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Gesellschaft für Chemische Technik
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DGM

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Deutsche Gesellschaft für Materialkunde e.V.

PROGRAMME

May 12 – 16, 2013

Convention Center Karlsruhe · Germany

2nd International Conference on Materials for Energy

www.dechema.de/enmat2013



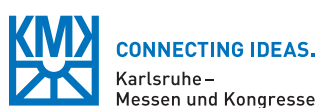
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Applications

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MAP OF CONFERENCE VENUE 55 – backside

INTERNET ACCESS FOR CONFERENCE PARTICIPANTS

Wireless internet access is available free of charge for conference participants.

Please connect to the wireless network **DECHEMA** using the password **enmat2013**.

CONFERENCE ORGANIZER

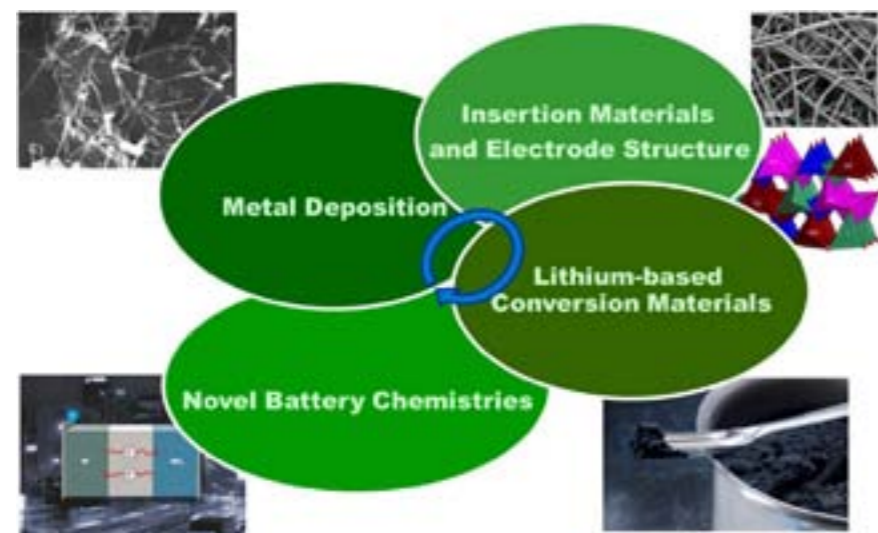
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Helmholtz Institute Ulm (HIU) for Electrochemical Energy Storage



The Karlsruhe Institute of Technology (KIT) is the institution that founded – in cooperation with the Ulm University – and which supervises the Helmholtz Institute Ulm for Electrochemical Energy Storage (HIU). Associated partners of KIT and the Ulm University are the German Aerospace Center (DLR) and the Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW).

- HIU combines the expertise of these four partners in the pursuit of application-oriented basic research that it sees as the basis for the development of advanced battery systems.
- At HIU, the scientific bases are being created and improved for developing the means to store electrochemical energy for mobile and stationary applications. HIU covers all the fields of basic research on batteries and provides a bridge up to the system level.
- The areas of research are: basic research in electrochemistry, materials research, theory and modeling of (electro)chemical processes, system considerations and analytic methods. Individual research activities will be bundled by establishing shared cross-sectorial projects:



HIU is located on the campus of the University of Ulm and is a part of the Helmholtz Association of German Research Centers.

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Electrochemical Energy Storage**
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HIU – Joint Research Institute of KIT and Ulm University with associated partners DLR and ZSW
KIT – University of the State of Baden-Württemberg and National Research Center of the Helmholtz-Association

CONFERENCE AND SYMPOSIA CHAIRS

CONFERENCE CHAIRS

Jim DeYoreo	Pacific Northwest National Laboratory, Richland/USA
Maximilian Fleischer	Siemens AG, Munich/D
Horst Hahn	Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
Cynthia A. Volkert	University of Göttingen/D
Nae-Lih Wu	National Taiwan University, Taipei/TW

SYMPOSIA CHAIRS

FUEL CELLS

Niels Christiansen	Topsøe Fuel Cell, Lyngby/DK
John B. Hansen	Haldor Topsøe A/S, Lyngby/DK
Frank Tietz	Forschungszentrum Jülich/D

THERMOELECTRICS

Yaniv Gelbstein	Ben-Gurion University of the Negev, Beer-Sheva/IL
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PHOTOVOLTAICS

Thomas Mayer	TU Darmstadt/D
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BIOMASS AND BIOFUEL

Roberto Rinaldi	MPI für Kohlenforschung, Mülheim an der Ruhr/D
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FOSSIL AND NUCLEAR POWER PLANTS

Damien Féron	CEA Commissariat à l'Energie Atomique, Gif-sur-Yvette/F
Karl Maile	University of Stuttgart/D

WATER SPLITTING

Christian Jooß	University of Göttingen/D
Roel van de Krol	Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D

ELECTROCHEMICAL ENERGY STORAGE

Maximilian Fichtner	Karlsruhe Institute of Technology/D	organized by Helmholtz Institute Ulm
Horst Hahn	Karlsruhe Institute of Technology/D	



H₂ AND CHEMICAL STORAGE

Jacques Huot	University of Quebec, Trois-Rivieres/CAN
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THERMAL ENERGY STORAGE

Antje Wörner	German Aerospace Center (DLR), Stuttgart/D
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CAPACITORS AND SUPERCAPACITORS

Kai-Christian Möller	Fraunhofer Institute for Chemical Technology ICT, Garching/D
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GAS TO LIQUID

Björn Mathes	DEHEMA e.V., Frankfurt am Main/D	sponsored by the research project NEXT-GTL
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CONDUCTOR MATERIALS

Ruslan Z. Valiev	Ufa State Aviation Technical University/RUS
Julia Ivanisenko	Karlsruhe Institute of Technology/D

SOLID-STATE LIGHTING

Martin Zachau	Osram GmbH, Augsburg/D
Stefan Lange	Osram GmbH, Schwabmünchen/D

CATALYSIS

Marie-Isabelle Baraton	Université de Limoges/F	sponsored by Bayer AG, Leverkusen
Sam Mao	University of California at Berkeley, CA/USA and International Institute of New Energy, Shenzhen/PRC	



ENERGY EFFICIENT MAGNETIC MATERIALS

Oliver Gutfleisch	TU Darmstadt/D
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MATERIALS FOR EXTREME ENVIRONMENTS

Ralf Moos	University of Bayreuth/D
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MODELLING OF MATERIALS AND PROCESSES

Arnulf Latz	DLR and Helmholtz Institute Ulm/D
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NEW (NANO-)MATERIALS IN ENERGY TECHNOLOGY

The workshop is organized by the 2012 award winners of the Kepler prize – awarded by the European Academy of Sciences

PROGRAMME AT A GLANCE

Sunday, 12 May 2013

10:00 - 18:00	Assembly of Exhibition – Stand Assembly from 15:00-18:00
18:00 - 20:00	Registration and Welcome Reception

Monday, 13 May 2013

08:30 - 10:00	Registration & Coffee						
Room:	Weinbrenner-Saal – Level 0						
10:00 - 10:30	Opening Ceremony						
Chair:	M. Fleischer, Siemens AG, Munich/D						
10:30 - 11:30	PLENARY LECTURE Mesoscopic photosystems for the generation of electricity and fuels from sunlight – M. Graetzel, EPFL, Lausanne/CH						
Chair:	C.A. Volkert, University of Göttingen/D						
11:30 - 12:30	PLENARY LECTURE Energy storage – challenges and perspectives – M. Fichtner, Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D						
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.						
Room:	Thoma-Saal Level -1	Mombert-Saal Level -1	Scheffel-Saal Level -1	Clubraum Level 0	Hebel-Saal Level -1	Forum 1 Level 0	
Symposia:	Electrochemical energy storage		Fuel cells	Fossil and nuclear power plants	H ₂ and chemical storage	New (nano-) materials in energy technology – Kepler-Symposium see page 29	
Chair:	M. Fichtner		N. Christiansen, J.B. Hansen & F. Tietz	D. Féron & K. Maile	J. Huot		
14:00 - 14:20	P. Hartmann		M. Kusnezoff	V. Avincola	P. Ngene		
14:20 - 14:40	S. Meini		J. Schwank	J. Florek	L. Röntzsch		
14:40 - 15:00	K.U. Schwenke		K. Lu	F. Arbeiter	J. Gao		
15:00 - 15:20	J. Brückner		J. Lee	J. Mentz	O. Narygina		
15:20 - 15:40	A.F. Hofmann		W.G. Bessler	S.A. McCoy	Y.S. Au		
15:40 - 16:10	Coffee Break						
Symposia:	Electrochemical energy storage		Fuel cells	Fossil and nuclear power plants	H ₂ and chemical storage		
Chair:	A. Latz		N. Christiansen, J.B. Hansen & F. Tietz	D. Féron & K. Maile	J. Huot		
16:10 - 16:30	INVITED LECTURE		C. Niedrig	G. Adamová	M. Tegel		
16:30 - 16:50	A.A. Franco		C. Benel	M. Titirici	H.-D. Bauer		
16:50 - 17:10	N. Hörmann		T. Gietzelt	J. Malzbender	P.E. de Jongh		
17:10 - 17:30	M. Huttin		A. Haas	A. Goldbach	K. Müller		
17:30 - 17:50	J. Rohrer		S. Kaserer		H. Junge		
17:50 - 21:00	Poster Session 1						

Tuesday, 14 May 2013

Room:	Thoma-Saal Level -1	Mombert-Saal Level -1	Scheffel-Saal Level -1	Clubraum Level 0	Hebel-Saal Level -1	Forum 1 Level 0	
Symposia:	Electrochemical energy storage		Fuel cells	Modelling of materials and processes	H ₂ and chemical storage	New (nano-) materials in energy technology – Kepler-Symposium see page 29	
Chair:	M. Fichtner		N. Christiansen, J.B. Hansen & F. Tietz	A. Latz	J. Huot		
09:00 - 09:20	INVITED LECTURE		A. Wolz	J. Zausch	I. Utz		
09:20 - 09:40	S. Orimo		A. Holewinski	M. Kamlah	C. Agraftotis		
09:40 - 10:00	S. Fleischmann		H. Ferreira	M. Kespe	I. Ivanova		
10:00 - 10:20	INVITED LECTURE		A. Marcu	INVITED LECTURE	T. Rauscher		
10:20 - 10:40	L. Aymard		G. Soloveichik	C. Guhke	C.I. Müller		
10:40 - 11:10	Coffee Break						
Symposia:	Electrochemical energy storage	Electrochemical energy storage	Fuel cells	Thermal energy storage	Water splitting		
Chair:	S. Orimo	R. Mohtadi	N. Christiansen, J.B. Hansen & F. Tietz	M. Eck	C. Jooß & R. van de Krol		
11:10 - 11:30	INVITED LECTURE	N. Löffler	N. Aoun	K. Kaleta	A. Weidenkaff		
11:30 - 11:50	B. Dam	R.-S. Kühnel	M. Naderi	E.M. Piedra	H. Tüysüz		
11:50 - 12:10	N. Oehl	Y. Cui	F. Mack	N. Pflieger	A. Stepanovich		
12:10 - 12:30	T. Danner	M.H. Braga	E. Heider	J. Pacio	R. Beranek		
12:30 - 12:50	L. Grande	D. Karabelli	C. Niether	S. Doppii	G. De Temmerman		
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.						
Symposia:	Electrochemical energy storage	Materials for extreme environments	Thermoelectrics	Thermal energy storage	Water splitting	New (nano-) materials in energy technology – Kepler-Symposium see page 29	
Chair:	M. Anji Reddy	R. Moos	Y. Gelbstein	A. Wörner	C. Jooß & R. van de Krol		
14:00 - 14:20	M.F. Toney	A. Wiltner	F. Seeler	C. Roßkopf, S. Schäfer	P. Kurz		
14:20 - 14:40	C.N. Lin	J. Hattrick-Simpers	H. Renner	H.U. Rammelberg	R. Marschall		
14:40 - 15:00	H. Wulfmeier	K. Lu	B. Feng	S. Bruzzano	U. Wijayantha		
15:00 - 15:20	G. Kilibarda	M. Meffert	S. Conze	J.M. Coronado	A. Tacca		
15:20 - 15:40	D. Rettenwander	V. Peres	I. Opahle	M. Molenda	L. Weinhardt		
15:40 - 16:10	Coffee Break						
Symposia:	Electrochemical energy storage	Materials for extreme environments	Energy efficient magnetic materials	Thermal energy storage	Water splitting PANEL DISCUSSION		
Chair:	M.F. Toney	R. Moos	S. Sawatzki	A. Wörner	Strategies for tackling the challenge of water splitting catalysis		
16:10 - 16:30	Z. Zhao-Karger	H. Ackermann	Y. Kim	R. Andre	R. van de Krol, Berlin		
16:30 - 16:50	J. Illig	L.-M. Wang	E. Delczeg	O. Andersen	P. Kurz, Freiburg		
16:50 - 17:10	K. Schmale	A. Momber	K. Güth	D. Shchukin	A. Weidenkaff, EMPA/CH		
17:10 - 17:30	D. Kramer	A. Keserovic	R. Yin	P. Günther	W. Jaegermann, Darmstadt		
17:30 - 17:50	E. Epler	M. Spiegel	K. Plaskonka-Weisenburger	L. Schnabel	C. Jooß, Göttingen		
17:50 - 21:00	Poster Session 2						

PROGRAMME AT A GLANCE

Wednesday, 15 May 2013

Room:	Weinbrenner-Saal – Level 0						
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D						
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields – L. Schultz, IFW Dresden/D						
09:45 - 10:15	Coffee Break						
Chair:	N. Wu, National Taiwan University, Taipei/TW						
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology – C. Lan, National Taiwan University, Taipei/TW						
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA						
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility – D. Aranda, Universidade Federal do Rio de Janeiro/BR						
12:15 - 12:30	Award Session – best poster award						
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.						
Room:	Thoma-Saal Level -1	Mombert-Saal Level -1	Scheffel-Saal Level -1	Clubraum Level 0	Hebel-Saal Level -1	Forum 1 Level 0	
Symposia:	Electrochemical energy storage	Biomass and biofuel	Photovoltaics	Gas to liquid	Conductor materials	New (nano-) materials in energy technology – Kepler-Symposium see page 29	
Chair:	F. Cosandey & L. Aymard	R. Rinaldi	T. Mayer	B. Mathes	J. Ivanisenko & R.Z. Valiev		
14:00 - 14:20	INVITED LECTURE	J.U.Oltmanns	S. Raupp	S. Abate	Opening talk		
14:20 - 14:40	R. Mohtadi	G. Assanelli	D. Munoz-Rojas	J. Caro	J. Ivanisenko & R.Z. Valiev		
14:40 - 15:00	X. Zhao	J. Albert	S. Janietz	E. Tangstad	INVITED LECTURE		
15:00 - 15:20	K. Foster-Tonigold	INVITED LECTURE	M. Klein	C. Tempelman	M. Lewandowska		
15:20 - 15:40	B. Breitung	T.S.J. Schubert	M. Reinhard	M.A. Pop	INVITED LECTURE		
15:40 - 16:10	Coffee Break						
Symposia:	Electrochemical energy storage	Biomass and biofuel	Photovoltaics	Catalysis	Conductor materials		
Chair:	M. Titirici	R. Rinaldi	T. Mayer	M.-I. Baraton & S. Mao	J. Ivanisenko & R.Z. Valiev		
16:10 - 16:30	G. Lieser	Q. Wu	A.B.M. Ismail	M. Machida	INVITED LECTURE		
16:30 - 16:50	C. Rongeat	M. Källdström	S. Grankowska	S. Lee	Z. Horita		
16:50 - 17:10	D. Albrecht	M. Johansson	D.R. Batchelor	P. Wagener	B. Straumal		
17:10 - 17:30	E. Bekaert	I.V. Deliy	J. Maibach	I.Z. Ismagilov	M.V. Lobanov		
17:30 - 17:50	M.B. Sahana	M. Omraei		S. Vajda	N. Yang		
20:00 - 24:00	Conference Dinner at the Weinbrenner-Saal						

