
- (262) S. Schernich, V. Wagner, N. Taccardi, P. Wasserscheid, M. Laurin, J. Libuda, „Interface Controls Spontaneous Crystallization in Thin Films of the Ionic Liquid [C₂C₁Im][OTf] on Atomically Clean Pd(111)", *Langmuir* **2014**, 30(23), 6846-6851.
- (263) C. Gleichweit, M. Amende, U. Bauer, S. Schernich, O. Höfert, M. P. Lorenz, W. Zhao, M. Müller, M. Koch, P. Bachmann, P. Wasserscheid, J. Libuda, H.-P. Steinrück, C. Papp, „Alkyl chain length-dependent surface reaction of dodecahydro-N-alkylcarbazoles on Pt model catalysts", *Journal of Chemical Physics* **2014**, 140(20), 204711/1-204711/9.

- (264) F. T. Kohler, S. Popp, H. Klefer, I. Eckle, C. Schrage, B. Böhringer, D. Roth, M. Haumann, P. Wasserscheid, „Supported ionic liquid phase (SILP) materials for removal of hazardous gas compounds - efficient and irreversible NH₃ adsorption”, *Green Chemistry* **2014**, 16(7), 3560-3568.
- (265) J. A. Suttil, P. Wasserscheid, D. S. McGuinness, M. G. Gardiner, S. J. Evans, „A survey of pendant donor-functionalised (N,O) phosphine ligands for Cr-catalysed ethylene tri- and tetramerisation”, *Catalysis Science & Technology* **2014**, 4(8), 2574-2588.
- (266) M. Kusche, F. Agel, N. Ni Bhriain, A. Kaftan, M. Laurin, J. Libuda, P. Wasserscheid, „Methanol Steam Reforming Promoted by Molten Salt-Modified Platinum on Alumina Catalysts”, *ChemSusChem* 7(9), **2014**, 2516-2526.
- (267) J. Messner, P. S. Schulz, N. Taccardi, S. Kuhlmann, P. Wasserscheid, „Isomerisation of 1,4-dichlorobenzene using highly acidic alkali chloroaluminate melts”, *Chemical Communications* 50 (79), **2014**, 11705-11708.
- (268) C. Papp, P. Wasserscheid, J. Libuda, H.-P. Steinrück, „Liquid Organic Hydrogen Carriers: Surface Science Studies of Carbazole Derivatives”, *Chemical Record* **2014**, 14(5), 879-896.
- (269) G. E. Romanos, P. S. Schulz, M. Bahlmann, P. Wasserscheid, A. Sapalidis, F. K. Katsaros, C. P. Athanasekou, K. Beltsios, N. K. Kanellopoulos, „CO₂ Capture by Novel Supported Ionic Liquid Phase Systems Consisting of Silica Nanoparticles Encapsulating Amine-Functionalized Ionic Liquids”, *Journal of Physical Chemistry C* **2014**, 118(42), 24437-24451.
- (270) C. Papp, P. Wasserscheid, J. Libuda, H.-P. Steinrück, „Wasserstoff, chemisch gespeichert”, *Nachrichten aus der Chemie* **2014**, 62(10), 963-969.
- (271) M. Haumann, P. Wasserscheid, „SILP and SCILL catalysis”, *RSC Catalysis Series* **2014**, 15 (Catalysis in Ionic Liquids), 410-432.
- (272) A. M. Cubillas, M. Schmidt, T. G. Euser, N. Taccardi, S. Unterkofler, P. St. J. Russell, P. Wasserscheid, B. J. M. Etzold, Bastian, „In Situ Heterogeneous Catalysis Monitoring in a Hollow-Core Photonic Crystal Fiber Microflow Reactor”, *Advanced Materials Interfaces* **2014**, 1(5), Art. No. 1300093(DOI:10.1002/admi.201300093).
- (273) A. Kaftan, A. Schönweiz, I. Nikiforidis, W. Hieringer, K. M. Dyballa, R. Franke, A. Görling, J. Libuda, P. Wasserscheid, M. Laurin, M. Haumann, „Supported homogeneous catalyst makes its own liquid phase”, *Journal of Catalysis* **2015**, 321, 32-38.
- (274) F. Lodermeier, R. D. Costa, Ruben, R. Casillas, F. T. U. Kohler, P. Wasserscheid, M. Prato, D. M. Guldi, „Carbon nanohorn-based electrolyte for dye-sensitized solar cells”, *Energy & Environmental Science* **2015**, 8(1), 241-246.
- (275) H.-P. Steinrück, P. Wasserscheid, “Ionic Liquids in Catalysis”, *Catalysis Letters* **2015**, 145 (1), 380-397.
- (276) Z. Brkljaca, M. Klimczak, Z. Milicevic, M. Weisser, N. Taccardi, P. Wasserscheid, D. M. Smith, A. Magerl, A.-S. Smith, „Complementary Molecular Dynamics and X-ray Reflectivity Study of an Imidazolium-Based Ionic Liquid at a Neutral Sapphire Interface”, *Journal of Physical Chemistry Letters* **2015**, 6(3), 549-555.
- (277) W. Peters, M. Eypasch, T. Frank, J. Schwerdtfeger, C. Körner, A. Bösmann, P. Wasserscheid, „Efficient Hydrogen Release from Perhydro-N-ethylcarbazole Using Catalyst-Coated Metallic Structures Produced by Selective Electron Beam Melting”, *Energy & Environmental Science*, **2015**, 8, 641–649.