Thursday, 16 May 2013

Room:	Thoma-Saal Level -1	Mombert-Saal Level -1	Scheffel-Saal Level -1	Clubraum Level 0	Hebel-Saal Level -1	
Symposia:	Electrochemical energy storage	Electrochemical energy storage	Solid state lighting	Catalysis	Conductor materials	
Chair:	E. Bekaert	L. Aymard	M. Zachau & S. Lange	M.-I. Baraton & S. Mao	B. Straumal & Y. Champion	
09:00 - 09:20	V. Sauchuk	P. Schaaf	INVITED LECTURE	E.V. Ramos-Fernandez	INVITED TALK	
09:20 - 09:40	H. Nirschl	A.-H. Zinn	C. Wickleder	F. Hasché	I. Sabirov	
09:40 - 10:00	B. Bitsch	F. Müller	S. Lange	Y.-J. Wu	INVITED TALK	
10:00 - 10:20	C. Werner	M. Lepple	K. Müller-Buschbaum	T. Franken	L. Thilly	
10:20 - 10:40	M. Ferch	B. Das	O. Diwald	M. Seitz	D. Fattakhova-Rohlfing	
10:40 - 11:10	Coffee Break					
Symposia:	Electrochemical energy storage	Electrochemical energy storage	Capacitors and supercapacitors	Catalysis	Conductor materials	
Chair:	X. Zhao	M. Fichtner	K.-C. Möller	M.-I. Baraton & S. Mao	B. Straumal & Y. Champion	
11:10 - 11:30	M. Titirici	R. Amade	M. Oschatz	M. Dreher	INVITED TALK	
11:30 - 11:50	Z. Choi	M.M. Shaijumon	J. Glenneberg	J. Schneider	S.V. Dobatkin	
11:50 - 12:10	J. Feckl	R. Mönig	A.M. Bihag	M. Behrens	E. Bobruk	
12:10 - 12:30	S. Glatthaar	C. Loho	G. Mondragon Rodriguez	J. Lauterbach	R.K. Islamgaliev	
12:30 - 12:50	B. Pascucci	S. Ulrich	T.J.S. Schubert	M. Landau	M. Murashkin	
12:50	End of the conference					

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PLENARY LECTURES / SOCIAL EVENTS / REGISTRATION

PLENARY LECTURES

Monday, May 13, 2013

Mesoscopic photosystems for the generation of electricity and fuels from sunlight

M. Graetzel, EPFL, Lausanne/CH

Energy storage – challenges and perspectives

M. Fichtner, Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D

Wednesday, May 15, 2013

Energy efficient transportation by superconducting levitation – riding on magnetic fields

L. Schultz, IFW Dresden/D

Recent developments in solar photovoltaics: market, industry, and technology

C. Lan, National Taiwan University, Taipei/TW

Challenges in the microalgae energy feasibility

D. Aranda, Universidade Federal do Rio de Janeiro/BR

SOCIAL EVENTS – WELCOME RECEPTION / CONFERENCE DINNER

Sunday, May 12, 2013

18:00 – 20:00

Welcome Reception

The Welcome Reception takes place on Sunday, May 12, from 18:00-20:00 h to welcome all participants for a welcome drink and snack. Free of charge, please register.

Wednesday, May 15, 2013

20:00 – 24:00

Conference Dinner

The Conference Dinner takes place on Wednesday, May 15 from 20:00-24:00 h at the Weinbrenner-Saal of the conference venue. Registration is required, tickets cost EUR 40 incl. VAT each and include dinner buffet and drinks. Enjoy an evening with your colleagues.

REGISTRATION

The registration starts on Sunday, May 12, 2013 from 18:00-20:00 h, and on Monday, May 13, 2013 at 8:00 h. Registration is also possible during the conference at the registration counter.



Bayer: HealthCare CropScience

MaterialScience

Monday, May 13, 2013

08:30 - 10:00	Registration and Coffee
Room:	Weinbrenner-Saal – Level 0
10:00 - 10:30	Opening Ceremony
Chair:	M. Fleischer, Siemens AG, Munich/D
10:30 - 11:30	PLENARY LECTURE Mesoscopic photosystems for the generation of electricity and fuels from sunlight M. Graetzel, EPFL, Lausanne/CH
Chair:	C.A. Volkert, University of Göttingen/D
11:30 - 12:30	PLENARY LECTURE Energy storage – challenges and perspectives M. Fichtner, Karlsruhe Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Thoma-Saal – Level -1
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 
Chair:	M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
14:00 - 14:20	A rechargeable room-temperature sodium superoxide (NaO₂) battery P. Hartmann, C.L. Bender, University Giessen/D; M. Vracar, BELLA, Karlsruhe/D; A. Garsuch, A.K. Dürr, BASF, Ludwigshafen/D; J. Janek, P. Adelhelm, University Giessen/D
14:20 - 14:40	Capacity limitations in Li-O₂ cell discharge and effect of contaminants and irreversible reactions on capacity and cycle life S. Meini, M. Piana, N. Tsiouvaras, Technical University of Munich, Garching/D; A. Garsuch, BASF SE, Ludwigshafen/D; H.A. Gasteiger, Technical University of Munich, Garching/D
14:40 - 15:00	Reactivity of the superoxide anion radical with non-aqueous Li-O₂ battery electrolytes K.U. Schwenke, M. Piana, S. Meini, X. Wu, H.A. Gasteiger, TU München, Garching/D
15:00 - 15:20	New anodes enable superior cycle stability in the lithium-sulfur battery J. Brückner, S. Thieme, I. Bauer, H. Althues, S. Kaskel, Fraunhofer IWS, Dresden/D
15:20 - 15:40	Understanding the effects of the polysulfide shuttle in Li/S batteries: a one-dimensional continuum model A.F. Hofmann, A. Latz, German Aerospace Center (DLR), Stuttgart/D; W.G. Bessler, Offenburg University of Applied Sciences/D
15:40 - 16:10	Coffee Break
Chair:	A. Latz, German Aerospace Center (DLR), Stuttgart/D
16:10 - 16:50	INVITED LECTURE Towards a multiscale model of conversion reactions in lithium ion and lithium air batteries: concepts, methods and challenges A.A. Franco, LRCS, Université de Picardie Jules Verne & CNRS/F
16:50 - 17:10	DFT calculations of surface properties of Li₂FeSiO₄ N. Hörmann, Helmholtz Institute Ulm/D; A. Groß, Ulm University/D
17:10 - 17:30	Phase-field modeling of the coupling between diffusion and stresses in electrode particles of lithium ion batteries M. Huttin, M. Kamlah, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
17:30 - 17:50	Degradation of Si anodes: insights from DFT calculations J. Rohrer, K. Albe, TU Darmstadt/D
17:50 - 21:00	POSTER SESSION 1 Authors of posters are expected to be available for discussion

Monday, May 13, 2013

08:30 - 10:00	Registration and Coffee
Room:	Weinbrenner-Saal – Level 0
10:00 - 10:30	Opening Ceremony
Chair:	M. Fleischer, Siemens AG, Munich/D
10:30 - 11:30	PLENARY LECTURE Mesoscopic photosystems for the generation of electricity and fuels from sunlight M. Graetzel, EPFL, Lausanne/CH
Chair:	C.A. Volkert, University of Göttingen/D
11:30 - 12:30	PLENARY LECTURE Energy storage – challenges and perspectives M. Fichtner, Karlsruhe Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Scheffel-Saal – Level -1
	Fuel cells
Chair:	N. Christiansen, Topsoe Fuel Cell, Lyngby/DK; J.B. Hansen, Haldor Topsoe A/S, Lyngby/DK; F. Tietz, Forschungszentrum Jülich/D
14:00 - 14:20	Novel low temperature sintering spinel composite cathodes for metal-supported SOFCs E. Dietzen, N. Trofimenko, M. Kusnezoff, C. Belda, A. Michaelis, Fraunhofer IKTS, Dresden/D
14:20 - 14:40	Direct dry methane reforming SOFC with NiO-SDC anode Z. Wang, Tianjin University/PRC; J. Schwank, University of Michigan, Ann Arbor, MI/USA; Y. Li, Tianjin University/PRC
14:40 - 15:00	La_{1-x}Sr_xCo_{1-y}Fe_yO₃ interactions and performance behaviors in solid oxide fuel cells K. Lu, W. Li, Virginia Tech, Blacksburg, VA/USA
15:00 - 15:20	Transition metal oxides as interconnect materials for solid oxide fuel cells: materials synthesis and thin-layer coating J. Lee, B. Park, S. Lee, T. Lim, S. Park, R. Song, Korea Institute of Energy Research, Daejeon/ROK
15:20 - 15:40	Prediction of secondary-phase formation and degradation in solid oxide fuel cell anodes J.P. Neidhardt, V. Yurkiv, German Aerospace Center, Stuttgart/D; W.G. Bessler, Offenburg University of Applied Sciences/D
15:40 - 16:10	Coffee Break
Chair:	N. Christiansen, Topsoe Fuel Cell, Lyngby/DK; J.B. Hansen, Haldor Topsoe A/S, Lyngby/DK; F. Tietz, Forschungszentrum Jülich/D
16:10 - 16:30	Oxygen stoichiometry changes and pO₂-dependent stability of selected MIEC perovskites C. Niedrig, W. Menesklou, S.F. Wagner, Karlsruhe Institute of Technology/D; S. Baumann, Forschungszentrum Jülich/D; E. Ivers-Tiffée, Karlsruhe Institute of Technology/D
16:30 - 16:50	Synthesis and characterization of La_{0.6}Sr_{0.4}CoO_{3-δ} cathodes for micro-solid oxide fuel cells C. Benei, A. J. Darbandi, Karlsruhe Institute of Technology & TU Darmstadt/D; A. Evans, R. Tölke, M. Prestat, ETH Zurich/CH; H. Hahn, Karlsruhe Institute of Technology & TU Darmstadt/D
16:50 - 17:10	Laser welding of multilayer stacks made of thin sheet material for micro process engineering devices T. Gietzelt, L. Eichhorn, M. Kraut, R. Dittmeyer, Karlsruhe Institute of Technology/D
17:10 - 17:30	Carbon supports for polymer electrolyte fuel cell catalysts with high corrosion resistance A. Haas, E. Schwab, BASF SE, Ludwigshafen/D; A. Marcu, G. Toth, Daimler AG, Kirchheim unter Teck/D
17:30 - 17:50	In-operando investigations of adsorption and poisoning processes on Pt catalyst surfaces in HT-PEM fuel cells S. Kaserer, TU Darmstadt/D; K.M. Caldwell, D.E. Ramaker, George Washington University/USA; C. Roth, Freie Universität Berlin/D
17:50 - 21:00	POSTER SESSION 1 Authors of posters are expected to be available for discussion

Monday, May 13, 2013

08:30 - 10:00	Registration and Coffee
Room:	Weinbrenner-Saal – Level 0
10:00 - 10:30	Opening Ceremony
Chair:	<i>M. Fleischer, Siemens AG, Munich/D</i>
10:30 - 11:30	PLENARY LECTURE Mesoscopic photosystems for the generation of electricity and fuels from sunlight M. Graetzel, EPFL, Lausanne/CH
Chair:	<i>C.A. Volkert, University of Göttingen/D</i>
11:30 - 12:30	PLENARY LECTURE Energy storage – challenges and perspectives M. Fichtner, Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Clubraum – Level 0
	Fossil and nuclear power plants
Chair:	<i>D. Féron, CEA Commissariat à l'Énergie Atomique, Gif-sur-Yvette/F; K. Maile, University of Stuttgart/D</i>
14:00 - 14:20	Oxidation at high temperature of silicon carbide in dry oxygen and steam atmosphere V. Avincola, M. Steinbrück, H.J. Seifert, Karlsruhe Institute of Technology/D
14:20 - 14:40	Functional nanoporous materials for actinide and rare earth extraction J. Florek, P.J. Lebed, F. Chalifour, Université Laval, Quebec/CDN; F. Bilodeau, Hydro-Quebec Production/CDN; D. Larivière, F. Kleitz, Université Laval, Quebec/CDN
14:40 - 15:00	Development of the International Fusion Materials Irradiation Facility (IFMIF) as materials science test bed F. Arbeiter, A. Moeslang, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
15:00 - 15:20	Correlation of microstructure and properties of Alloy 617 J. Klöwer, ThyssenKrupp VDM, Werdohl/D; M. Zinke, University Magdeburg/D; J. Mentz, J. Konrad, Salzgitter Mannesmann Forschung, Duisburg/D
15:20 - 15:40	Characterisation of age-hardenable superalloy INCONEL alloy 740H for advanced ultra-supercritical service B.A. Baker, D. Maitra, R.D. Gollihue, Special Metals - PCC Energy Group, Huntington, WV/USA; S.A. McCoy, Special Metals – PCC Energy Group, Hereford/UK
15:40 - 16:10	Coffee Break
16:10 - 16:30	Ionic liquids for CO₂ capture B. Iliev, G. Adamová, T.J.S. Schubert, Iolitec GmbH, Heilbronn/D; G. Romanos, NCSR Demokritos, Athenes/GR; M. Kroon, Eindhoven University of Technology/NL
16:30 - 16:50	High-performance CO₂ sorbents from algae M. Titirici, Queen Mary University of London/UK; M. Sevilla, A. Fuertes, Instituto Nacional del Carbon, Oviedo/E; C. Falco, Institute for Advanced Sustainability Studies, Potsdam/D
16:50 - 17:10	Thin film mixed ionic electronic conducting membranes for oxygen separation G. Pecanac, J. Malzbender, Forschungszentrum Jülich GmbH/D; J.M. Serra, Instituto de Tecnología Química, Universidad Politécnica de Valencia/E; S. Baumann, W.A. Meulenber, Forschungszentrum Jülich GmbH/D
17:10 - 17:30	Pre-combustion CO₂ capture with Pd membrane reactors: long-term performance A. Goldbach, B. Feng, C. Qi, H. Xu, Dalian Institute of Chemical Physics of the CAS/PRC
17:50 - 21:00	POSTER SESSION 1 Authors of posters are expected to be available for discussion

Monday, May 13, 2013

08:30 - 10:00	Registration and Coffee
Room:	Weinbrenner-Saal – Level 0
10:00 - 10:30	Opening Ceremony
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10:30 - 11:30	PLENARY LECTURE Mesoscopic photosystems for the generation of electricity and fuels from sunlight M. Graetzel, EPFL, Lausanne/CH
Chair:	<i>C.A. Volkert, University of Göttingen/D</i>
11:30 - 12:30	PLENARY LECTURE Energy storage – challenges and perspectives M. Fichtner, Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Hebel-Saal – Level -1
	H₂ and chemical storage
Chair:	<i>J. Huot, University of Quebec, Trois-Rivieres/CDN</i>
14:00 - 14:20	Development of low cost, eye-readable and highly sensitive hydrogen detectors using nanostructured Y/Pd/Au thin films P. Ngene, T. Radeva, R. Westerwaal, Delft University of Technology/NL; M. Slaman, Vrije Universiteit Amsterdam/NL; B. Dam, Delft University of Technology/NL
14:20 - 14:40	Nanocrystalline magnesium alloys for high-dynamic hydrogen and heat storage applications L. Röntzsch, C. Pohlmann, S. Mauermann, T. Weißgärber, Fraunhofer IFAM, Dresden/D; S. Kalinichenka, K. Herbrig, B. Kieback, TU Dresden/D
14:40 - 15:00	Towards full reversibility of H₂ sorption in carbon confined complex metal hydrides J. Gao, P. Ngene, K.P. de Jong, P.E. de Jongh, Utrecht University/NL
15:00 - 15:20	In situ diffraction studies of gas storage materials on a laboratory X-ray diffraction system M. Sommariva, O. Narygina, H. van Weeren, J. Gertenbach, PANalytical B.V., Almelo/NL; C. Resch, A. Pein, Anton Paar GmbH, Graz/A; Y. Filinchuk, Université Catholique de Louvain, Louvain-la-Neuve/B; V.J. Smith, L.J. Barbour, Stellenbosch University, Matieland/ZA
15:20 - 15:40	Nanoconfined MgH₂ in carbon aerogel for hydrogen storage Y.S. Au, M. Klein Obbink, K.P. de Jong, P.E. de Jongh, Utrecht University/NL
15:40 - 16:10	Coffee Break
16:10 - 16:30	Hydrogen generation from MgH₂ hydrolysis with ultra-high capacity M. Tegel, A. Werner, L. Roentzsch, T. Weißgärber, Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Dresden/D; B. Kieback, TU Dresden/D
16:30 - 16:50	Simultaneous gravimetric and IR-spectroscopic in-situ measurements on sodium alanate samples during hydrogen desorption H.-D. Bauer, I. Franke, B. Scheppat, RheinMain University of Applied Sciences, Ruesselsheim/D
16:50 - 17:10	Confinement of LiBH₄ in nanoporous materials: size and interface effects on hydrogen release and ion mobility A. Nale, P.E. de Jongh, Utrecht University/NL; A. Remhof, Empa, Dübendorf/CH
17:10 - 17:30	Energy storage based on Liquid Organic Hydrogen Carriers K. Müller, A. Fikrt, A. Fischer, K. Stark, W. Arlt, University of Erlangen-Nürnberg, Erlangen/D
17:30 - 17:50	Carbon dioxide - a suitable material for hydrogen storage H. Junge, D. Mellmann, P. Sponholz, M. Beller, Leibniz-Institut für Katalyse e.V., Rostock/D
17:50 - 21:00	POSTER SESSION 1 Authors of posters are expected to be available for discussion