- (278) S. Walter, M. Haumann, P. Wasserscheid, H. Hahn, R. Franke, „n-Butane carbonylation to n-pentanal using a cascade reaction of dehydrogenation and SILP-catalyzed hydroformylation”, *AIChE Journal* **2015**, 61(3), 893-897.
- (279) M. Kusche, K. Bustillo, F. Agel, P. Wasserscheid, „Highly Effective Pt-Based Water-Gas Shift Catalysts by Surface Modification with Alkali Hydroxide Salts”, *ChemCatChem* **2015**, 7(5), 766-775.
- (280) M. Markiewicz, Y.-Q. Zhang, A. Bösmann, N. Brückner, J. Thöming, P. Wasserscheid, S. Stolte, „Environmental and Health Impact Assessment of Liquid Organic Hydrogen Carrier (LOHC) systems - Challenges and Preliminary Results”, *Energy & Environmental Science* **2015**, 8 (3), 1035-1045.
- (281) S. Bi, T. M. Koller, M. H. Rausch, P. Wasserscheid, A. P. Fröba, „Dynamic Viscosity of Tetracyanoborate- and Tricyanomethanide-Based Ionic Liquids by Dynamic Light Scattering”, *Industrial & Engineering Chemistry Research* **2015**, 54(11), 3071-3081.
- (282) S. Popp, A. Bösmann, R. Wölfel, P. Wasserscheid, „Screening of Ionic Liquid/H₂O Working Pairs for Application in Low Temperature Driven Sorption Heat Pump Systems”, *ACS Sustainable Chemistry & Engineering* **2015**, 3(4), 750-757.
- (283) F. Enzenberger, H. Freund, W. Schwieger, P. Wasserscheid, „Additive Fertigung maßgeschneiderter Bauteile für Anwendungen in der Verfahrenstechnik“, *Prozesstechnik & Komponenten*, **2015**, 48-51.
- (284) A. Westerholt, M. Weschta, A. Bösmann, S. Tremmel, Y. Korth, M. Wolf, E. Schlücker, N. Wehrum, A. Lennert, M. Uerdingen, W. Holweger, S. Wartzak, P. Wasserscheid, „Halide-Free Synthesis and Tribological Performance of Oil-Miscible Ammonium and Phosphonium-Based Ionic Liquids“, *ACS Sustainable Chemistry & Engineering* **2015**, 3(5), 797-808.
- (285) T. Matsuda, N. Taccardi, J. Schwegler, P. Wasserscheid, H.-P. Steinrück, F. Maier, „Vacuum Surface Science Meets Heterogeneous Catalysis: Dehydrogenation of a Liquid Organic Hydrogen Carrier in the Liquid State”, *ChemPhysChem* **2015**, 16(9), 1873-1879.
- (286) B. Pohrer, M. Zürcher, A. Westerholt, A. Bösmann, D. Siebert, J. Völkl, W. Holweger, N. Wehrum, W. Arlt, P. Wasserscheid, E. Schlücker, „CO₂ as a Viscosity Index Improver for Wind Turbine Oils“, *Industrial & Engineering Chemistry Research* **2015**, 54(21), 5810-5819.
- (287) L. Völkl, S. Recker, M. Niedermayer, S. Kiermaier, V. Strobel, D. Maschmeyer, D. Cole-Hamilton, W. Marquardt, P. Wasserscheid, M. Haumann, „Comparison between phosphine and NHC-modified Pd catalysts in the telomerization of butadiene with methanol – A kinetic study combined with model-based experimental analysis”, *Journal of Catalysis* **2015**, 329, 547-559.
- (288) T. H. Koller, A. Heller, M. H. Rausch, P. Wasserscheid, I. G. Economou, A. P. Fröba, „Mutual and Self-Diffusivities in Binary Mixtures of [EMIM][B(CN)₄] with Dissolved Gases by Using Dynamic Light Scattering and Molecular Dynamics Simulations”, *Journal of Physical Chemistry B* **2015**, 119(27), 8583-8592.
- (289) A. Tremel, P. Wasserscheid, M. Baldauf, T. Hammer, „Techno-economic analysis for the synthesis of liquid and gaseous fuels based on hydrogen production via electrolysis”, *International Journal of Hydrogen Energy* **2015**, 40, 11457-11464.
- (290) C. Gleichgeweit, M. Amende, O. Höfert, T. Xu, F. Späth, N. Brückner, P. Wasserscheid, J. Libuda, H.-P. Steinrück, C. Papp, „Surface Reactions of Dicyclohexylmethane on Pt(111)”, *Journal of Physical Chemistry C* **2015**, 119(35), 20299-20311.

- (291) W. Peters, A. Seidel, S. Herzog, A. Bösmann, W. Schwieger, P. Wasserscheid, "Macrokinetic Effects in Perhydro-N-ethylcarbazole Dehydrogenation and H₂ Productivity Optimization by Using Egg-shell Catalysts", *Energy & Environmental Science*, **2015**, 8, 3013 – 3021.
- (292) J. Reichert, B. Brunner, A. Jess, P. Wasserscheid, J. Albert, "Biomass oxidation to formic acid in aqueous media using polyoxometalate catalysts - boosting FA selectivity by in-situ extraction", *Energy & Environmental Science*, **2015**, 8, 2985 – 2990.
- (293) T. Koller, M. H. Rausch, K. Pohako-Esko, P. Wasserscheid, A. P. Fröba, „Surface Tension of Tricyanomethanide- and Tetracyanoborate-Based Imidazolium Ionic Liquids by Using the Pendant Drop Method”, *Journal of Chemical & Engineering Data* **2015**, 60(9), 2665-2673.
- (294) S. Mehl, A. Toghan, T. Bauer, O. Brummel, N. Tacardi, P. Wasserscheid, J. Libuda, „Pd Nanoparticle Formation in Ionic Liquid Thin Films Monitored by in situ Vibrational Spectroscopy”, *Langmuir* **2015**, 31(44), 12126-12139.
- (295) V. N. Emel'yanenko, M. A. Varfolomeev, S. P. Verevkin, K. Stark, K. Müller, M. Müller, A. Bösmann, P. Wasserscheid, W. Arlt, „Hydrogen Storage: Thermochemical Studies of N-Alkylcarbazoles and their Derivatives as a Potential Liquid Organic Hydrogen Carriers”, *Journal of Physical Chemistry C* **2015**, 119(47), 26381-26389.
- (296) J. Albert, P. Wasserscheid, „Expanding the scope of biogenic substrates for the selective production of formic acid from water-insoluble and wet waste biomasses”, *Green Chemistry* **2015**, 17(12), 5164-5171.
- (297) L. Völkl, D. Geburtig, S. Kiermaier, P. Wasserscheid, M. Haumann, „Pd-catalyzed telomerization of butadiene and methanol with direct catalyst recycling using a liquid-ionic liquid biphasic, continuous process”, *Chemical Engineering and Processing* **2016**, 99, 107-114.
- (298) M. Amende, A. Kaftan, P. Bachmann, R. Brehmer, P. Preuster, M. Koch, P. Wasserscheid, J. Libuda, „Regeneration of LOHC dehydrogenation catalysts: In-situ IR spectroscopy on single crystals, model catalysts, and real catalysts from UHV to near ambient pressure”, *Applied Surface Science*, **2016**, 360(Part B), 671-683.
- (299) S. Bajus, F. Agel, M. Kusche, N. Ni'Bhriain, P. Wasserscheid, „Alkali hydroxide-modified Ru/γ-Al₂O₃ catalysts for ammonia decomposition”, *Applied Catalysis, A: General* **2016**, 510, 189-195.
- (300) O. Brummel, F. Fairas, T. Bauer, K. Pohako-Esko, P. Wasserscheid, „Ionic Liquid-Modified Electrocatalysts: The Interaction of [C₁C₂Im][OTf] with Pt(111) and its Influence on Methanol Oxidation Studied by Electrochemical IR Spectroscopy”, *Electrochimica Acta* **2016**, 188, 825-836.
- (301) A. Heller, M. H. Rausch, P. S. Schulz, P. Wasserscheid, A. P. Fröba, „Binary Diffusion Coefficients of the Liquid Organic Hydrogen Carrier System Dibenzyltoluene/Perhydrodibenzyltoluene”, *Journal of Chemical & Engineering Data* **2016**, 61(1), 504-511.
- (302) R. Aslam, K. Müller, M. Koch, P. Wasserscheid, W. Arlt, „Measurement of Hydrogen Solubility in Potential Liquid Organic Hydrogen Carriers”, *Journal of Chemical & Engineering Data* **2016**, 61(1), 643-649.
- (303) D. Geburtig, P. Preuster, A. Bösmann, K. Müller, P. Wasserscheid, „Chemical utilization of hydrogen from fluctuating energy sources - Catalytic transfer hydrogenation from charged Liquid Organic Hydrogen Carrier systems”, *International Journal of Hydrogen Energy* **2016**, 41 (2), 1010-1017.