Tuesday, May 14, 2013

Room:	Thoma-Saal – Level -1
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 
Chair:	M. Fichtner, Karlsruhe Institut für Technologie (KIT), Eggenstein-Leopoldshafen/D
09:00 - 09:40	INVITED LECTURE Complex hydrides for electrochemical energy storage S. Orimo, Tohoku University, Sendai/J
09:40 - 10:00	Trilithium hexahydroaluminat (Li₃AlH₆) as negative electrode material for lithium-ion batteries S. Fleischmann, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Ulm/D; E. Bekaert, Helmholtz Institute Ulm/D; U. Emmel, U. Wietelmann, Rockwood Lithium, Frankfurt a.M./D; M. Wohlfahrt-Mehrens, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Ulm/D
10:00 - 10:40	INVITED LECTURE Reactivity of hydrides with lithium: a concept of negative electrode for Li-ion batteries L. Aymard, LRCS, UMR CNRS 7314, Amiens/F
10:40 - 11:10	Coffee Break
Chair:	S. Orimo, Tohoku University, Sendai/J
11:10 - 11:50	INVITED LECTURE Hysteresis, nucleation and growth in the hydrogenation of magnesium nanolayers L.P.A. Mooij, B. Dam, Delft University of Technology/NL
11:50 - 12:10	Lithium-silicon binary phases: promising anode materials for lithium batteries and a well defined model system for impedance spectroscopy N. Oehl, M. Knipper, T. Plaggenborg, J. Parisi, University of Oldenburg/D
12:10 - 12:30	Precipitation in aqueous lithium-oxygen batteries: a model-based analysis T. Danner, B. Horstmann, German Aerospace Center (DLR), Stuttgart/D; W.G. Bessler, Hochschule Offenburg/D
12:30 - 12:50	Lithium metal anode pre-treatment and SEI study using ionic liquid electrolytes for applications in Li-air batteries L. Grande, E. Paillard, M. Winter, S. Passerini, University of Münster/D
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Chair:	M. Anji Reddy, Karlsruhe Institute of Technology/D
14:00 - 14:20	Watching energy storage materials in operation: in-situ X-ray diffraction and microscopy J. Nelson, S. Misra, Y. Liu, J.C. Andrews, M.F. Toney, SLAC National Accelerator Laboratory, Menlo Park, CA/USA; Y. Yang, A. Jackson, Y. Cui, Stanford University, CA/USA
14:20 - 14:40	Study on sulfur dissolution in Li-S battery by in-situ transmission X-ray microscopy C.N. Lin, N.L. Wu, National Taiwan University, Taipei/TW
14:40 - 15:00	Thermodynamic properties of Ti/TiO₂, Ti/TiO₂-Si and other Li-ion battery materials determined by thin film calorimetry H. Wulfmeier, D. Albrecht, Clausthal University of Technology, Goslar/D; S. Ivanov, R. Grieseler, P. Schaaf, A. Bund, Ilmenau University of Technology/D; H. Fritze, Clausthal University of Technology, Goslar/D
15:00 - 15:20	Electrochemical performance and ex-situ studies of tin-based materials for use in Li-ion cells G. Kilibarda, D.V. Szabó, S. Schlabach, M. Bruns, V. Winkler, T. Hanemann, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
15:20 - 15:40	Li₇La₃Zr₂O₁₂ garnet doped with Fe: crystal chemistry and phase stability D. Rettenwander, C.A. Geiger, G. Amthauer, University of Salzburg/A
15:40 - 16:10	Coffee Break
Chair:	M.F. Toney, SLAC National Accelerator Laboratory, Menlo Park, CA/USA; B. Dam, Delft University of Technology/NL
16:10 - 16:30	Bis-amide based electrolytes for rechargeable magnesium batteries Z. Zhao-Karger, X. Zhao, O. Fuhr, M. Fichtner, Karlsruhe Institute of Technology/D
16:30 - 16:50	Combination of impedance modelling and microstructure analysis for LiFePO₄-cathodes J. Illig, M. Ender, J.P. Schmidt, A. Weber, E. Ivers-Tiffée, Karlsruhe Institute of Technology/D
16:50 - 17:10	Kelvin probe force microscopy on sticky polymer electrolytes using functionalized cantilevers K. Schmale, P. Vettikuzha, H.-D. Wiemhöfer, University of Münster/D
17:10 - 17:30	Different growth modes of electroplated lithium studied by scanning electron microscopy and in-situ stress measurements D. Kramer, J. Steiger, R. Mönig, Karlsruhe Institute of Technology/D
17:30 - 17:50	In-situ micromechanical testing of Li-ion battery electrode materials during electrochemical cycling E. Epler, C. Nowak, C. Volkert, University of Göttingen/D
17:50 - 21:00	POSTER SESSION 2 Authors of posters are expected to be available for discussion

Tuesday, May 14, 2013

Room:	Mombert-Saal – Level -1
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 
Chair:	R. Mohtadi, Toyota Research Institute North America, Ann Arbor, MI/USA
11:10 - 11:30	Aqueous binders for environmental friendly lithium ion batteries N. Löffler, G.T. Kim, M. Winter, S. Passerini, Münster University/D
11:30 - 11:50	Electrolytes for electrochemical devices based on ionic liquid-organic carbonate blends R.-S. Kühnel, A. Balducci, University of Muenster/D
11:50 - 12:10	Development and characterization of materials for solid electrolytes in Li-ion cells Y. Cui, M. Rohde, H.J. Seifert, Karlsruhe Institute for Technology/D
12:10 - 12:30	Li₃CIO as a new solid electrolyte: applications to Li batteries V. Stochhausen, J.C.E. Oliveira, J.A. Ferreira, M.H. Braga, Universidade do Porto/P
12:30 - 12:50	Reactions in the rechargeable lithium-air battery with ether based electrolytes D. Karabelli, S. Berenger, M. Joos, R. Speck, C. Cremers, K. Pinkwart, J. Tübke, Fraunhofer Institute for Chemical Technology ICT, Pfingsttal/D
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
	Materials for extreme environments
Chair:	R. Moos, University of Bayreuth/D
14:00 - 14:20	Refractory metal based materials for applications at high temperatures A. Wiltner, B. Klöden, T. Weißgärber, G. Walther, B. Kieback, Fraunhofer IFAM, Dresden/D
14:20 - 14:40	A combinatorial approach to turbine bond coat discovery C.J. Metting, J.K. Bunn, E. Underwood, S. Smoak, J. Hattrick-Simpers, University of South Carolina, Columbia, SC/USA
14:40 - 15:00	Sintering nanostructured ZrO₂ and 3D microstructure characterization K. Lu, Z. Xia, W. Li, Virginia Tech, Blacksburg, VA/USA
15:00 - 15:20	Electron microscopy study of Yttrium-doped BSCF M. Meffert, P. Müller, H. Störmer, C. Niedrig, S.F. Wagner, E. Ivers-Tiffée, D. Gerthsen, Karlsruhe Institute of Technology/D
15:20 - 15:40	Oxidation at high temperature of zirconia matrix composite dispersed with stainless steel particles V. Peres, J. Tarabay, M. Pijolat, Ecole Nationale Supérieure des Mines, Saint Etienne/F
15:40 - 16:10	Coffee Break
16:10 - 16:30	Behaviour of three high temperature Ni-alloys under creep-corrosion interaction H. Ackermann, R. Pillai, K. Lucka, Oel-Wärme-Institut GmbH, Herzogenrath/D
16:30 - 16:50	Controlled oxide layer formation on corrosion behavior of Ti-6Al-4V alloy following thermohydrogen processing L.M. Wang, C.J. Tsai, National Defense University, Taoyuan/TW; S.L. Lee, National Central University, Taoyuan/TW
16:50 - 17:10	Performance characteristics of surface protection coating systems for offshore gas production under Arctic conditions M. Irmer, Fraunhofer APG, Rostock/D; A. Momber, Muehlhan AG, Hamburg/D
17:10 - 17:30	Electrochemical behavior of different steel grades in low pH geothermal brines A. Keserovic, German Research Centre for Geosciences, Potsdam/D; R. Bäßler, Federal Institute for Materials Research and Testing, Berlin/D
17:30 - 17:50	Oxidation and nitridation of steels and nickel alloys beneath nitrate melts for solar applications M. Spiegel, J. Mentz, Salzgitter Mannesmann Forschung GmbH, Duisburg/D
17:50 - 21:00	POSTER SESSION 2 Authors of posters are expected to be available for discussion

Tuesday, May 14, 2013

Room:	Scheffel-Saal – Level -1
	Fuel cells
<i>Chair:</i>	<i>N. Christiansen, Topsoe Fuel Cell, Lyngby/DK; J.B. Hansen, Haldor Topsoe A/S, Lyngby/DK; F. Tietz, Forschungszentrum Jülich/D</i>
09:00 - 09:20	Novel strategies for the integration of oxide-supported Pt nanoparticles into PEMFC cathodes A. Wolz, TU Darmstadt, Darmstadt/D; M. Michel, CRP Henri Tudor, Hautcharage/L; C. Roth, FU Berlin/D
09:20 - 09:40	Kinetic analysis of electrochemical oxygen reduction and development of Ag-alloy catalysts for low temperature fuel cells A. Holewinski, S. Lincic, University of Michigan, Ann Arbor, MI/USA
09:40 - 10:00	Influence of the presence of H₂O and CO₂ in the feed stream on the preferential oxidation of CO over Au/Cu-TiO₂ catalysts H. Ferreira, M.C. Rangel, Universidade Federal da Bahia, Salvador/BR; S. Rico-Francés, J. Silvestre-Albero, A. Sepúlveda-Escribano, Uiversidad de Alicante/E
10:00 - 10:20	Stability of cathode catalysts under 6000 hours of simulated automotive fuel cell cycles A. Marcu, G. Toth, R. Schöffler, Daimler AG, Kirchheim unter Teck/D
10:20 - 10:40	Selection of fuels for direct rechargeable liquid fuel cell G. Soloveichik, General Electric Global Research, Niskayuna, NY/USA
10:40 - 11:10	Coffee Break
11:10 - 11:30	Controlled synthesis of highly active Pt/CNT catalysts for DMFC applications N. Aoun, U. Kunz, T. Turek, Clausthal University of Technology/D
11:30 - 11:50	Water and methanol sorption properties of proton exchange membranes D.J. Burnett, A.R. Garcia, Surface Measurement Systems, Ltd., Allentown, PA/USA; M. Naderi, Surface Measurement Systems, Ltd., Alperon/UK
11:50 - 12:10	Electrode morphology and its impact on high temperature proton exchange membrane fuel cell performance F. Mack, Helmholtz Institute Ulm/D; M. Klages, J. Scholta, L. Jörissen, Centre for Solar Energy and Hydrogen Research (ZSW), Ulm/D; D. Kramer, R. Zeis, Helmholtz Institute Ulm/D
12:10 - 12:30	Novel electrolytes for high temperature proton exchange membrane fuel cells E. Heider, R. Zeis, Helmholtz-Institute Ulm/D; L. Jörissen, Centre for Solar Energy and Hydrogen Research (ZSW), Ulm/D
12:30 - 12:50	Ethanol oxidation at elevated temperatures in the gas phase: a DEMS study C. Cremers, C. Niether, Fraunhofer Institute for Chemical Technology ICT, Pfintztal/D; D. Jones, Institut Charles Gerhardt, Montpellier/F; J. Tübke, Fraunhofer Institute for Chemical Technology ICT, Pfintztal/D
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
	Thermoelectrics
<i>Chair:</i>	<i>Y. Gelbstein, Ben-Gurion University of the Negev, Beer-Sheva/IL</i>
14:00 - 14:20	Thermoelectric high temperature modules for waste heat recovery W. Hermes, F. Seeler, BASF SE, Ludwigshafen/D
14:20 - 14:40	Measurement of the thermal conductivity on nano scaled thin film thermoelectric materials H. Renner, Linseis GmbH, Selb/D; M. Rohde, I. Südmeyer, Karlsruhe Institute of Technology/D
14:40 - 15:00	Preparation and thermoelectric properties of boron carbide B. Feng, TU Dresden/D; H.P. Martin, Fraunhofer Institute for Ceramic Technologies and Systems, Dresden/D; A. Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems & TU Dresden/D
15:00 - 15:20	Magnéli phases via precursor route as promising oxide thermoelectrics S. Conze, Fraunhofer IKTS, Dresden/D; I. Veremchuk, MPI für Chemische Physik fester Stoffe, Dresden/D; A. Michaelis, Fraunhofer IKTS, Dresden/D; Y. Grin, MPI für Chemische Physik fester Stoffe, Dresden/D; I. Kinski, Fraunhofer IKTS, Dresden/D
15:20 - 15:40	High-throughput density functional screening of thermoelectric materials I. Opahle, G.K.H. Madsen, A. Parma, E.J. McEniry, R. Drautz, Ruhr-Universität Bochum/D
15:40 - 16:10	Coffee Break
	Energy efficient magnetic materials
<i>Chair:</i>	<i>S. Sawatzki, TU Darmstadt/D</i>
16:10 - 16:30	Magnetocaloric effect of Ni_{1.7}Co_{0.3}Mn_{1+x}Al_{1-x} alloys Y. Kim, W. Han, H. Kim, H. An, C. Yoon, Hanyang University, Seoul/ROK
16:30 - 16:50	Metamagnetism in the magnetocaloric material Fe₂P_{1-x}T_x (T= B and Si) E. Delczeg, Uppsala University/S; L. Bergqvist, Royal Institute of Technology (KTH), Stockholm/S; O. Eriksson, Uppsala University/S; Z. Gercsi, Imperial College London/UK; P. Nordblad, Uppsala University/S; L. Szunyogh, Budapest University of Technology and Economics/H; B. Johansson, L. Vitos, Royal Institute of Technology (KTH), Stockholm/S
16:50 - 17:10	Recycling of sintered Nd-Fe-B magnets by the d-HDDR route K. Güth, R. Gauß, O. Gutfleisch, Fraunhofer Project Group Materials Recycling and Resource Strategies IWKS in Alzenau und Hanau/D
17:10 - 17:30	Ferromagnetic shape memory energy harvesting on a small scale M. Gueltig, R. Yin, V. Pinneker, M. Kohl, Karlsruhe Institute of Technology/D; A. Sozinov, Y. Ezer, AdaptaMat Ltd., Helsinki/FIN
17:30 - 17:50	Shelf and core visualization of Wiegand wires used as energy supply for electronic circuits K. Plaskonka-Weisenburger, Pforzheim University of Applied Sciences/D; O. Simon, SEW-EURODRIVE, Bruchsal/D; N. Jost, U. Christian, Pforzheim University of Applied Sciences/D
17:50 - 21:00	POSTER SESSION 2 Authors of posters are expected to be available for discussion