- (304) T. Bauer, S. Mehl, O. Brummel, K. Pohako-Esko, P. Wasserscheid, J. Libuda, „Ligand Effects at Ionic Liquid-Modified Interfaces: Coadsorption of $[C_2C_1Im][OTf]$ and CO on Pd(111)”, *Journal of Physical Chemistry C* **2016**, 120(8), 4453-4465.
- (305) H. Klefer, M. Munoz, A. Modrow, B. Böhringer, P. Wasserscheid, B. J.M. Etzold, „Polymer-Based Spherical Activated Carbon as Easy-to-Handle Catalyst Support for Hydrogenation Reactions”, *Chemical Engineering & Technology* **2016**, 39(2), 276-284.
- (306) M. Amende, C. Gleichweit, T. Xu, O. Höfert, M. Koch, P. Wasserscheid, H.-P. Steinrück, C. Papp, J. Libuda, “Dicyclohexylmethane as a Liquid Organic Hydrogen Carrier: A Model Study on the Dehydrogenation Mechanism over Pd(111)”, *Catalysis Letters* **2016**, 146(4), 851-860.
- (307) A. Weiss, M. Munoz, A. Haas, F. Rietzler, H.-P. Steinrück, M. Haumann, P. Wasserscheid, B. J. M. Etzold, “Boosting the Activity in Supported Ionic Liquid-Phase-Catalyzed Hydroformylation via Surface Functionalization of the Carbon Support”, *ACS Catalysis* **2016**, 6, 2280-2286.
- (308) K. Pohako-Esko, T. Wehner, P. S. Schulz, F. W. Heinemann, K. Müller-Buschbaum, P. Wasserscheid, „Synthesis and Properties of Organic Hexahalocerate(III) Salts”, *European Journal of Inorganic Chemistry* **2016**, 9, 1333-1339.
- (309) M. Grabau, S. Krick-Calderon, F. Rietzler, I. Niedermaier, N. Taccardi, P. Wasserscheid, F. Maier, H.-P. Steinrück, C. Papp, „Surface enrichment of Pt in Ga_2O_3 films grown on liquid Pt/Ga alloys”, *Surface Science* **2016**, 651, 16-21.
- (310) K. Stark, P. Keil, S. Schug, K. Müller, P. Wasserscheid, W. Arlt, „Melting Points of Potential Liquid Organic Hydrogen Carrier Systems Consisting of N-Alkylcarbazoles”, *Journal of Chemical & Engineering Data* **2016**, 61(4), 1441-1448.
- (311) D. S. Karousos, E. Kouvelos, A. Sapalidis, K. Pohako-Esko, M. Bahlmann, O. S. Schulz, P. Wasserscheid, E. Siranidi, O. Vangeli, P. Falaras, P. Kanellopoulos, G. E. Romanos, „Novel Inverse Supported Ionic Liquid Absorbents for Acidic Gas Removal from Flue Gas”, *Industrial & Engineering Chemistry Research* **2016**, 55(19), 5748-5762.
- (312) K. Pohako-Esko, M. Bahlmann, P. S. Schulz, P. Wasserscheid, „Chitosan Containing Supported Ionic Liquid Phase Materials for CO₂ Absorption”, *Industrial & Engineering Chemistry Research* **2016**, 55(25), 7052-7059.
- (313) M. Scheuermeyer, M. Kusche, F. Agel, P. Schreiber, F. Maier, H.-P. Steinrück, J. H. Davis, F. Heym, A. Jess, P. Wasserscheid, „Thermally stable bis(trifluoromethylsulfonyl)imide salts and their mixtures”, *New Journal of Chemistry* **2016**, 40, 7157 - 7161.
- (314) G. Do, P. Preuster, R. Aslam, A. Bösmann, K. Müller, W. Arlt, P. Wasserscheid, “Hydrogenation of the liquid organic hydrogen carrier compound dibenzyltoluene - reaction pathway determination by ¹H NMR spectroscopy”, *Reaction Chemistry & Engineering* **2016**, 1(3), 313-320.
- (315) S. Mehl, T. Bauer, O. Brummerl, K. Pohako-Esko, P. Schulz, P. Wasserscheid, J. Libuda, „Ionic liquid-modified hybrid materials prepared by physical vapor co-deposition: cobalt and cobalt oxide nanoparticles in $[C_1C_2Im][OTf]$ monitored by in-situ IR spectroscopy”, *Langmuir* **2016**, 32(34), 8613-8622.
- (316) J. Albert, A. Jess, A. Kern, F. Pohlmann, K. Glowienka, P. Wasserscheid, “Formic Acid-Based Fischer-Tropsch Synthesis for Green Fuel Production from Wet Waste Biomass and Renewable Excess Energy”, *ACS Sustainable Chemistry & Engineering* **2016**, 4(9), 5078-5086.