Tuesday, May 14, 2013

Room:	Clubraum – Level o
	Modelling of material and processes
<i>Chair:</i>	<i>A. Latz, DLR and Helmholtz Institute Ulm/D</i>
09:00 - 09:20	Three-dimensional micro- and macro-scale modeling of lithium ion batteries J. Zausch, Fraunhofer ITWM, Kaiserslautern/D; A. Latz, Helmholtz-Institut Ulm/D
09:20 - 09:40	Modelling the effective conductivity of granular electrode structures J. Ott, Karlsruhe Institute of Technology/D; B. Voelker, University of California, Santa Barbara, CA/USA; Y. Gan, The University of Sydney/AUS; R. McMeeking, University of California, Santa Barbara, CA/USA; M. Kamlah, Karlsruhe Institute of Technology/D
09:40 - 10:00	Influence of phase segregation on mechanical stresses within electrode particles of lithium ion batteries M. Kespe, F. Keller, H. Nirschl, Karlsruhe Institute of Technology/D
10:00 - 10:40	INVITED LECTURE Thermodynamics of electrolytes W. Dreyer, C. Guhlke, R. Mueller, Weierstrass Institute, Berlin/D
10:40 - 11:10	Coffee Break
	Thermal energy storage
<i>Chair:</i>	<i>M. Eck, German Aerospace Center (DLR), Stuttgart/D</i>
11:10 - 11:30	The role of chemistry in high temperature nitrate melts for concentrated solar power plants K. Kaleta, M. Ladenberger, J. Wortmann, BASF SE, Ludwigshafen/D
11:30 - 11:50	Thermo-mechanical degradation of materials in molten salts for thermal energy storage (TES) systems in CSP plants E.M. Piedra, W. Pfeiffer, Fraunhofer Institute for Mechanics of Materials IWM, Freiburg/D
11:50 - 12:10	Development of a molten salt system for thermal energy storage at elevated temperatures N. Pfleger, German Aerospace Center (DLR), Stuttgart/D; T. Bauer, German Aerospace Center (DLR), Köln/D; M. Braun, M. Eck, D. Laing, German Aerospace Center (DLR), Stuttgart/D
12:10 - 12:30	Liquid metals as heat transfer fluids in high-temperature processes with indirect thermal energy storage J. Pacio, T. Wetzler, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
12:30 - 12:50	Mg-Zn-Al alloys as candidate materials for thermal energy storage E. Risueño, A. Faik, P. Blanco-Rodríguez, J. Rodríguez-Asenguinolaza, CIC Energigune, Miñano/E; M.J. Tello, Universidad del País Vasco, Bilbao/E; S. Doppiu, CIC Energigune, Miñano/E
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
14:00 - 14:20	Modified materials for thermochemical energy storage C. Roßkopf, German Aerospace Center, Stuttgart/D; S. Schäfer, B. Görtz, M. Schauerer, University of Siegen/D; M. Linder, A. Wörner, German Aerospace Center, Stuttgart/D; R. Trettin, University of Siegen/D
14:20 - 14:40	Micro and macro scale behavior of thermochemical materials in pure and composite forms for thermal storage applications E.K. N'tsoukpoe, H.U. Rammelberg, K. Korhammer, A. Fopah Lele, B.A. Watts, T. Schmidt, W.K.L. Ruck, University of Lüneburg/D
14:40 - 15:00	Thermoreversible organic reaction systems for thermal storage S. Bruzzano, M. Fischer, J.I. Salazar Gómez, B. Zeidler-Fandrich, Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT, Oberhausen/D
15:00 - 15:20	Microporous aluminofosfates for thermochemical heat storage at low temperature via water sorption: FTIR study of the charge-discharge cycles M. López-Domínguez, IMDEA Energy Institute, Móstoles/E; A. Ristic, N. Zabukovec Logar, National Institute of Chemistry, Ljubljana/SLO; P. Pizarro, D.P. Serrano, V.A. de la Peña, J.M. Coronado, IMDEA Energy Institute, Móstoles/E
15:20 - 15:40	Kinetic and thermodynamic characterization of CaCl₂/H₂O as thermochemical reaction system M. Molenda, M. Linder, A. Wörner, German Aerospace Center, Stuttgart/D
15:40 - 16:10	Coffee Break
16:10 - 16:30	The input of microcalorimetric techniques for the characterization of latent and sensible heat storage materials R. Andre, P. Leparlouer, E. Toulouze, SETARAM Instrumentation, Caluire/F
16:30 - 16:50	High-power latent heat storage based on metallic fibre structures J. Meinert, O. Andersen, B. Kieback, Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Dresden/D; K. Fieback, Rubitherm Technologies GmbH, Berlin/D; T. Enders, V. Schubert, WätaS Wärmetauscher Sachsen GmbH, Olbernhau/D
16:50 - 17:10	Novel encapsulation approach for energy storage materials D. Shchukin, University of Liverpool/UK
17:10 - 17:30	Methanol adsorption on activated carbon for adsorptive cooling P. Günther, U. Nieken, University of Stuttgart/D
17:30 - 17:50	Recent developments in optimizing thermally driven sorption heat pumps and chillers L. Schnabel, G. Fuedner, U. Wittstadt, K. Witte, E. Laurenz, P. Schossig, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D
17:50 - 21:00	POSTER SESSION 2 Authors of posters are expected to be available for discussion

Tuesday, May 14, 2013

Room:	Hebel-Saal Level -1
	H₂ and chemical storage
Chair:	J. Huot, University of Quebec, Trois-Rivieres/CDN
09:00 - 09:20	Experimental and simulated results for a new tank concept for complex hydrides I. Utz, M. Linder, L. Komogowski, A. Wörner, German Aerospace Center, Stuttgart/D
09:20 - 09:40	Thermochemical storage of solar heat via thermochemical cycles of multivalent solid oxides C. Agrafiotis, M. Röeb, C. Sattler, German Aerospace Center, Köln/D
09:40 - 10:00	Photocatalytic and electrochemical investigations of La-doped NaTaO₃ particles for hydrogen and oxygen evolution I. Ivanova, P. Esteban, T. Kandiel, R. Dillert, D. Bahnemann, Universität Hannover/D
10:00 - 10:20	Electrochemical and structural properties of amorphous Ni-base alloys for alkaline water electrolysis T. Rauscher, TU Dresden/D; C.I. Müller, L. Röntzsch, A. Schmidt, T. Schubert, T. Weißgärber, Fraunhofer IFAM, Dresden/D; B. Kieback, TU Dresden/D
10:20 - 10:40	Amorphous Fe-base alloys as efficient cathode materials for alkaline water electrolysis C.I. Müller, Fraunhofer IFAM, Dresden/D; T. Rauscher, TU Dresden/D; L. Röntzsch, A. Schmidt, T. Schubert, T. Weißgärber, Fraunhofer IFAM, Dresden/D; B. Kieback, TU Dresden/D
10:40 - 11:10	Coffee Break
	Water splitting
Chair:	C. Jooß, University of Göttingen/D; R. van de Krol, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D
11:10 - 11:30	Perovskite-type oxynitrides for photoelectrochemical watersplitting cells A. Weidenkaff, A. Maegli, A. Veziridis, S. Yoon, S. Pokrant, L. Karvonen, Empa, Duebendorf/CH
11:30 - 11:50	Sodium tantalum oxide based nanostructured materials for solar water splitting H. Tüysüz, MPI für Kohlenforschung, Mülheim an der Ruhr/D; C. Chan, Arizona State University, Tempe, AZ/USA
11:50 - 12:10	Combinatorial development of porous semiconductor thin film electrodes for solar water splitting by dealloying of binary and ternary alloys A. Stepanovich, K. Sliozberg, W. Schuhmann, A. Ludwig, Ruhr-Universität Bochum/D
12:10 - 12:30	Hybrid photoanodes for visible light-driven water splitting M. Bledowski, L. Wang, A. Ramakrishnan, Ruhr-Universität Bochum/D; O.V. Khavryuchenko, Kyiv National Taras Shevchenko University/UA; R. Beranek, Ruhr-Universität Bochum/D
12:30 - 12:50	Low-energy helium ion processing of nanostructured photo-catalytic metal oxides for water splitting G. De Temmerman, I. Tanyeli, FOM Institute DIFFER, Nieuwegein/NL; R.P. Doerner, M.J. Baldwin, University of California at San Diego, CA/USA; R. van de Krol, Helmholtz-Zentrum Berlin für Materialien und Energie/D; M. de Respinis, Delft University of Technology/NL; M.C.M. van de Sanden, FOM Institute DIFFER, Nieuwegein/NL
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
14:00 - 14:20	Bio-inspired water-oxidation: synthetic manganese compounds as catalysts for light-driven O₂-evolution from water P. Kurz, University of Freiburg/D
14:20 - 14:40	Barium tantalate nanocomposites with enhanced photocatalytic activity in hydrogen generation R. Marschall, J. Soldat, M. Wark, Ruhr-Universität Bochum/D
14:40 - 15:00	Water oxidation at illuminated α-Fe₂O₃/electrolyte interface: energetics, kinetics and mechanisms U. Wijayantha, A. Tahir, Loughborough University/UK; L. Peter, C. Cummings, F. Marken, Bath University/UK
15:00 - 15:20	Catalyst-assisted triple-junction solar cell for water splitting S. Caramori, V. Cristino, C.A. Bignozzi, University of Ferrara/I; A. Tacca, L. Meda, ENI SpA, Novara/I
15:20 - 15:40	Electron and (<i>in-situ</i>) soft x-ray spectroscopy of materials for photoelectrochemical water splitting L. Weinhardt, D. Kreikemeyer-Lorenzo, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; K. George, S. Pookpanratana, M.G. Weir, M. Blum, M. Bär, University of Nevada, Las Vegas, NV/USA; B. Cole, B. Marsen, N. Gaillard, E.L. Miller, University of Hawaii, Manoa, HI/USA; K.-S. Ahn, S. Shet, Y. Yan, M. Al-Jassim, National Renewable Energy Laboratory (NREL), Golden, CO/USA; W. Yang, J.D. Denlinger, Lawrence Berkeley National Laboratory, CA/USA; C. Heske, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
15:40 - 16:10	Coffee Break
16:10 - 17:50	PANEL DISCUSSION Strategies for tackling the challenge of water splitting catalysis R. van de Krol, Berlin/D · P. Kurz, Freiburg/D · A. Weidenkaff, EMPA/CH · W. Jaegermann, Darmstadt/D · C. Jooß, Göttingen/D
17:50 - 21:00	POSTER SESSION 2 Authors of posters are expected to be available for discussion

Wednesday, May 15, 2013

Room:	Weinbrenner-Saal – Level 0
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields L. Schultz, IFW Dresden/D
09:45 - 10:15	Coffee Break
Chair:	N. Wu, National Taiwan University, Taipei/TW
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology C. Lan, National Taiwan University, Taipei/TW
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility D. Aranda, Universidade Federal do Rio de Janeiro - UFRJ/BR
12:15 - 12:30	Award Session – best poster award
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Thoma-Saal – Level -1
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 
Chair:	F. Cosandey, Rutgers University, Piscataway, NJ/USA; L. Aymard, LRCS, UMR CNRS 7314, Amiens/F
14:00 - 14:40	INVITED LECTURE Novel and new class of electrolytes for rechargeable magnesium battery R. Mohtadi, Toyota Research Institute North America, Ann Arbor, MI/USA; T.S. Arthur, Toyota Research Institute of North America, Ann Arbor, MI/USA
14:40 - 15:00	Chloride ion battery: a new member in the rechargeable battery family X. Zhao, S. Ren, M. Bruns, M. Fichtner, Karlsruhe Institute of Technology (KIT)/D
15:00 - 15:20	Interfacial processes in fluoride ion batteries studied by density functional theory K. Forster-Tonigold, Helmholtz Institute Ulm/D; A. Groß, Helmholtz Institute Ulm and University of Ulm/D
15:20 - 15:40	Carbon encapsulated iron fluoride nanoparticles as cathode material for reversible conversion battery systems B. Breitung, M. Anji Reddy, Karlsruhe Institute of Technology/D; V.S.K. Chakravadhanula, Karlsruhe Institute of Technology and Helmholtz Institute Ulm/D; M. Engel, R. Witte, Karlsruhe Institute of Technology/D; M. Fichtner, Karlsruhe Institute of Technology and Helmholtz Institute Ulm/D
15:40 - 16:10	Coffee Break
Chair:	M. Titirici, Queen Mary University of London/UK
16:10 - 16:30	New synthesis of lithium transition metal fluorides and their use as positive cathode materials in Li-ion batteries G. Lieser, M. Schroeder, S. Glatthaar, H. Geßwein, J.R. Binder, Karlsruher Institut für Technologie/D
16:30 - 16:50	Solid electrolyte for fluoride ion battery C. Rongeat, M. Anji Reddy, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen & Helmholtz Institute Ulm/D
16:50 - 17:10	Synthesis of different molybdenum disulfide morphologies for lithium ion battery applications D. Albrecht, H. Wulfmeier, TU Clausthal, Goslar/D; S. Ivanov, A. Bund, TU Ilmenau/D; H. Fritze, TU Clausthal, Goslar/D
17:10 - 17:30	Synthesis and electrochemical properties of Li₂Ni_xMn_(1-x)SiO₄ /C E. Bekaert, Helmholtz Institute Ulm/D; M. Wohlfahrt-Mehrens, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Ulm/D
17:30 - 17:50	Structure and electrochemical property correlation of carbon-free Mn doped LiFePO₄ prepared by hydrothermal method M.B. Sahana, R. Prakash, T. Mohan, T. Rajappa, R. Gopalan, G. Sundararajan, International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Chennai/IND
20:00 - 24:00	CONFERENCE DINNER at the Weinbrenner-Saal

Wednesday, May 15, 2013

Room:	Weinbrenner-Saal – Level o
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields L. Schultz, IFW Dresden/D
09:45 - 10:15	Coffee Break
Chair:	N. Wu, National Taiwan University, Taipei/TW
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology C. Lan, National Taiwan University, Taipei/TW
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility D. Aranda, Universidade Federal do Rio de Janeiro - UFRJ/BR
12:15 - 12:30	Award Session – best poster award
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Mombert-Saal – Level -1
	Biomass and biofuel
Chair:	R. Rinaldi, MPI für Kohlenforschung, Mülheim an der Ruhr/D
14:00 - 14:20	Copper-based catalyst for efficient valorization of cellulose K. Tajvidi, K. Pupovac, M. Kükrek, MPI für Kohlenforschung, Mülheim an der Ruhr/D; J.U. Oltmanns, R. Palkovits, RWTH Aachen University/D
14:20 - 14:40	New bio-components for fuels from glycerol G. Assanelli, P. Pollesel, A. de Angelis, M. Notari, Eni Refining and Marketing Division, Milan/I
14:40 - 15:00	Production of formic acid from complex, water-insoluble biomass using additives J. Albert, R. Wölfel, A. Bösmann, P. Wasserscheid, Universität Erlangen-Nürnberg, Erlangen/D
15:00 - 15:40	INVITED LECTURE Ionic liquids for biomass dissolution B. Iliev, M. Smiglak, T.J.S. Schubert, Iolitec Ionic Liquids Technologies GmbH, Heilbronn/D
15:40 - 16:10	Coffee Break
16:10 - 16:30	CO hydrogenation to methanol and higher alcohols over molybdenum carbide based catalysts Q. Wu, J.M. Christensen, A.D. Jensen, Technical University of Denmark, Lyngby/DK; G.L. Chiarello, J.-D. Grunwaldt, Karlsruhe Institute of Technology/D; B. Temel, Haldor Topsøe A/S, Lyngby/DK
16:30 - 16:50	The contribution of mechanocatalysis to the fractionization of lignocellulose into monosaccharides and lignin M. Kälndström, N. Meine, R. Rinaldi, F. Schüth, MPI für Kohlenforschung, Mülheim an der Ruhr/D
16:50 - 17:10	Ceramic algae shelter: providing a low-stress environment for cells inside a photobioreactor M. Johansson, Jacobs University Bremen/D; C. Soltmann, Novelpor UG, Bremen/D; K. Slenzka, OHB-System AG, Bremen/D; M. Ullrich, Jacobs University Bremen/D
17:10 - 17:30	Hydroprocessing of rapeseed oil-gas oil blends over sulfided CoMo/Al₂O₃, CoMoP/Al₂O₃ and CoMoP/MgO-Al₂O₃ catalysts I.V. Deliy, Boreskov Institute of Catalysis and Novosibirsk State University/RUS; P.V. Aleksandrov, A.L. Nuzhdin, G.A. Bukhtiyarova, Boreskov Institute of Catalysis, Novosibirsk/RUS
17:30 - 17:50	Biodiesel production from Canola oil using KOH-MWCNTs as heterogeneous catalyst M. Omraei, S.M. Sadrameli, Tarbiat Modares University, Tehran/IR; A. Rouhi, Isfahan University of Technology/IR
20:00 - 24:00	CONFERENCE DINNER at the Weinbrenner-Saal