- (317) D. Pliquett, P. S. Schulz, F. Heinemann, A. Bause, P. Wasserscheid, "Liquid silver tris(perfluoroethyl)trifluorophosphate salts as new media for propene/propane separation", *Physical Chemistry Chemical Physics* **2016**, 18(40), 28242-28253.
- (318) S. P. Verevkin, J. Messner, V. N. Emel'yanenko, M. G. Gantmann, P. S. Schulz, P. Wasserscheid, „*Thermodynamic Analysis of Isomerisation Equilibria of Chlorotoluenes and Dichlorobenzenes in a Biphasic Reaction Systems Containing Highly Acidic Chloroaluminate Melts*”, *Journal of Physical Chemistry B*, **2016**, 120(51), 13152-13160.
- (319) K. Müller, R. Aslam, A. Fischer, K. Stark, P. Wasserscheid, W. Arlt, "Experimental assessment of the degree of hydrogen loading for the dibenzyl toluene based LOHC system", *International Journal of Hydrogen Energy*, **2016**, 41(47), 22097-22103.
- (320) S. Dürr, M. Müller, H. Jorschick, M. Helmin, A. Bösmann, R. Palkovits, P. Wasserscheid, "Carbon Dioxide-Free Hydrogen Production with Integrated Hydrogen Separation and Storage", *ChemSusChem*, **2017**, 10(1), 42-47.
- (321) A. Kaftan, M. Kusche, M. Kaurin, P. Wasserscheid, J. Libuda, "KOH-promoted P/Al₂O₃ catalysts for water gas shift and methanol steam reforming: An operando DRIFTS-MS study", *Applied Catalysis, B: Environmental* **2017**, 201, 169-181.
- (322) P. Preuster, C. Papp, P. Wasserscheid, „Liquid Organic Hydrogen Carriers (LOHCs): Toward a Hydrogen-free Hydrogen Economy”, *Accounts of Chemical Research*, **2017**, 50(1), 74-85.
- (323) T. Bauer, V. Hager, M. B. Williams, M. Laurin, T. Döpper, A. Görling, N. Szesni, P. Wasserscheid, M. Haumann, J. Libuda, „*Palladium-Mediated Ethylation of the Imidazolium Cation Monitored In Operando on a Solid Catalyst with Ionic Liquid Layer*”, *ChemCatChem*, **2017**, 9(1), 109-113.
- (324) T. Bauer, M. Voggenreiter, T. Xu, T. Wähler, F. Agel, K. Pohako-Esko, P. S. Schulz, T. Döpper, A. Görling, S. Polarz, P. Wasserscheid, J. Libuda, „*ZnO Nanoparticle Formation from the Molecular Precursor [MeZnOtBu]₄ by Ozone Treatment in Ionic Liquids: in-situ Vibrational Spectroscopy in an Ultrahigh Vacuum Environment*”, *Zeitschrift für Anorganische und Allgemeine Chemie*, **2017**, 643(1), 31-40.
- (325) J. Kiefer, A. Bösmann, P. Wasserscheid, „*Quantitative measurement of complex substances dissolved in an ionic liquid using IR spectroscopy and chemometrics*”, *Technisches Messen* **2017**, 84(1), 32-37.
- (326) S. Walter, H. Hahn, R. Franke, W. Hieringer, P. Wasserscheid, M. Haumann, „*Detailed investigation of the mechanism of Rh-diphosphite SILP catalyzed 1-butene hydroformylation in the gas-phase via combined kinetic and DFT modeling studies*”, *ACS Catalysis*, **2017**, 7(2), 1035-1044.
- (327) A. M. Cubillas, X. Jiang, T. G. Euser, N. Taccardi, B. J. M. Etzold, P. Wasserscheid, P. Russel, „*Photochemistry in soft-glass single-ring hollow-core photonic crystal fiber*”, *Analyst*, **2017**, 142(6), 925-929.
- (328) B. Bertleff, J. Claussnitzer, W. Korth, P. Wasserscheid, A. Jess, J. Albert, „*Extraction coupled oxidative desulfurization of fuels to sulfate and water-soluble sulfur compounds using polyoxometalate catalysts and molecular oxygen*”, *ACS Sustainable Chemistry & Engineering*, **2017**, 5(5), 4110-4118.
- (329) A. Fikrt, R. Brehmer, V.-O. Milella, K. Müller, A. Bösmann, P. Preuster, N. Alt, E. Schlücker, P. Wasserscheid, W. Arlt, „*Dynamic power supply by hydrogen bound to a liquid organic hydrogen carrier*”, *Applied Energy* **2017**, 194, 1-8.

- (330) M. Reuss, T. Grube, M. Robinius, P. Preuster, P. Wasserscheid, D. Stolten, "Seasonal storage and alternative carriers: A flexible hydrogen supply chain model", Applied Energy **2017**, 200, 290-302
- (331) E. Moioli, L. Schmid, P. Wasserscheid, H. Freund, "pH Effects in the acetaldehyde-ammonia reaction", Reaction Chemistry & Engineering, **2017**, 2(3), 382-389.
- (332) M. Lijewski, J. M. Hogg, M. Swadza-Kwasny, P. Wasserscheid, M. Haumann, "Coating of Pd/C catalysts with Lewis-acidic ionic liquids and liquid coordination complexes - SCILL induced activity enhancement in arene hydrogenation", RSC Advances, **2017**, 7(44), 27558-27563.
- (333) H. Jorschick, P. Preuster, S. Dürr, A. Seidel, K. Müller, A. Bösmann, P. Wasserscheid, "Hydrogen Storage Using a Hot Pressure Swing Reactor", Energy & Environmental Science **2017**, 10(7), 1652-1659.
- (334) P. Preuster, A. Alekseev, P. Wasserscheid, „Hydrogen Storage Technologies for Future Energy Systems”, Annual Review of Chemical and Biomolecular Engineering, **2017**, 8, 445-471.
- (335) T. Xu, T. Wähler, J. Vecchietti, A. Bonivardi, T. Bauer, J. Schwegler, P. S. Schulz, P. Wasserscheid, J. Libuda, „Gluing Ionic Liquids to Oxide Surfaces: Chemical Anchoring of Functionalized Ionic Liquids by Vapor Deposition onto Cobalt(II) Oxide”, Angewandte Chemie, International Edition **2017**, 6(31), 9072-9076.
- (336) N. Taccardi, M. Grabau, J. Debuschewitz, M. Distaso, M. Brandl, R. Hock, F. Maier, C. Papp, J. Erhard, C. Neiss, W. Peukert, A. Görling, H.-P. Steinrück, P. Wasserscheid, "Gallium-rich Pd-Ga phases as supported liquid metal catalysts", Nature Chemistry, **2017**, ahead of print, DOI:10.1038/nchem.2822.

Patente

- (1) M. von Voß, P. Wasserscheid, DE 401417, „Nonpolluting, biologically degradable moldings“, 1991 [Chem. Abstr. 1992, 116, 61895].
- (2) B. Ellis, W. Keim, P. Wasserscheid, WO 9847616, „Oligomerisation catalyst comprising a buffered ionic liquid“, 1998 [Chem. Abstr. 1998, 129, 332457].
- (3) H. Waffenschmidt, P. Wasserscheid, W. Keim, DE 19901524, „Stabilization of homogeneous catalysts for recycle during distillative product separation using an ionic liquid“, 2000 [Chem. Abstr. 2000, 133, 121974].
- (4) W. Keim, W. Korth, P. Wasserscheid, WO 16902, „Preparation of ionic liquids for catalysts“, 2000 [Chem. Abstr. 2000, 132, 238691].
- (5) W. Keim, S. Ziegert, P. Wasserscheid, WO 2000413, „Ionic salts“, 2000 [Chem. Abstr. 2000, 132, 256580].
- (6) M. D. Jones, S. Grimm, W. Keim, P. Wasserscheid, WO 34311, „Oligomerization of olefins by using catalysts containing complex of chromium compound and 1,3,5-triazacyclohexane“, 2000 [Chem. Abstr. 2000, 133, 45197].
- (7) B. Ellis, F. Hubert, P. Wasserscheid, WO 2000041809, „Ionic liquid catalyst for alkylation“, 2000 [Chem. Abstr. 2000, 133, 107185].
- (8) A. Bösmann, P. Wasserscheid, C. Bolm; W. Keim, WO 155060, „Neuartige chirale ionische Flüssigkeiten und Verfahren zu ihrer Darstellung in enantiomerenreiner oder enantiomerenangereicherter Form“, 2001 [Chem. Abstr. 2001, 135, 152789].

- (9) C. Hilgers, P. Wasserscheid A. Boesmann, EP 1182197, „Single step preparation of ionic fluids by alkylation of amines, phosphines, imidazoles, pyridines, triazoles, and pyrazoles with alkyl halides followed by ion exchange“, 2002 [Chem. Abstr. 2002, 136, 200189].
- (10) C. Hilgers, P. Wasserscheid A. Boesmann, EP1182196, „Preparation of ionic fluids by treatment of amines, phosphines, imidazoles, pyridines, triazoles, and pyrazoles with dialkyl sulfates followed by ion exchange“, 2002 [Chem. Abstr. 2002, 136, 200188].
- (11) U. Kragl, N. Kaftzik, S. Schöfer, P. Wasserscheid, EP 1205555, „Enzymatic catalysis in the presence of ionic liquids“, 2002 [Chem. Abstr. 2002, 136, 368536].
- (12) K. Kühlein, P. Wasserscheid, WO 0249992, „Process for preparing substituted organic compounds and method of using bis(trisubstituted-phosphorous-anylidene)ammonium salt a catalyst for substitution reaction.“, 2002 [Chem. Abstr. 2002, 137, 47017].
- (13) G. Francio, M. Solinas, E. Janssen, W. Leitner, A. Bösmann, P. Wasserscheid, J. Zimmermann, D. Ballivet-Tkatchenko, M. Picquet, S. Stutzmann, WO 2002092204, „Method for activating and immobilizing cationic transition metal catalysts using ionic fluids and compressed CO₂“, 2002 [Chem. Abstr. 2002, 137, 384640].
- (14) P. Wasserscheid, A. Boesmann, R. van Hal, WO 0322812, „Preparation of organic ammonium and phosphonium sulfates as ionic liquids“, 2002 [Chem. Abstr. 2003, 138, 255229].
- (15) A. Jess, W. Müller, P. Wasserscheid, C. Werth, DE 10132526, „Verfahren zur Herstellung von Alkanderivaten“, 2003 [Chem. Abstr. 2003, 138, 74031].
- (16) P. Wasserscheid, A. Boesmann, A. Jess, L. Datsevitch, C. Schmitz, A. Lauter, WO 0337835, „Method for eliminating polarizable impurities from hydrocarbons and hydrocarbon mixtures“, 2003 [Chem. Abstr. 2003, 138, 356392].
- (17) J. T. Dixon, J. J. C. Grove, P. Wasserscheid, D. S. McGuinness, F. M. Hess, H. Maumela, D. H. Morgan, A. Bollmann, WO 0353891, „Trimerization and oligomerization of olefins using a chromium based catalyst“, 2003 [Chem Abstr. 2003, 139, 85795].
- (18) J. T. Dixon, P. Wasserscheid, D. S. McGuinness, F. M. Hess, H. Maumela, D. H. Morgan, A. Bollmann, WO 0353890, „Trimerization and oligomerization of olefins using a chromium based catalyst“, 2003 [Chem Abstr. 2003, 139, 85794].
- (19) P. Wasserscheid, A. Boesmann, R. van Hal, WO 20030228, „Halogen-free ionic liquids“ 2003 [Chem. Abstr. 2003, 719456].
- (20) D. Roettger, F. Nierlich, J. Krissmann, P. Wasserscheid, W. Keim, WO 20030828, „Method for separating organic compounds by extracting or washing them with ionic liquids“ 2003 [Chem. Abstr. 2003, 678757].
- (21) K. Kühlein, P. Wasserscheid, A. Metlen, WO 2003106379, „Method for producing substituted organic compounds and use of catalysis for substitution reactions“. 2003 [Chem. Abstr. 2003, 1006919].
- (22) H. Bohnen, J. Herwig, D. Hoff, R. van Hal, P. Wasserscheid, EP 1400504, „Preparation of aldehydes in ionic liquid solvents“ 2004 [Chem. Abstr. 2004, 246999].
- (23) P. Wasserscheid, B. Drießen-Hölscher, C. Steffens, C. Hilgers, DE 10247578, „New, functionalized ionic liquids and procedures for their production“, 2004 [Chem. Abstr. 2004, 328870].
- (24) R. Forster, P. Wasserscheid, C. Werth, DE 10303304, „Verfahren zur Herstellung nicht-aromatischer Kohlenwasserstoffe“, 2004 [Chem. Abstr. 2004, 605516].