Wednesday, May 15, 2013

Room:	Weinbrenner-Saal – Level o
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields L. Schultz, IFW Dresden/D
09:45 - 10:15	Coffee Break
Chair:	N. Wu, National Taiwan University, Taipei/TW
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology C. Lan, National Taiwan University, Taipei/TW
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility D. Aranda, Universidade Federal do Rio de Janeiro - UFRJ/BR
12:15 - 12:30	Award Session – best poster award
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Scheffel-Saal Level -1
	Photovoltaics
Chair:	T. Mayer, TU Darmstadt/D
14:00 - 14:20	Coating and drying aspects of organic electronics K. Peters, L. Wengeler, M. Schmitt, F. Buss, S. Raupp, P. Scharfer, W. Schabel, Karlsruhe Institute of Technology/D
14:20 - 14:40	A novel nanoarchitecture for complete light absorption and charge collection in bulk heterojunction solar cells D. Munoz-Rojas, D. Iza, X. Ren, R. Hoye, J. MacManus-Driscoll, K. Musselman, University of Cambridge/UK; J. Weickert, A. Jakowetz, H. Sun, University of Munich/D; J. Lee, H. Wang, Texas A&M University, TX/USA; L. Schmidt-Mende, University of Konstanz/D
14:40 - 15:00	Tailor-made absorber polymers for OPV – from synthesis to formulation development S. Janietz, E. Katholing, L. Pabel, A. Lange, S. Albrecht, D. Neher, Fraunhofer IAP, Potsdam/D
15:00 - 15:20	A model kit for the spectroscopic ellipsometry characterization of polymer: fullerene-blends in organic solar cells M. Klein, G. Medeiros, P. Kapetana, U. Lemmer, A. Colmann, Karlsruhe Institute of Technology/D
15:20 - 15:40	Solution-processed polymer – silver nanowire top electrodes for efficient thin-film solar cells M. Reinhard, R. Eckstein, A. Slobodskyy, U. Lemmer, A. Colmann, Karlsruhe Institute of Technology/D
15:40 - 16:10	Coffee Break
16:10 - 16:30	Performance enhancement of organic solar cell with LaF₃/Al as cathode M.S. Islam, A.B.M. Ismail, Rajshahi University/BD; H. Baerwolff, Cologne University of Applied Sciences/D
16:30 - 16:50	Spectroscopic characterisation of a new donor type poliazomethine for application in bulk heterojunction organic solar cells S. Grankowska, University of Warsaw/PL; A. Iwan, Electrotechnical Institute, Wroclaw/PL; A. Wolos, K.P. Korona, M. Kaminska, University of Warsaw/PL
16:50 - 17:10	Characterisation of orientation and electronic structure of thin film growth of organic photovoltaics using NEXAFS U. Aygül, U. Dettinger, F. Latteyer, H. Adler, M. Ivanovich, Universität Tübingen/D; I. Dumsch, M. Forster, U. Scherf, Bergische Universität Wuppertal/D; D.R. Batchelor, S. Mangold, Karlsruhe Institute of Technology/D; H. Peisert, T. Chassé, Universität Tübingen/D
17:10 - 17:30	Photoelectron spectroscopic characterization of electronic interfaces prepared from inks J. Maibach, E. Mankel, T. Mayer, W. Jaegermann, TU Darmstadt/D
17:30 - 17:50	
20:00 - 24:00	CONFERENCE DINNER at the Weinbrenner-Saal


Wednesday, May 15, 2013

Room:	Weinbrenner-Saal – Level o
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields L. Schultz, IFW Dresden/D
09:45 - 10:15	Coffee Break
Chair:	N. Wu, National Taiwan University, Taipei/TW
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology C. Lan, National Taiwan University, Taipei/TW
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility D. Aranda, Universidade Federal do Rio de Janeiro - UFRJ/BR
12:15 - 12:30	Award Session – best poster award
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Clubraum – Level o
	Gas to liquid – sponsored by the research project NEXT-GTL 
Chair:	B. Mathes, DECHEMA e.V., Frankfurt am Main/D
14:00 - 14:20	Thin-film Pd-based membranes for an energy-efficient process scheme of syn gas production S. Abate, G. Centi, S. Perathoner, University of Messina/I; E. Palo, A. Salladini, G. Iaquaniello, Tecnimont KT S.p.A., Rome/I
14:20 - 14:40	Syngas made in membrane reactors by partial oxidation of methane – a gas-to-liquid concept J. Caro, Universität Hannover/D
14:40 - 15:00	Non-oxidative methane aromatization – on the regenerability of molybdenum modified zeolite catalysts E. Tangstad, M. Stöcker, K.A. Andreassen, SINTEF, Oslo/N
15:00 - 15:20	An exploratory study of deactivation methane aromatization catalysts: opportunities for improved catalyst performance C. Tempelman, E. Hensen, TU Eindhoven/NL
15:20 - 15:40	Methane activation and conversion on zeolite catalysts M.A. Pop, S. Grundner, A.C. van Veen, J.A. Lercher, TU München/D
15:40 - 16:10	Coffee Break
	Catalysis – sponsored by Bayer AG, Leverkusen 
Chair:	M.-I. Baraton, Université de Limoges/F; S. Mao, University of California at Berkeley, CA/USA and International Institute of New Energy, Shenzhen/PRC
16:10 - 16:30	Macroporous Cu-V/SiO₂ catalysts for SO₃ decomposition: towards solar thermochemical hydrogen production M. Machida, T. Kawada, H. Yamashita, T. Tajiri, Q. Zheng, K. Ikeue, Kumamoto University/J; S. Takeshima, Toyota Motors Corporation, Susono/J
16:30 - 16:50	Inkjet printing of porous nanoparticle-based catalyst in microchannel reactors S. Lee, T. Boeltken, K. Schneider, U. Gerhards, A.K. Mogalicherla, P. Pfeifer, R. Dittmeyer, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
16:50 - 17:10	Catalytic activity of ligand- and support-free gold nanoparticles in aqueous suspension P. Wagener, University of Duisburg-Essen, Essen/D; J. Kaiser, Helmholtz-Zentrum Berlin/D; G. Marzun, University of Duisburg-Essen, Essen/D; Y. Lu, M. Ballauff, Helmholtz-Zentrum Berlin/D; S. Barcikowski, University of Duisburg-Essen, Essen/D
17:10 - 17:30	Hydrogen production by autothermal reforming of methane over Ni/CeZrO₂ based catalysts: daily startup and shutdown mode E.V. Matus, V.V. Kuznetsov, I.Z. Ismagilov, Boreskov Institute of Catalysis SB RAS, Novosibirsk/RUS; N. Mota, R.M. Navarro, Instituto de Catálisis y Petrolquímica, Madrid/E; M.A. Kerzhentsev, Boreskov Institute of Catalysis SB RAS, Novosibirsk/RUS; Z.R. Ismagilov, Institute of Coal Chemistry and Material Science SB RAS, Kemerovo/RUS; J.L.G. Fierro, Instituto de Catálisis y Petrolquímica, Madrid/E
17:30 - 17:50	Design of catalysts at the subnanometer to nanometer scale: tuning performance via size, composition, support and structural fluxionality S. Vajda, Argonne National Laboratory, IL/USA
20:00 - 24:00	CONFERENCE DINNER at the Weinbrenner-Saal

Wednesday, May 15, 2013

Room:	Weinbrenner-Saal – Level o
Chair:	H. Hahn, Karlsruhe Institute of Technology (KIT)/D
08:45 - 09:45	PLENARY LECTURE Energy efficient transportation by superconducting levitation – riding on magnetic fields L. Schultz, IFW Dresden/D
09:45 - 10:15	Coffee Break
Chair:	N. Wu, National Taiwan University, Taipei/TW
10:15 - 11:15	PLENARY LECTURE Recent developments in solar photovoltaics: market, industry, and technology C. Lan, National Taiwan University, Taipei/TW
Chair:	J. DeYoreo, Pacific Northwest National Laboratory, Richland/USA
11:15 - 12:15	PLENARY LECTURE Challenges in the microalgae energy feasibility D. Aranda, Universidade Federal do Rio de Janeiro - UFRJ/BR
12:15 - 12:30	Award Session – best poster award
12:30 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.
Room:	Hebel-Saal – Level -1
	Conductor materials
Chair:	R.Z. Valiev, Ufa State Aviation Technical University/RUS; J. Ivanisenko, Karlsruhe Institute of Technology/D
14:00 - 14:20	Opening Talk J. Ivanisenko, Karlsruhe Institute of Technology/D; R.Z. Valiev, Ufa State Aviation Technical University/RUS
14:20 - 15:00	INVITED LECTURE Ultrafine grained conductor materials - benefits and challenges M. Lewandowska, Z. Pakiela, Warsaw University of Technology/PL
15:00 - 15:40	INVITED LECTURE High strength and electrical conductivity of ultrafine grained copper alloys Y. Champion, J. Bourgon, J.-P. Couzinié, CNRS-UPEC, Thiais/F; R.K. Islamgaliev, R.Z. Valiev, Ufa State Aviation Technical University/RUS
15:40 - 16:10	Coffee Break
16:10 - 16:50	INVITED LECTURE Severe plastic deformation for production of high electrical conductivity with enhanced mechanical strength Z. Horita, Kyushu University, Fukuoka/J
16:50 - 17:10	Phase transformations driven by the severe plastic deformation B. Straumal, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; A. Mazilkin, Yu. Kucheev, Institute of Solid State Physics RAS, Chernogolovka/RUS; L. Kurmanaeva, Y. Ivanisenko, B. Baretzky, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
17:10 - 17:30	Novel approaches for simulation of complex diffraction profiles as a tool for microstructural investigation of complex materials P.S. Chizhov, M.V. Lobanov, Moscow State University/RUS
17:30 - 17:50	Influence of metallurgical factors on thermoelectric transport properties of Bi₂Te₃-based alloys N. Yang, P. Sharma, R. Nishimoto, Sandia National Laboratories, Livermore, CA/USA; Z. Zhang, J. Yee, M. Fraga, University of California, Davis, CA/USA; E. J. Laverna, University of California, Davis, Davis/USA
20:00 - 24:00	CONFERENCE DINNER at the Weinbrenner-Saal

Thursday, May 16, 2013

Room:	Thoma-Saal – Level -1	
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 	
Chair:	E. Bekaert, Helmholtz Institute Ulm/D	
09:00 - 09:20	Development and modification of the cathodes for Li-ion batteries on the basis of the NMC-material V. Sauchuk, M. Kusnezoff, N. Trofimenko, U. Langklotz, M. Fries, B. Matthey, A. Michaelis, Fraunhofer IKTS, Dresden/D	
09:20 - 09:40	Determination and measurement of the dispersing efficiency in the manufacturing of lithium ion batteries V. Wenzel, H. Nirschl, D. Noetzel, W. Bauer, Karlsruhe Institute of Technology/D	
09:40 - 10:00	Development of a new paste concept for the fabrication of lithium-ion electrodes B. Bitsch, N. Willenbacher, Karlsruhe Institute of Technology/D	
10:00 - 10:20	High efficient electrode production for lithium-ion batteries as basis for efficient energy storage systems A. Glawe, C. Werner, KROENERT GmbH & Co. KG, Hamburg/D	
10:20 - 10:40	Development and investigation of electrode slurries for the batch fabrication of Li-ion secondary micro batteries K. Hoepfner, M. Ferch, TU Berlin/D; K. Marquardt, R. Hahn, Fraunhofer IZM, Berlin/D	
10:40 - 11:10	Coffee Break	
Chair:	X. Zhao, Karlsruhe Institute of Technology (KIT)/D	
11:10 - 11:30	Hollow carbon nanospheres with superior rate capability for sodium-based batteries M. Titirici, Queen Mary University of London/UK; R. White, TU Berlin/D; K. Tang, MPI of Solid State Research, Stuttgart/D	
11:30 - 11:50	Phase transformations and structural changes in $\text{Li}_4\text{Ti}_5\text{O}_{12}$ using <i>in-situ</i> substrate curvature system Z. Choi, R. Moenig, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D	
11:50 - 12:10	Ultra-fast lithium insertion in a nanoscale porous framework of lithium titanate J. Feckl, K. Fominykh, M. Döblinger, D. Fattakhova-Rohlfing, T. Bein, University of Munich/D	
12:10 - 12:30	Improved wide operation voltage capability of Fe-, Ti- and F- doped $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ spinel cathodes for lithium ion batteries S. Glatthaar, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; M. Schroeder, Münster Electrochemical Energy Technology (MEET)/D; H. Geßwein, J.R. Binder, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D	
12:30 - 12:50	New binders for lithium-sulfur-batteries B. Pascucci, N. Wagner, K.A. Friedrich, German Aerospace Center (DLR), Stuttgart/D	
12:50	End of the conference	

Thursday, May 16, 2013

Room:	Mombert-Saal – Level -1	
	Electrochemical energy storage – symposium organized by Helmholtz Institute Ulm 	
Chair:	L. Aymard, LRCS, UMR CNRS 7314, Amiens/F	
09:00 - 09:20	Fabrication of amorphous Si on $\text{TiO}_2(\text{B})$ nanotubes as anode materials for Li-ion batteries Y. Yan, D. Wang, C.A. Vlaic, S. Ivanov, A. Bund, P. Schaaf, TU Ilmenau/D	
09:20 - 09:40	Ex-situ assessment of mechanical properties of a-Si and Si-based alloys as negative thin-film electrodes for Li-ion batteries A.-H. Zinn, S. Borhani, J. Pftzing-Micklich, E. Ventosa, S. Klink, W. Schuhmann, Ruhr-Universität Bochum/D; M. Pharr, J. Vlassak, Harvard University, Cambridge, MA/USA; A. Ludwig, Ruhr-Universität Bochum/D	
09:40 - 10:00	Influence of carbonaceous conductive networks on the electrochemical performance of transition metal oxide nanoparticles F. Müller, D. Bresser, M. Winter, S. Passerini, University of Münster/D	
10:00 - 10:20	Thermodynamic aspects of copper oxides used as electrodes for lithium ion batteries M. Lepple, D.M. Cupid, P. Franke, A. Reif, H.J. Seifert, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D	
10:20 - 10:40	LiF/Fe/V₂O₅ nanocomposite as high capacity cathode for Lithium ion batteries B. Das, Helmholtz Institute Ulm/D; A. Pohl, M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D	
10:40 - 11:10	Coffee Break	
Chair:	M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D	
11:10 - 11:30	Functionalization of vertically aligned carbon nanotubes with nitrogen plasma and deposition of MnO_2 for supercapacitor applications S. Hussain, R. Amade, E. Bertran, University of Barcelona/E	
11:30 - 11:50	Eco-efficient synthesis of graphene nanoribbons and its application in energy storage D. Damien, B. Babu, IISER Thiruvananthapuram/IND; T.N. Narayanan, P.M. Ajayan, Rice University, Houston, TX/USA; M.M. Shaijumon, IISER Thiruvananthapuram/IND	
11:50 - 12:10	Mechanical degradation in $\text{LiMn}_{1.95}\text{Al}_{0.05}\text{O}_4$ electrodes D. Chen, Z. Choi, Karlsruhe Institute of Technology/D; D. Kramer, Helmholtz Institute Ulm/D; R. Mönig, Karlsruhe Institute of Technology/D	
12:10 - 12:30	CO_2-laser assisted chemical vapor deposition for thin-film battery application C. Loho, A. Darbandi, TU Darmstadt & Karlsruhe Institute of Technology/D; R. Djenadic, H. Hahn, TU Darmstadt & Karlsruhe Institute of Technology & Helmholtz Institute Ulm/D	
12:30 - 12:50	Thin film cathodes in the material system Li-Mn-O S. Ulrich, J. Fischer, T. Bergfeldt, H. Leiste, C. Ziebert, H.-J. Seifert, M. Bruns, T. Scherer, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; K. Chang, RWTH Aachen University/D	
12:50	End of the conference	

Thursday, May 16, 2013

Room:	Scheffel-Saal – Level -1
	Solid-state lighting
Chair:	<i>M. Zachau, Osram GmbH, Augsburg/D; S. Lange, Osram GmbH, Schwabmünchen/D</i>
09:00 - 09:40	INVITED LECTURE Less material, more energy: novel nanostructured luminescent materials H.C. Streit, J. Kramer, K. Großmann, S. Krüger, N. Steinbrück, University of Siegen/D; C. Wöll, Karlsruhe Institute of Technology/D; <u>C. Wickleder</u> , University of Siegen/D
09:40 - 10:00	LED phosphors - the core of solid state lighting <u>S. Lange</u> , F. Jermann, J. Frischeisen, OSRAM GmbH, Schwabmünchen/D
10:00 - 10:20	Utilization of porosity for creation of white light emitting MOFs P.R. Matthes, F. Schönfeld, A. Steffen, <u>K. Müller-Buschbaum</u> , Universität Würzburg/D; S. Mondal, H.-J. Holdt, Universität Potsdam, Golm/D
10:20 - 10:40	Surface functionalized MgO nanocubes: model system and optical material A. Sternig, A. Gheisi, I. Merschmann, University of Erlangen-Nürnberg, Erlangen/D; S. Stankic, CNRS Paris/F; <u>O. Diwald</u> , University of Erlangen-Nürnberg, Erlangen/D
10:40 - 11:10	Coffee Break
	Capacitors and supercapacitors
Chair:	<i>K.-C. Möller, FHI for Chemical Technology ICT, Garching/D</i>
11:10 - 11:30	Hierarchical CDCs as gas storage and electrode materials <u>M. Oschatz</u> , L. Borchardt, S. Kaskel, TU Dresden/D
11:30 - 11:50	Characterization of novel capacitors for energy storage on the basis of o-3 composites <u>J. Glöckner</u> , A. Buchsteiner, M. Zenkner, T. Großmann, C. Ehrhardt, S.G. Ebbinghaus, M. Diestelhorst, S. Lemm, W. Münchgesang, H. Beige, H.S. Leipner, Universität Halle-Wittenberg/D
11:50 - 12:10	1-dimensionally aligned porous polyethylenedioxythiophene using carbon nanofiber as an efficient charge storage material <u>A.M. Bihag</u> , N.B. Siddheshwar, M.U. Sreekuttan, K. Sreekumar, National Chemical Laboratory, Pune, Maharashtra/IND
12:10 - 12:30	Mixed-oxide based pseudocapacitive porous electrodes for supercapacitors <u>G. Mondragon Rodriguez</u> , B. Saruhan, German Aerospace Center (DLR), Cologne/D
12:30 - 12:50	Novel high performance electrolytes for supercapacitors B. Blumenröder, <u>T.J.S. Schubert</u> , IOLITEC Ionic Liquids Technologies GmbH, Heilbronn/D; A. Balducci, M. Winter, S. Passerini, Münster University/D
12:50	End of the conference

Thursday, May 16, 2013

Room:	Clubraum – Level 0
	Catalysis – sponsored by Bayer AG, Leverkusen 
Chair:	<i>M.-I. Baraton, Université de Limoges/F; S. Mao, University of California at Berkeley, CA/USA and International Institute of New Energy, Shenzhen/PRC</i>
09:00 - 09:20	Producing CO from CO₂ by redox cycling using doped cerias <u>E.V. Ramos-Fernandez</u> , N.R. Shiju, University of Amsterdam/NL; A. Steinfeld, ETH Zurich/CH; G. Rothenberg, University of Amsterdam/NL
09:20 - 09:40	Stability and degradation of dealloyed PtM₃ (M = Cu, Co, Ni) nanoparticle PEM fuel cell electrocatalysts <u>F. Hasché</u> , TU München, Garching/D; M. Oezaslan, Paul Scherrer Institut, Villigen/CH; P. Strasser, TU Berlin/D
09:40 - 10:00	Sorption-enhanced steam reforming of ethanol for hydrogen production <u>Y.-J. Wu</u> , A.F. Cunha, A.E. Rodrigues, University of Porto/P
10:00 - 10:20	Investigation of the influence of copper in cobalt based spinels as N₂O decomposition catalyst <u>T. Franken</u> , S. Palkovits, R. Palkovits, RWTH Aachen University/D
10:20 - 10:40	Catalytic conversion of lignites <u>M. Seitz</u> , Hochschule Merseburg/D; W. Schwieger, J. Welscher, FAU Erlangen-Nürnberg, Erlangen/D; S. Nowak, T. Nögler, J. Zimmermann, Hochschule Merseburg/D
10:40 - 11:10	Coffee Break
11:10 - 11:30	Sulfur poisoning and on-stream regeneration of a Ru/C catalyst for hydrothermal biomass reforming <u>M. Dreher</u> , Paul Scherrer Institute, Villigen PSI/CH; B. Johnson, A. Peterson, Brown University, Providence, RI/USA; M. Nachttegaal, J. Wambach, F. Vogel, Paul Scherrer Institute, Villigen PSI/CH
11:30 - 11:50	New insights into the dynamics of charge carriers photogenerated in TiO₂ nanoparticles <u>J. Schneider</u> , T. Kandiel, R. Dillert, D. Bahnemann, Universität Hannover/D
11:50 - 12:10	Cu/ZnO catalyst development for CO₂ hydrogenation to methanol S. Zander, J. Schumann, N. Thomas, A. Tarasov, <u>M. Behrens</u> , Fritz-Haber-Institut, Berlin/D
12:10 - 12:30	Bi-functional catalyst for conversion of 2-methylfuran to biodiesel C. Wen, J. Hatrick-Simpers, <u>J. Lauterbach</u> , University of South Carolina, Columbia, SC/USA
12:30 - 12:50	Self-organization of K-FeO_x, K-Fe-Al(Si)O_x catalytic materials in CO₂ hydrogenation – the way to high CO₂ conversion into transportation fuels <u>M. Landau</u> , M. Herskowitz, R. Vidruk, Ben-Gurion University of the Negev, Beer-Sheva/IL
12:50	End of the conference

Thursday, May 16, 2013

Room:	Hebel-Saal – Level -1
	Conductor materials
Chair:	<i>B. Straumal, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; Y. Champion, CNRS-UPEC, Thiais/F</i>
09:00 - 09:40	INVITED LECTURE High strength metallic conductors with enhanced formability and conductivity I. Sabirov, IMDEA Materials Institute, Madrid/E
09:40 - 10:20	INVITED LECTURE Cu/Nb nanocomposite wires processed by severe plastic deformation for high pulsed magnets: effects of the nanostructure on the resistance to extreme environment (high strain, high stress) L. Thilly, University of Poitiers, Futuroscope/F; F. Lecouturier, University of Toulouse/F
10:20 - 10:40	Novel morphologies of porous transparent current collectors for efficient optoelectrochemical devices Y. Liu, D. Fattakhova-Rohlfing, University of Munich/D
10:40 - 11:10	Coffee Break
11:10 - 11:50	INVITED LECTURE Strength and conductivity of the ultrafine-grained Cr, Zr and Hf bronzes S.V. Dobatkin, N.R. Bochvar, D.V. Shangina, P.B. Straumal, A.A. Baikov Institute of Metallurgy and Materials Science of RAS, Moscow/RUS
11:50 - 12:10	Precipitation hardening in UFG aluminum alloy of the Al-Mg-Si system and its influence on physical and mechanical properties E. Bobruk, M. Murashkin, R.Z. Valiev, Ufa State Aviation Technical University/RU
12:10 - 12:30	Enhanced strength and electrical conductivity in nanostructured Cu-Cr alloy processed by severe plastic deformation R.K. Islamgaliev, K.M. Nesterov, R.Z. Valiev, Ufa State Aviation Technical University/RUS; Y. Champion, Université Paris-Est Creteil, Thiais/F
12:30 - 12:50	Ultrafine-grained aluminum alloys for advanced conductors: processing techniques and properties M. Murashkin, E.V. Bobruk, Ufa State Aviation Technical University/RUS; I. Sabirov, IMDEA Materials Institute, Madrid/E; G.I. Raab, R.Z. Valiev, Ufa State Aviation Technical University/RUS
12:50	End of the conference

Workshop NEW (NANO-)MATERIALS IN ENERGY TECHNOLOGY – Kepler-Symposium

The Kepler Prize is yearly awarded by the European Academy of Sciences to foster exchange and cross-border cooperation between young scientists. The Kepler Prize consists of funding for a multidisciplinary workshop.

The workshop organized by the 2012 award winners “NEW (NANO-)MATERIALS IN ENERGY TECHNOLOGY” will take place at the premises of the EnMat II conference. Participants of the conference can attend at the workshop without extra charge.

Additional information is available on the website www.eurasc.org/kepler/Kepler2012.asp.

Monday, May 13, 2013

Room:	Forum 1 - Level 0
	Materials processing and characterization techniques
Chair:	<i>J. Rupp, ETH Zürich/CH</i>
14:00-15:40	Atmospheric atomic layer deposition: fast and scalable fabrication of high quality energy materials D. Muñoz-Rojas, University of Cambridge/UK
	Low energy ion scattering and SIMS: application to advanced materials for energy conversion and storage H. Téllez, Imperial College London/UK
15:40 - 16:10	Coffee Break
	Nano-ionics and devices based on functional nanomaterials I
16:10-17:50	Nanoionics, nanophononics and integration of functional nanomaterials for micropower generation A. Tarancón, Catalonia Institute for Energy Research (IREC)/E
	Fast ionic conduction and diffusion along interfaces – significant problem or new perspective for the application of functional ceramics C. Korte, Forschungszentrum Jülich GmbH/D

Tuesday, May 14, 2013

Room:	Forum 1 - Level 0
	Nano-ionics and devices based on functional nanomaterials II
Chair:	<i>M. Burriel, Imperial College London/UK; A. Tarancón, Catalonia Institute for Energy Research (IREC)/E</i>
09:00-10:40	Probing the strain by multi-beam optical stress sensor in thin film pulsed laser deposition D. Pergolesi, Paul Scherrer Institute, Villigen/CH
	Well defined materials as Taylor-made catalysts in chemical reactions for the production of organic energy carrier M. Renz, Instituto de Tecnología Química (CSIC-UPV), Valencia/E
	Crystal chemistry of inorganic materials for battery applications M. Casas-Cabanas, CIC energigune, Minano/E
10:40 - 11:10	Coffee Break
	Nano-materials for Solid Oxide Fuel Cell (SOFC) cathodes
11:10-12:50	Lanthanum strontium cobaltite as model system to study intermediate temperature SOFC cathodes M. Kubicek, TU Vienna/A
	Nanoscaled $\text{La}_{0.6}\text{Sr}_{0.4}\text{CoO}_3$-d thin-films as high performance SOFC cathodes for reduced operating temperatures J. Hayd, Karlsruhe Institute of Technology (KIT)/D
12:50 - 14:00	Catering is available at the conference venue. Lunches are not included in the conference registration fee.

Tuesday, May 14, 2013

Room:	Forum 1 - Level 0
	Nano-materials for Solid Oxide Fuel Cell (SOFCs)
Chair:	<i>C. Solís & M. Renz, Instituto de Tecnología Química (CSIC-UPV), Valencia/E</i>
14:00-15:40	Ionic and electronic conductivity of ceria-based thin films G. Gregori, Max Planck Institute, Stuttgart/D Germanium oxide phosphate, a novel interstitial oxide ion conductor for IT-SOFC M. Tham, University of St Andrews/UK Lanthanum tungstate: a mixed proton conducting oxide with a fluorite-related structure A. Magrasó Sola, University of Oslo/N
15:40 - 16:10	Coffee Break
	Ceramic membranes for green chemical production and clean power generation
16:10-17:50	Oxygen separation membranes based on fast ionic conductors: principles and applications M. Balaguer, Instituto de Tecnología Química (CSIC-UPV), Valencia/E New trends in hydrogen separation at high temperatures through mixed conducting membranes J.M. Serra, Instituto de Tecnología Química (CSIC-UPV), Valencia/E Testing of microporous membranes in the flue gas of a post-combustion coal fired power plant J. Eiberger, Forschungszentrum Jülich GmbH/D

Wednesday, May 15, 2013

Room:	Forum 1 - Level 0
	Photonic crystals & optics, optical nanomaterials and solar fuels I
Chair:	<i>E. Redel, Karlsruhe Institute of Technology (KIT)/D</i>
14:00-15:40	Dynamic XPS for photoinduced voltage changes on semiconductor materials H. Sezen, Karlsruhe Institute of Technology (KIT)/D From one-way chemistry to surface structuring: the equilibrium of methanol induced nanopatterning on Si P. Thissen, Karlsruhe Institute of Technology (KIT)/D Title: tbc S. Walheim, Karlsruhe Institute of Technology (KIT)/D
15:40 - 16:10	Coffee Break
	Photonic crystals & optics, optical nanomaterials and solar fuels II
16:10-17:50	Harnessing light for mechanical actuation in nanophotonic circuits W. Pernice, Karlsruhe Institute of Technology (KIT)/D From nanoparticles to single crystals: new insights into solar fuel synthesis by novel approaches in IR spectroscopy C. Wöll, Karlsruhe Institute of Technology (KIT)/D

POSTER DISPLAY TIMES

All posters should be presented throughout the conference, i.e. from 12–16 May, 2013.

The posters should preferably be put up on Sunday, May 12, 2013, 6–8 p.m. and are welcome to stay until Thursday, May 16, 2013 at 1:00 p.m.

Poster authors are expected to be present during the Poster Sessions.

The opportunities to present the posters are at the following times:

Posters of **Electrochemical energy storage symposia only:**

- » **Poster Session 1 for posters with even numbers** on Monday, May 13, from 5:50 p.m. till 9:00 p.m. and during coffee breaks.
- » **Poster Session 2 for posters with uneven numbers** on Tuesday, May 14, from 5:50 p.m. till 9:00 p.m. and during coffee breaks.

Poster authors of the Electrochemical energy storage symposium should be present at their posters at the above mentioned poster sessions.

Authors of posters belonging to the symposia

- » **Fuel cells**
- » **Nuclear – fusion, fission**
- » **Large scale fossil fuel plants**
- » **CO₂ capture and sequestration**
- » **Photocatalysis and photosynthesis**
- » **Wind**
- » **Water**
- » **Water splitting**
- » **H₂ and chemical storage**
- » **Light weight materials**
- » **Molecular science in energy**
- » **Ion transport**
- » **Charge separation and transfer at interfaces**
- » **Modelling of materials and processes**

should be present at their posters during **Poster Session 1** on Monday, May 13, from 5:50 p.m. till 9:00 p.m. and during coffee breaks.

Authors of posters belonging to the symposia

- » **Thermoelectrics**
- » **Si-based photovoltaics and beyond**
- » **Organic photovoltaics**
- » **Biomass and biofuel**
- » **Geothermal**
- » **Thermal storage**
- » **Solar to heat**
- » **Capacitors and supercapacitors**
- » **Conductor materials**
- » **Solid-state lighting**
- » **Thermal insulation**
- » **Catalysis**
- » **Energy efficient magnetic materials**
- » **Extreme environments**
- » **High performance ceramic materials**
- » **Corrosion**

should be present at their posters during **Poster Session 2** on Tuesday, May 14, from 5:50 p.m. till 9:00 p.m. and during coffee breaks.