- (25) P. Wasserscheid, R. Van Hal, C. Hilgers, WO 2004096776, „Method for the production of ionic liquids containing alkyl sulphate and functionalised alkyl sulphate-anions”, 2004 [Chem. Abstr. 2004, 965227].
- (26) P. Wasserscheid, R. van Hal, C. Hilgers, PCT Int. Appl., WO 2004096776, „Method for the production of ionic liquids containing alkyl sulphate and functionalized alkyl sulphate-anions” 2004 [Chem. Abstr. 2004, 395586].
- (27) P. Wasserscheid, A. Bösmann, Andreas, R. van Hal, U.S. Pat. Appl., US 2004262578, „Halogen-free ionic liquids” 2004 [Chem. Abstr. 2005, 813].
- (28) P. Wasserscheid, A. Metlen, N. Brausch, WO 2005014547, PCT Int. Appl., „Mixtures of ionic liquids with lewis acids as catalysts” 2005 [Chem. Abstr. 2005, 221616].
- (29) P. Wasserscheid, R. van Hal, C. Hilgers, PCT Int. Appl., US 2006063945, „Process for the preparation of ionic liquids with alkyl sulfate and functionalized alkyl sulfate anions” 2006 [Chem. Abstr. 2006, 269929].
- (30) M. Uerdingen, D. Gerhard, P. Wasserscheid, Eur. Pat. Appl., EP 1679307, “Preparation and use of sulphonium dicyanamides” 2006 [Chem. Abstr. 2006, 680505].
- (31) C. Hilgers, M. Uerdingen, M. Wagner, P. Wasserscheid, E. Schlücker, PCT Int. Appl., WO 2006087333, „Processing or working machine comprising an ionic liquid as the service fluid” 2006 [Chem. Abstr. 2006, 20060824].
- (32) A. Bauer, T. Frey, P. Wasserscheid, P. Schulz, N. Hofmann, PCT Int. Appl. WO 2008000689, „Method for production of organosilicon compounds by hydrosilylation in ionic liquids” 2008 [Chem. Abstr. 2008, 2008000689].
- (33) P. Wasserscheid, A. Bösmann, R. van Hal, U.S. Pat. Appl. Publ. U.S. Ser. No. 798,796, “Ionic liquids” 2008 [Chem. Abstr. 2008, 20080207].
- (34) C. Hilgers, M. Uerdingen, M. Wagner, P. Wasserscheid, E. Schlücker, U.S. Pat. Appl. Publ. PCT/2006US/050941, „Processing and/or operating machine comprising an ionic liquid as the operating liquid” 2008 [Chem. Abstr. 2008, 192050].
- (35) H. Gladen, P. Wasserscheid, M. Medved, PCT Int. Appl. WO 2008071205, „Multinary salt system for storing and transferring thermal energy” 2008, [Chem. Abstr. 2008, 736348].
- (36) M. Ehrig, D. Gerhard, M. Medved, K. Obert, P. Wasserscheid, DE 102007017872, „Method for inertization of oxygen-sensitive heterogeneous catalysts using ionic liquids” 2008, [Chem. Abstr. 2008, 1247387].
- (37) D. Gerhard, P. Wasserscheid, D. Assenbaum, P. S. Schulz, EP 2030948, “Reversible storage medium for hydrogen” 2009, [Chem. Abstr. 2009, 259761].
- (38) J. Schulze, P. Wasserscheid, A. Bösmann, W. Tietz, WO 2009040095, Production of lactic acid by fermentation and extraction using amines, 2009, [Chem. Abstr. 2009, 385949].
- (39) P. Wasserscheid, W. Arlt, L. Mokrushina, DE 102008013738, “New detergents for the removal of acid gases and process for their use”, 2009, [Chem. Abstr. 2009, 1104625].
- (40) P. Wasserscheid, D. Assenbaum, N. Taccardi, DE 102008013617, “Storage of hydrogen” [Chem. Abstr. 2009, 1135456].
- (41) T. Cremer, F. Maier, H.-P. Steinrück, P. Wasserscheid, DE 102008015015, „New hybrid materials“ [Chem. Abstr. 2009, 1160843].