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Fuel cells	
1.01-01	Oxygen reduction reaction at platinum electrodes under simulated alkaline direct alcohol fuel cell conditions C. Cremers, B. Kintzel, J. Tübke, Fraunhofer Institute for Chemical Technology ICT, Pfinztal/D
1.01-02	New Semi-IPN nanostructured proton conductive membranes for fuel cells F.A. Moro Loureiro, A.M. Rocco, Federal University of Rio de Janeiro/BR; R.P. Pacheco, Universidade Federal Fluminense, Niterói/BR
1.01-03	Oxygen plasma activated carbon nanotubes as electrode material for proton exchange membrane fuel cells G. Marginean, U. Rost, W. Brandl, M. Brodmann, Westphalian University, Gelsenkirchen/D
1.01-04	Rotating disk electrode measurements in hot concentrated phosphoric acid R. Zeis, Helmholtz Institute Ulm/D
1.01-05	Electrochemically prepared Co₃O₄-Pt hybrid systems with improved resistance to CO poisoning N. Spataru, P. Osiceanu, M. Anastasescu, T. Spataru, Institute of Physical Chemistry „Ilie Murgulescu“ of the Romanian Academy, Bucharest/RO
1.01-06	Improved activity for methanol oxidation of TiO₂-Pt composites electrodeposited on conductive diamond T. Spataru, M. Marcu, C. Munteanu, N. Spataru, Institute of Physical Chemistry „Ilie Murgulescu“ of The Romanian Academy, Bucharest/RO
1.01-07	Effect of Fe in preferential oxidation of carbon monoxide reaction (PROX) on Au/TiO₂ catalysts H.S. Ferreira, M.C. Rangel, Universidade Federal da Bahia, Salvador/BR; S. Rico-Francés, J. Silvestre-Albero, A. Sepúlveda-Escribano, Universidad de Alicante/E
1.01-08	Advanced hydrogen storage technique to improve the run time of the „chip integrated micro PEM fuel cell system“ A. Balakrishnan, J. Becker, C. Mueller, H. Reinecke, University of Freiburg/D
1.01-09	Ethanol oxidation reaction (EOR) on Pt/C and Pt-Rh/C electrocatalysts: DEMS study A. Bach Delpeuch, C. Cremers, K. Pinkwart, J. Tübke, Fraunhofer Institut für Chemische Technologie (ICT), Pfinztal/D; M. Chatenet, LEPMI, Grenoble/F
1.01-10	Carbon supported PtSnCo nanoparticles as a catalyst for ethanol electro-oxidation reaction (EOR) in acid medium S.C.E. Tsang, A. Pengsawang, University of Oxford/UK
1.01-11	Electrochemical test and evaluation methods to address cathode catalysts degradation mechanism A. Marcu, G. Toth, Daimler AG, Kirchheim unter Teck/D
LMP-1.01-12	Preparation of multi-block copolymers containing sulfonated polysulfone blocks and their applications to PEMFC T. Kim, M. Jung, E. Kim, Y. Hong, Korea Research Institute of Chemical Technology, Daejeon/ROK
LMP-1.01-13	Properties of alkaline earth borosilicate fuel cell sealing glass containing alumina filler S.J. Ha, E.J. Kim, S. Park, J.C. Lee, Myongji University, Yongin/ROK
LMP-1.01-14	Functionalized ordered mesoporous silica materials and porous metal phosphonates as proton conductors in PEM membranes M. Wark, C. Seidler, M. Sharifi, R. Marschall, Ruhr University Bochum/D; M. Feyand, Christian Albrechts University Kiel/D; N. Stock, Christian Albrechts University Kiel/D
LMP-1.01-15	Mesoporous graphitic spheres as catalyst support for PEM fuel cells S. Mezzavilla, C. Galeano, MPI für Kohlenforschung, Mülheim an der Ruhr/D; C. Baldizzone, MPI für Kohlenforschung, Düsseldorf/D; J.C. Meier, MPI für Eisenforschung, Düsseldorf/D; I. Radev, V. Peinecke, Zentrum für Brennstoffzellen Technik ZBT GmbH, Duisburg/D; K.J.J. Mayrhofer, MPI für Eisenforschung, Düsseldorf/D; F. Schüth, MPI für Kohlenforschung, Mülheim an der Ruhr/D
LMP-1.01-16	Performance improvement in fluorinated-oligomer functionalized-silica / Nafion® composite membranes Y. Treekamol, M. Schieda, Helmholtz-Zentrum Geesthacht/D; L. Robitaille, S.M. MacKinnon, A. Mokriani, National Research Council Canada, Boucherville/CDN; Z. Shi, S. Holdcroft, National Research Council Canada, Vancouver/CDN; K. Schulte, TU Hamburg-Harburg/D; S.P. Nunes, King Abdullah University of Science and Technology, Thuwal/SAR
LMP-1.01-17	Modification of carbon materials as supports in electrocatalysis S. Rümmler, M. Steimecke, M. Bron, Martin-Luther-Universität, Halle/D
LMP-1.01-18	Reduced graphene oxide cathodes for the SOFC application Y. Jee, H. Moon, M. Lee, University of California, Merced/USA

Thermoelectrics

- 1.02-01 **Electronic optimization of the transport properties of *n*-type PbTe-PbS, following a phase separation reaction on the nanoscale**
E. Hazan, Ben-Gurion University, Beer-Sheva/IL; M. Kanatzidis, Northwestern University, Evanston, IL/USA; Y. Gelbstein, Ben-Gurion University, Beer-Sheva/IL
- 1.02-02 **Characterization of the mechanical and transport properties of highly efficient germanium telluride-based thermoelectric materials**
J. Davidow, Y. Gelbstein, Ben Gurion University, Beer Sheva/IL
- 1.02-03 **The effect of structure and composition on the thermoelectric efficiency of spark plasma sintered half-Heusler compounds**
O. Appel, Y. Gelbstein, Ben Gurion University of the Negev, Beer-Sheva/IL
- 1.02-04 **Defect chemistry and thermoelectric properties of doped Delafossite-type oxide CuFeO₂**
T. Stöcker, R. Moos, University Bayreuth/D; R. Rüger, Merck KGaA, Darmstadt/D
- 1.02-05 **Thermoelectrics goes to both marine and automotive applications – goals and agenda of the EC supported PowerDriver project**
Y. Gelbstein, Ben-Gurion University of the Negev, Beer-Sheva/IL; J. Tunbridge, R. Dixon, Intrinsic Materials Ltd, Farnborough/UK; M. Reece, H. Ning, Queen Mary University of London/UK; R. Gilchrist, Jaguar Land Rover/UK; R. Summers, Halyard (M&I) Ltd/UK; I. Agote, TECNALIA Research & Innovation, San Sebastian/E; I. Dimitriadou, K. Simpson, European Thermodynamics Ltd/UK; C. Rouaud, Ricardo Ltd/UK; P. Feulner, Ricardo Ltd/D
- 1.02-06 **Increasing absorber temperatures in solar thermal systems for thermoelectrical recuperation**
M. Morschel, G. Bastian, Rhine-Waal University of Applied Sciences, Kleve/D; M. Hering-Bertram, University of Applied Sciences, Bremen/D
- 1.02-07 **Deterioration at elevated temperatures of Sb-doped Mg₂Si dependent on plasma activated sintering process**
K. Kato, T. Iida, T. Sakamoto, S. Soeda, N. Hirayama, K. Nishio, Y. Kogo, Y. Takahashi, Tokyo University of Science, Chiba/J
- 1.02-08 **Electrochemically doped CoSb₃ nanowires for high-temperature thermoelectric materials**
R. Vidu, University of California, Davis, CA/USA; M. Prodana, F. Golgovici, A. Negru, D. Bojin, M. Enachescu, CSSNT, Bucuresti/RO
- 1.02-10 **Thermal conduction in correlated multilayer structures**
S. Wiedigen, T. Kramer, K. Mangipudi, C.A. Volkert, C. Jooss, Universität Göttingen/D; M. Feuchter, M. Kamlah, Karlsruhe Institute of Technology/D
- LMP-1.02-11 **Correlated transition metal oxides and half-Heusler compounds for thermoelectric power generation**
A. Weidenkaff, O. Brunko, J. Eilertsen, K. Galazka, L. Karvonen, S. Populoh, L. Sagarna, A. Shkabko, G. Saucke, P. Thiel, M. Trottman, W. Xie, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf/CH
- LMP-1.02-12 **Materials for direct energy conversion**
W. Hering, J. Konys, G. Müller, A. Onea, J. Reiser, R. Stieglitz, A. Weisenburger, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D

Si-based photovoltaics and beyond

- 1.03-01 **Synthesis and characterization of Cu₂ZnSnS₄ (CZTS) nanostructures for solar cell application**
L.Y.S. Lee, E. Ha, K.Y. Wong, The Hong Kong Polytechnic University, Kowloon/HK
- 1.03-03 **Photovoltaic energy conversion based on strongly correlated oxides**
B. Iffland, J. Hoffmann, C. Jooß, P.M. Perera, P. Saring, M. Seibt, University of Göttingen/D
- LMP-1.03-04 **Low temperature annealing effect on electrical properties of multicrystalline silicon wafers for photovoltaic application**
A. Boucheham, D. Bouhafs, N. Khelifati, B. Palahouane, Research Center in Semiconductor Technology for Energetics, Algiers/DZ
- LMP-1.03-05 **Study on the effect of preparation condition of precursor thin films on the performance of CZTS solar cells**
S.J. Sung, S.N. Park, D.K. Hwang, D.H. Kim, J.K. Kang, Daegu Gyeongbuk Institute of Science and Technology/ROK
- LMP-1.03-06 **A new technique of polycrystalline silicon wafer by horizontal growth on substrate from silicon melt**
J.S. Kim, J.S. Lee, B.Y. Jang, Korea Institute of Energy Research, Daejeon/ROK

Organic photovoltaics

- 1.04-01 **Enhanced conversion efficiency of some organometallic dithio sensitizers in dye sensitized TiO₂ solar cells**
V. Singh, R. Chauhan, A.N. Gupta, Banaras Hindu University, Varanasi/IND; M.G.B. Drew, University of Reading/UK; L. Bahadur, N. Singh, Banaras Hindu University, Varanasi/IND
- 1.04-02 **Carbazole-based „double cable“ polymers for application in organic photovoltaic cells**
A.A.B. Alghamdi, A.M. Alsalme, King Saud University, Riyadh/SAR; A. Fischereeder, A. Iraqi, University of Sheffield/UK
- 1.04-03 **Functional oxide thin films for new generation solar cells using atmospheric atomic layer deposition (ALD)**
D. Munoz-Rojas, A. Marin, C. Armstrong, R. Hoyer, D. Iza, K. Musselman, J. MacManus-Driscoll, University of Cambridge/UK
- 1.04-04 **Barrier layers for application in organic solar cells**
V. Bozhilov, E. Bubev, S. Kozhuharov, V. Kozhuharov, M. Machkova, University of Chemical Technology and Metallurgy, Sofia/BG
- 1.04-06 **Development of TiO₂ nanoparticle layers with particle size below 10 nm for application as Photoanode in DSSC**
H. Yang, D.V. Szabó, S. Schlabach, T. Hanemann, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 1.04-07 **UV-protection for organic photovoltaic solar cells**
E. Bubev, V. Bozhilov, S. Kozhuharov, M. Machkova, V. Kozhuharov, University of Chemical Technology and Metallurgy, Sofia/BG
- LMP-1.04-08 **Development of highly conductive graphene oxide and water-soluble polymer composite via radiation for interfacial layer in OPVs**
P.H. Kang, S.-H. Oh, H.B. Kim, J.-P. Jeun, Korea Atomic Energy Research Institute (KAERI), Jeongeup/ROK
- LMP-1.04-09 **Extremely thin absorber solar cells with an Sb₂S₃ absorber by atomic layer deposition**
D.-H. Kim, S.-J. Lee, D.-G. Hwang, S.-J. Sung, DGIST, Daegu/ROK
- LMP-1.04-10 **Fabrication of the photoelectrode with TiO₂ nanofibers for photovoltaic applications**
D. Hwang, J. Kim, S. Sung, D. Kim, Daegu Gyeongbuk Institute of Science and Technology/ROK

Solar to heat

- LMP-1.05-01 **The main objectives of the work described in this paper to model and simulate the autonomous hybrid photovoltaic wind generator with battery**
A. Benatallah, M. Dahbi, Adrar University/DZ; A. Mouly Ali, University of Bechar/DZ

Biomass and biofuel

- 1.06-01 **The catalytic activity of Gresik dolomite as heterogeneous catalyst in Biodiesel production from *Jatropha curcas* oil**
G. Yorinda, A. Kristiono, M.T. Akbar, N. Halimah, A. Abdulloh, Airlangga University, Surabaya/RI
- 1.06-02 **Heteropoly acids for conversion of renewable feedstocks**
A. Alsalme, King Saud University, Riyadh/SAR; E. Kozhevnikova, I. Kozhevnikov, University of Liverpool/UK
- 1.06-03 **Efficient catalytic conversion of biogas to syngas using supported Ni-Co bimetallic catalysts**
P. DjinoVIC, I.G. Osojnik Crnivec, B. Erjavec, A. Pintar, National Institute of Chemistry, Ljubljana/SLO
- 1.06-04 **Performance of fully-cured polybenzoxazine membranes for water-ethanol separation via pervaporation**
P. Chuntanaler, N. Saelim, Chulalongkorn University, Bangkok/THA; S. Kulthippanja, UOP, Des Plaines, IL/USA; T. Chaisuwana, S. Wongkasemjit, Chulalongkorn University, Bangkok/THA
- 1.06-05 **Investigations on the homologation of short-chain alcohols with synthesis gas over heterogeneous catalysts**
M. Schubert, G. Cavusoglu, K. Walter, W. Kleist, J.-D. Grunwaldt, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 1.06-06 **Conversion of sugarcane bagasse to sugar by microbial hydrolysis**
S. Visuttitewin, S. Chavadej, P. Rangsunvigit, Chulalongkorn University, Bangkok/THA
- 1.06-07 **Glucose production from corncob by microbial hydrolysis**
N. Hokittikul, P. Rangsunvigit, S. Chavadej, Chulalongkorn University, Bangkok/THA
- 1.06-08 **Catalytic hydrodenitrogenation of propylamine as model reaction of hydrorefining pyrolysis oil obtained from animal by-products**
C.A. Badari, F. Lónyi, J. Valyon, Research Centre for Natural Sciences of the HAS, Budapest/H
- LMP-1.06-09 **Innovative processing of lignin into granules and briquettes for energy purposes**
S. Narra, P. Ay, Brandenburg University of Technology, Cottbus/D

LMP-1.06-10 **Biocoal water fuel obtained by Hydrothermal Carbonization (HTC)**
A. Corma, M. Renz, Instituto de Tecnología Química (ITQ, UPV-CSIC), Valencia/E; M. Hitzl, Ingelia S.L., Valencia/E

LMP-1.06-11 **Effect of catalyst preparation on the performance of CaO-ZnO catalysts for transesterification**
P. Klinklom, A. Luengnaruemitchai, Chulalongkorn University, Bangkok/T; S. Jai-In, Thai Royal Navy, Bangkok/T

Nuclear – fusion, fission

1.07-01 **Mechanical tests and characterization of 9CrMoVNb-ODS welds**
J. Hoffmann, M. Rieth, V. Widak, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D

1.07-02 **Stability of a SOFC anode upon redox cycles by STEM and FIB/SEM microstructure characterization**
M. Andrzejczuk, T. Wejrzanowski, Warsaw University of Technology/PL; O. Vasylyev, I. Brodnikovskiy, Institute for Problems of Materials Science, Kyiv/UA; V. Podhurska, B. Vasylyv, O. Ostash, Physical-Mechanical Institute, Lviv/UA; M. Lewandowska, K.J. Kurzydowski, Warsaw University of Technology/PL

1.07-03 **Mass production of components for future fusion power plants via one- and two component powder injection molding**
S. Antusch, T. Hanemann, V. Piotter, M. Rieth, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D

1.07-04 **Mechanical and microstructural properties of Al-containing ferritic oxide dispersion strengthened alloys**
J. Hoffmann, M. Rieth, A. Möslang, Karlsruhe Institute of Technology/D