- (42) P. Wasserscheid, N. Paape, A. Bösmann, P. Schulz, WO 2009152902, „Ionic liquids“ [Chem. Abstr. 2009, 1595406].
- (43) N. Schödel, H. Kistenmacher, S. Neuendorf, H.-J. Maass, V. Göke, P. Wasserscheid, D. Assenbaum, N. Taccardi, A. Bösmann, F. Enzenberger, R. Wölfel, M. E. Berger, DE 102009037884 „Generation of hydrogen by liquid phase reaction“ [Chem. Abstr. 2010, 266173].
- (44) M. Haumann, E. Öchsner, P. Wasserscheid, DE 102009011815, “Hybrid materials for the heterogeneous catalyzed asymmetric hydrogenation in gas contact and procedure for their application” [Chem. Abstr. 2010, 1128012].
- (45) N. Szczesni, S. Müller, R. Fischer, P. Wasserscheid, M. Haumann, E. Öchsner, S. Loekman, A. Demin, DE 102009017498, „Use of a catalyst composition to the olefin metathesis in the gas phase and procedure for the olefin metathesis in the gas phase“ [Chem. Abstr. 2010, 1337025].
- (46) V. Ladnak, L. Ott, S. Schlenk, P. Wasserscheid, WO 2011012300, „Process for the alkylation of arylamines“, [Chem. Abstr. 2011, 138385].
- (47) R. Fischer, M. Kaiser, P. Wasserscheid, M. Haumann, S. Werner, WO 2011023368, „Catalyst composition for converting carbon monoxide“, [Chem. Abstr. 2011, 262467].
- (48) C. Böing, D. Maschmeyer, M. Winterberg, S. Buchholz, B. Melcher, M. Haumann, P. Wasserscheid, WO 2011029691, „Procedure for the oligomerisierung of olefins“, [Chem. Abstr. 2011, 288993].
- (49) P. Wasserscheid, W. Arlt, DE 102010009543 A1 20110901, „High-efficiency energy storage and energy transport systems for solar radiation energy, based on alkaline earth oxides and alkaline earth carbonates“, [Chem. Abstr. 2011, 1102362].
- (50) H. Winkler, H.-J. Maas, P. Wasserscheid, M. Mostertz, WO 2011120706 A1 20111006, „Method and device for storing energy“, [Chem. Abstr. 2011, 1262868].
- (51) J. Sundermeyer, P. Wasserscheid, M. Stricker, B.U. Melcher, DE 2010-102010036631, „Producing a dialkyl carbonate by oxidative carbonylation in the presence of a supported on a solid phase substrate copper-containing catalyst“, [Chem. Abstr. 2012, 161550].
- (52) A. Bösmann, R. Wölfel, P. Wasserscheid, N. Taccardi, J. Albert, WO 2012034839 A1 20120322, „Method for catalytically producing formic acid“, [Chem. Abstr. 2012, 428826].
- (53) R. Franke, N. Brausch, D. Fridag, A. Christiansen, M. Becker, P. Wasserscheid, M. Haumann, M. Jakuttis, S. Werner, A. Schönweiz, DE 2010-102010041821, „Application of supported ionic liquid phase catalyst systems in the hydroformylation of olefin-containing mixtures to aldehyde mixtures with high portion of nonbranched aldehydes, [Chem. Abstr. 2012, 501339].
- (54) S. Schlenk, P. Wasserscheid, C. Rijksen, C. Noti, P. Hanselmann, WO 2012140277 A2 20121018, „Method for preparation of mononitrated aromatic compounds“, [Chem. Abstr. 2012, 1521016].
- (55) A. Bösmann, F. Enzenberger, H.-J. Maass, P. Wasserscheid, DE 102011101061 A1 20121115, „Catalyst system for the steam reforming of methanol“, [Chem. Abstr. 2012, 1668265].
- (56) S. Schlenk, P. Wasserscheid, C. Rijksen, C. Noti, P. Hanselmann, WO 2012156540 A2 20121122, „Method for preparation of mononitrated aromatic compounds“, [Chem. Abstr. 2012, 1701840].

- (57) D. Assenbaum, P. Wasserscheid, W. Schwieger, S. Feldmeier, C. Körner, J. Schwerdtfeger, A. Inayat, R. Singer, D. Teichmann, DE 102011079858 A1 20130131, "Reactor for the release of hydrogen by decomposition of hydrogen-containing organic liquids", [Chem. Abstr. 2013, 160056].
- (58) W. Arlt, P. Wasserscheid, WO 2013026910 A1 20130228, "Arrangement and method for supplying energy to buildings", [Chem. Abstr. 2013, 319162].
- (59) W. Arlt, P. Wasserscheid, DE 2012-102012004444, "Arrangement and process for the operation of hydrogen gas stations", [Chem. Abstr. 2013, 137935].
- (60) W. Arlt, P. Wasserscheid, DE 2012-102012005023, "Arrangement and process for autonomous supply of electricity over hydrogen", [Chem. Abstr. 2013, 1413760].
- (61) S. Kuhlmann, H.-M. Weber, U. Böger, P. Wasserscheid, S. Schlenk, J. Messner, WO 2013189848, „Method for the isomerization of substituted aromatic substances using a molten metal salt”, [Chem. Abstr. 2013, 993608].
- (62) C. Dreisbach, J.-D. Jentsch, L. Heuer, P. Wasserscheid, A. Rittsteiger, M. Mechelhoff, EP 2703374 A1 20140305, „Methode zur Herstellung von Menthol“, [Chem. Abstr. 2014, 357253].
- (63) A. Bösmann, P. Wasserscheid, N. Brückner, D. Teichmann, J. Dungs, DE 102012221809, „Liquid compounds and processes for their use as hydrogen reservoirs“, [Chem. Abstr. 2014, 861158].
- (64) W. Arlt, P. Wasserscheid, DE 102011121704, „Arrangement and method for storing energy in buildings and supplying energy to buildings“, [Chem. Abstr. 2014, 1704912].
- (65) K. M. Dyballa, R. Franke, H. Hahn, M. Becker, A. Schönweiz, J. Debuschewitz, S. Walter, R. Wölfel, M. Haumann, P. Wasserscheid, A. Kaftan, M. Laurin, J. Libuda, DE 2013-102013207104, „Immobilized catalytically active composition for hydroformylation of olefin-containing mixtures“, [Chem. Abstr. 2014, 1785381].
- (66) A. Schraven, P. Schwab, T. Salomon, R. Schneider, J. Rolker, B. Willy, O. Zehnacker, M. Seiler, M. Bahlmann, P. S. Schulz, P. Wasserscheid, DE 102013010035 A1, „Absorption medium and process for the absorption of CO₂ from a gas mixture [Chem. Abstr. 2014, 2098238].
- (67) M. Eypasch, M. Zenner, A. Schwarz, P. Wasserscheid, DE 102013214313 A1, "Reactor for the release of hydrogen from a liquid compound", [Chem Abstr. 2015, 120320].
- (68) M. Eypasch, M. Zenner, W. Peters, P. Wasserscheid, WO 2015010821 A1 20150129, „Reactor for releasing hydrogen from a liquid compound“, [Chem Abstr. 2015:164871].
- (69) A. Bösmann, P. Preuster, M. Schmidt, D. Teichmann, P. Wasserscheid, W. Arlt, DE 102013223589 A1 20150521, „Installation and process for reservoirs of hydrogen energy“, [Chem Abstr. 2015:860939].
- (70) D. Teichmann, P. Wasserscheid, W. Arlt, DE 102013223588 A1 20150521, „Installation and process for reservoirs of hydrogen energy“, [Chem Abstr. 2015:860952].
- (71) A. Bösmann, R. Wölfel, P. Preuster, D. Teichmann, P. Wasserscheid, DE 102013223588 A1 20150521, „Installation and process for reservoirs of hydrogen energy“, [Chem Abstr. 2015:861043].
- (72) A. Bösmann, A. Westerhold, P. Wasserscheid, Y. Yasmin, M. Wolf, W. Holweger, B. Pohrer, E. Schlücker, M. Uerdingen, N. Wehrum, DE 102013112868 A1 20150521,

- „Corrosion protection of machine parts using ionic liquid preservatives”, [Chem Abstr. 2015:860964].
- (73) W. Arlt, A. Bösmann, P. Preuster, P. Wasserscheid, DE 102014201332, „System and process for the material use of hydrogen”, [Chem Abstr. 2015: 1239143].
- (74) R. Franke, H. Hahn, T. Quandt, P. Wasserscheid, M. Haumann, S. Walter, WO 2015132068 A1 20150911, „Method for producing aldehydes from alkanes and synthesis gas”, [Chem Abstr. 2015: 1471959].
- (75) R. Franke, H. Hahn, T. Quandt, P. Wasserscheid, M. Haumann, S. Walter, DE 102014203960 A1 20150910, „Process for the production of aldehydes from alkanes and synthesis gas”, [Chem Abstr. 2015: 1460701].
- (76) J. Hufschmidt, A. Westerholt, A. Bösmann, P. Wasserscheid, S. Kuhlmann, J. Reiners, V. Rabe, EP 2937426 A1 20151028, “Method for removing chromium from material containing collagen and chromium, [Chem Abstr. 2015: 1726451].
- (77) J. Reinders, S. Kuhlmann, V. Rabe, J. Hufschmidt, A. Westerholt, A. Bösmann, P. Wasserscheid, WO 2015161998 A1 20151029 „Method for removing chromium from material containing collagen and chromium”, [Chem Abstr. 2015:1726991].
- (78) P. Wasserscheid, A. Bösmann, N. Brückner, DE 102014210464 A1 20151203, „Use of a substrate for hydrogen storage and process for hydrogen storage and release”, [Chem. Abstr. 2015:1933341].
- (79) W. Arlt, K. Stark, P. Wasserscheid, DE 1020141116345 A1 20160512 and WO 2016075077 A1 20160519, Process for measuring a hydrogenation degree, [Chem. Abstr. 2016: 762398].
- (80) P. Preuster, A. Bösmann, P. Wasserscheid, DE 102014223426 A1 20160519 and WO 2016078949 A1 20160526, Load/unloading unit for hydrogen, installation with a such load/unloading unit and process for storage and releasing of energy, [Chem. Abstr. 2016: 804895] and [Chem. Abstr. 2016: 848904].
- (81) P. Wasserscheid, W. Arlt, D. Teichmann, DE 102014223427 A1 20160519 and WO 2016078948 A1 20160526, Process and installation for producing and storage of hydrogen, [Chem. Abstr. 2016: 804984] and [Chem. Abstr. 2016: 848832].
- (82) W. Bonrath, T. Clavey, I. Gummin, F. Mascarello, P. Schulz, M. Thomann, P. Wasserscheid, WO 2016110560 A1 20160714, Process of production of specific acetals and ketals via ketalization of ketones and acetalization of aldehydes by alcohols in ionic liquids, [Chem. Abstr. 2016: 1163912].
- (83) J. Albert, A. Bösmann, J. Reichert, P. Wasserscheid, WO 2016116405 A1 20160728, Method for separating formic acid from a reaction mixture, [Chem. Abstr. 2016: 1245748].
- (84) H. Hahn, K. M. Dyballa, R. Franke, D. Fridag, S. Walter, M. Haumann, P. Wasserscheid, DE 102015201560 A1 20160804, SILP catalyst for hydroformylation of olefins with synthesis gas, [Chem. Abstr. 2016: 1271343].
- (85) J. Albert, M. Baldauf, J. Reichert, A. Tremel, P. Wasserscheid, DE 102015202680 A1 20160818, Process for the execution of a chemical synthesis and synthesis reactor, [Chem. Abstr. 2016: 1344775].
- (86) J. Albert, M. Baldauf, J. Reichert, A. Tremel, P. Wasserscheid, DE 102015215662 A1 20170223, Process for the conversion of equilibrium-limited reactions, [Chem. Abstr. 2017: 314626].
- (87) J. Albert, M. Baldauf, J. Reichert, A. Tremel, P. Wasserscheid, DE 102015216037 A1 20170223, Process for the supply of a synthesis gas, [Chem. Abstr. 2017:314605].

Zusammenfassung in Form von Publikationsstatistiken

ISI Web of Science (31.7.2017):

Anzahl der Veröffentlichungen im ISI Web of Science: 308;
Gesamtzahl Zitationen: 17187;
h-Faktor: 62;
Durchschnitt der Zitationen pro Veröffentlichung: 55,8.

SCOPUS (31.7.2017):

Anzahl der Veröffentlichungen in SCOPUS: 352;
Gesamtzahl Zitationen: 16007
h-Faktor: 63
Durchschnitt der Zitationen pro Veröffentlichung: 45,5.

Google Scholar (31.7.2017):

Gesamtzahl Zitationen: 29321;
h-Faktor: 75.