1.07-05 **Modeling the interface reactions during diffusion bonding of Tungsten and EUROFER97 using a vanadium inter-layer**
F. Guzman, J. Aktaa, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D

LMP-1.07-06 **Microstructural characterisation of a 347 grade austenitic stainless steel weldment after thermal ageing**
G. Green, R. Higginson, S. Hogg, Loughborough University/UK; C. Hamm, S. Spindler, EDF Energy, Barnwood/UK

LMP-1.07-07 **Study of effect Fe⁺ irradiation in Fe-Cr alloys using grazing incidence Hard and Soft X-ray**
A. Idhil, Paul Scherrer Institute, Villigen/CH; T. Ueno, M. Sawada, Hiroshima Synchrotron Radiation Center/J; C.N. Borca, Paul Scherrer Institute, Villigen/CH

Large scale fossil fuel plants

1.08-01 **Iron aluminide based alloys for high-temperature applications**
M. Palm, MPI für Eisenforschung GmbH, Düsseldorf/D

1.08-02 **CMAS attack on YSZ thermal barrier coatings and protection by sacrificial aluminum-rich coatings**
V. Kuchenreuther, V. Kolarik, Fraunhofer Institute for Chemical Technology, Pfinztal/D; W. Stamm, Siemens Power Generation, Mülheim an der Ruhr/D; M. Juez-Lorenzo, H. Fietzek, Fraunhofer Institute for Chemical Technology, Pfinztal/D

1.08-03 **The contribution of mechanocatalysis to the fractionization of lignocellulose into monosaccharides and lignin**
M. Kälström, N. Meine, R. Rinaldi, F. Schüth, MPI für Kohlenforschung, Mülheim an der Ruhr/D

CO₂ capture and sequestration

1.09-01 **Supercritical CO₂-corrosion of steels in saline aquifer CCS-environment**
A. Pfennig, P. Zastrow, H. Wolthusen, HTW University of Applied Sciences, Berlin/D; A. Kranzmann, BAM Federal Institute of Materials Research and Testing, Berlin/D

1.09-02 **Sabatier based CO₂-Methanation under oxyfuel conditions**
K. Müller, F. Rachow, J. Israel, D. Schmeißer, Brandenburgisch Technische Universität Cottbus/D

1.09-03 **Investigation of CO₂ hydrate formation for sequestration using high pressure calorimetry**
R. Andre, P. Leparlour, SETARAM Instrumentation, Caluire/F

1.09-04 **3D performance model for mixed conducting membranes**
A. Haeffelin, C. Niedrig, J. Joos, S. Wagner, E. Ivers-Tiffée, Karlsruhe Institute of Technology/D

1.09-05 **CO₂ adsorption on polyethyleneimine-modified activated carbon: effects of different polyethyleneimine molecular weights**
P. Ritmongkolpun, P. Rangsunvigit, Chulalongkorn University, Bangkok/THA; S. Kulprathipanja, UOP, A Honeywell Company, Des Plaines, IL/USA

1.09-06 **Material challenge for CCS – corrosion of pipeline and highly alloyed steels during CO₂ transport**
O. Yevtushenko, R. Bäßler, BAM Federal Institute for Materials Research and Testing, Berlin/D; I. Carrillo-Salgado, Baja California Autonomous University/MEX

1.09-07 **A combined computational and experimental FTIR study of CH₄ and CO₂ adsorption on porous aromatic framework (PAF) materials**
M. Errahali, G. Gatti, L. Canti, L. Tei, M. Cossi, Università del Piemonte Orientale Amedeo Avogadro, Alessandria/I; A. Comotti, Università di Milano Bicocca/I; L. Marchese, Università del Piemonte Orientale Amedeo Avogadro, Alessandria/I

1.09-08 **Corrosion testing of pipeline steel in supercritical CO₂ containing SO₂, NO₂, O₂ and water**
S. Bohraus, D. Bettge, A. Kranzmann, Federal Institute for Materials Research and Testing, Berlin/D

1.09-09 **CO₂-absorption with ionic liquids**
M. Bahlmann, P. Schulz, University of Erlangen-Nürnberg, Erlangen/D; A. Schraven, Evonik Industries, Marl/D; P. Schwab, Evonik Industries, Essen/D; P. Wasserscheid, University of Erlangen-Nürnberg, Erlangen/D

1.09-10 **Investigating the enhancement of carbonate precipitation by organic films and biomimetic polymers in context of CO₂ sequestration**
J. De Yoreo, A.F. Wallace, Q. Hu, M.H. Nielsen, C.-L. Chen, L.O. Hedges, A. Fernandez-Martinez, J. Tao, S. Whitelam, G.A. Waychunas, J.F. Banfield, Lawrence Berkeley National Laboratory, Berkeley, CA/USA

LMP-1.09-11 **Using waste Polymeric materials for CO₂ adsorption**
G. Sneddon, Heriot-Watt University, Edinburgh/UK

Photocatalysis and photosynthesis

1.10-01 **The influence of tribochemical treatment on the photocatalytic activity of CsTaWO₆**
L. Schwertmann, R. Marschall, M. Wark, Ruhr-Universität Bochum/D

1.10-02 **Understanding charge transfer at the nanocarbon-inorganic interface**
N. Buller, C. Shearer, D. Eder, University of Münster/D

1.10-03 **Photocatalytic water splitting at self assembled perovskite spinel nano-composites**
A. Blumenstein, H. Stein, J. Hoffmann, Ch. Jooss, Universität Göttingen/D

LMP-1.10-04 **Layered cesium titanates for photocatalytic hydrogen production**
M. Pilarski, R. Marschall, M. Wark, Ruhr University Bochum/D

LMP-1.10-05 **Titanium oxynitride for solar energy harvesting and storage: A controlled oxidation approach**
Y. Liu, X. He, R. V. Kumar, Univesity of Cambridge/UK

Wind

1.11-01 **Ionic liquids – new lubricants for wind power plants**
A. Westerholt, A. Bösmann, P. Wasserscheid, W. Arlt, J. Völkl, E. Schlücker, B. Pohrer, Universität Erlangen Nürnberg, Erlangen/D; W. Holweger, M. Wolf, Y. Korth, Schaeffler Technologies AG & Co. KG, Herzogenaurach/D; N. Wehrum, A. Solano, Merck KGaA, Darmstadt/D

Water

LMP-1.12-01 **Electrocoagulation of a raw water of Ghib Dam (Algeria) in batch using aluminium and iron electrodes**
D. Belhout, Ecole Nationale Polytechnique, Alger/DZ; D. Gharnaout, Université de Blida, Blida/DZ; A. Harichane, Ecole Nationale Polytechnique, Alger/DZ

Geothermal

1.13-01 **Universal corrosion chamber for in-situ corrosion fatigue tests**
A. Pfennig, M. Wolf, R. Wiegand, HTW University of Applied Sciences, Berlin/D; C.-P. Bork, BAM Federal Institute of Materials Research and Testing, Berlin/D

1.13-02 **Evaluation of corrosion resistance of high-alloyed materials for geothermal applications under simulated working conditions**
J. Sobetzki, R. Bäßler, H. Sarmiento Klapper, BAM – Federal Institute for Materials Research and Testing, Berlin/D

Water splitting

1.14-01 **Electrochemical water splitting on anodic TiO₂ nanostructures**
S. Shin, J. Choi, Inha University, Incheon/ROK

1.14-02 **Anodized iron oxide films with a sputtered Pt layer for photoelectrochemical water splitting**
Y. Choi, J. Choi, Inha University, Incheon/ROK

- 1.14-03 **Electrophoretically deposited strontium titanate thick films for solar hydrogen generation**
D. Hertkorn, H. Elsenheimer, F. Paul, C. Müller, T. Hanemann, H. Reinecke, University of Freiburg/D
- 1.14-04 **Nanocarbon-inorganic hybrids for photocatalytic water splitting hydrogen production**
A. Cherevan, University of Münster/D; M. Matsukawa, The University of Tokyo/J; D. Eder, University of Münster/D; K. Domen, The University of Tokyo/J
- 1.14-05 **Activity and stability study of dealloyed Ir-Ni nanoparticles in electrochemical oxygen evolution reaction**
H.N. Nong, P. Strasser, TU Berlin/D
- 1.14-06 **Reaction kinetics of high temperature reduction of CeO₂ and simulations of solar water splitting redox reactors**
B. Bulfin, K.A. Keogh, A.J. Lowe, I.V. Shvets, Trinity College Dublin/IRL
- 1.14-07 **Bio-inspired water oxidation by electrodes coated with manganese oxides**
S.Y. Lee, University of Freiburg/D
- 1.14-08 **Substituted LaTiO₂N for enhanced photoelectrochemical performance**
A. Maegli, S. Pokrant, M. Trottmann, L. Sagarna, A. Weidenkaff, EMPA Swiss Federal Laboratories for Materials Science and Technology, Dübendorf/CH
- 1.14-09 **Enhanced photoelectrochemical solar water splitting properties of porous WO₃/TiO₂ nanostructures**
C. Khare, K. Sliozberg, R. Meyer, A. Savan, W. Schuhmann, A. Ludwig, Ruhr-Universität Bochum/D
- 1.14-10 **Pr_{1-x}Ca_xMnO₃ as model catalyst for catalytic water splitting**
D.J. Mierwaldt, S. Raabe, J. Hoffmann, C. Jooß, Universität Göttingen/D
- LMP-1.14-12 **Efficient water splitting to produce hydrogen energy by the photocatalysis of Pt and Ru doped bismuth oxide under visible light irradiation**
J.J. Wu, S.H. Hsieh, G.J. Lee, Feng Chia University, Taichung/RC; S.H. Davies, S.J. Masten, Michigan State University, East Lansing, MI/USA
- LMP-1.14-13 **Recent advances in photocatalytic water splitting**
N. Rockstroh, M. Karnahl, A.-E. Surkus, H. Junge, M. Beller, Leibniz Institute for Catalysis, Rostock/D

Electrochemical energy storage

- 2.01-01 **Methanol electrooxidation by Pt-Fe nanocatalyst supported on porous carbon**
M. Nadeem, I. Khan, A. Badshah, Quaid-i-Azam University, Islamabad/PK; N. Haider, Geological Survey of Pakistan, Islamabad/PK
- 2.01-02 **Electrochemical behavior of a micro-laser structuring FTO anode layer with a plasma pretreatment for lithium ion batteries**
J. Park, A. Kim, C. Hudaya, W. Choi, Korea Institute of Science and Technology (KIST), Seoul/ROK; D. Byun, Korea University, Seoul/ROK; W. Pfleging, H. Seifert, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; J. Lee, Korea Institute of Science and Technology (KIST), Seoul/ROK
- 2.01-03 **Li₂O₂ oxidation catalyzed by an La_{1.7}Ca_{0.3}Ni_{0.75}Cu_{0.25}O₄ layered perovskite in lithium-oxygen batteries**
J. Lee, K. Jung, S. Lee, T. Lim, S. Park, R. Song, K. Shin, Korea Institute of Energy Research, Daejeon/ROK
- 2.01-04 **Fe/LiF/C nanocomposite as a high capacity cathode material for Li-ion batteries**
S. Ren, Karlsruhe Institute of Technology/D; M. Fichtner, Karlsruhe Institute of Technology & Helmholtz Institute Ulm/D
- 2.01-05 **Suppressed lithium dendrite growth in Li batteries using ionic liquid electrolytes studied by *in situ* NMR, EIS, and SEM**
N. Schweikert, M. Scheuermann, A. Hofmann, M. Schulz, S.T. Boles, S. Indris, Karlsruhe Institute of Technology/D
- 2.01-06 **Ceramic fillers in Li-ion battery electrolytes**
A. Hofmann, S. Borchers, M. Schulz, T. Hanemann, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-07 **Influence of coating Li-NMC material for aqueous binder preparation of Li-ion electrodes**
N. Laszczynski, G.T. Kim, M. Winter, S. Passerini, University of Münster/D
- 2.01-08 **Mixtures of binary ionic liquids for electrolyte applications**
I.M. Mertens, University Erlangen-Nürnberg, Erlangen/D; S. Wennig, fuel cell research center, Duisburg/D; P.S. Schulz, University Erlangen-Nürnberg, Erlangen/D; B. Oberschachtsiek, fuel cell research center, Duisburg/D; P. Wasserscheid, University Erlangen-Nürnberg, Erlangen/D
- 2.01-09 **Environmental assessment of carbon nanotube integration for lithium iron-phosphate batteries in mobility application**
B. Zimmermann, M. Weil, Karlsruhe Institute of Technology/D

- 2.01-10 **Cation selective membranes for lithium-sulfur batteries**
I. Bauer, S. Thieme, J. Brückner, H. Althues, S. Kaskel, Fraunhofer IWS, Dresden/D
- 2.01-11 **Porous carbons for lithium-sulfur battery cathodes – role of pore geometry**
S. Thieme, J. Brückner, I. Bauer, H. Althues, S. Kaskel, Fraunhofer IWS, Dresden/D
- 2.01-12 **Synthesis, characterization and electrochemical performance of nanocrystalline Al_{0.31}Ti_{0.23}Sn_{0.46}O_{1.85} and Al_{0.44}Ti_{0.11}Sn_{0.44}O_{1.78}**
I. Issac, R. Heinzmann, M. Kaus, H. Gesswein, S. Indris, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-13 **Garnet-type solid electrolyte Li₇La₃Zr₂O₁₂ prepared by new synthesis routes**
R. Djenedic, TU Darmstadt/D; H. Hahn, Karlsruhe Institute of Technology/D
- 2.01-14 **Coating and drying of lithium-ion battery electrodes**
M. Baunach, M. Schmitt, S. Jaiser, Karlsruhe Institute of Technology/D
- 2.01-15 **Spinel LiFeTiO₄ and rock-salt Li₂FeTiO₄ cathode materials for Li-ion batteries**
R. Chen, R. Heinzmann, R. Witte, H. Hahn, S. Indris, Karlsruhe Institute of Technology/D
- 2.01-16 **Carbon-based supercapacitor: quantum-chemical point of view**
V.D. Khavryuchenko, A.V. Khavryuchenko, Computation Chemistry Group, Kyiv/UA
- 2.01-17 **Modeling the open circuit voltage of Li-ion batteries**
A. Loges, D. Werner, T. Wetzel, Karlsruhe Institute of Technology/D
- 2.01-18 **Thermal conductivity of spirally wound prismatic Li-ion battery**
D. Werner, A. Loges, T. Wetzel, Karlsruhe Institute of Technology/D
- 2.01-19 ***In-situ* electrochemical lithiation of silicon in TEM**
T. Wuttke, B. Roos, C. Nowak, C.A. Volkert, University of Göttingen/D
- 2.01-20 **Lifetime-tests for lithium-ion cells via current pulse measurements**
J. Schmidt, J. Illig, A. Weber, E. Ivers-Tiffée, Karlsruhe Institute of Technology/D
- 2.01-21 **Electrochemical-calorimetric studies on safety fundamentals of cylindrical lithium ion cells**
C. Ziebert, H.J. Seifert, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-22 **Preparation and characterization of phospho-olivines as cathode materials for Li-ion batteries**
M. Kaus, I. Issac, R. Heinzmann, S. Mangold, V.S.K. Chakravadhanula, H. Hahn, S. Indris, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-23 **Experimental investigation and mathematical modeling of zinc-oxygen batteries during discharge at high current densities**
K. Harting, U. Kunz, T. Turek, TU Clausthal/D
- 2.01-24 **Synthesis and electrochemical behavior of copper coated graphite**
B.K. Licht, F. Homeyer, M. Binnewies, Universität Hannover/D
- 2.01-25 **Characterization of LiNi_{1/3}Mn_{1/3}Co_{1/3}O₂ prepared by a sol-gel method using table sugar as chelating agent for Li-ion batteries**
N. Kiziltas-Yavuz, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; M. Herklotz, IFW Dresden/D; A.M. Hashem, H.M. Abuzeid, National Research Centre, Cairo/ET; B. Schwarz, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; C.M. Julien, Université Pierre et Marie Curie, Paris/F; H. Ehrenberg, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-26 **Towards bifunctional catalysts for vanadium-air redox flow batteries: preparation and characterization of Pt nanoparticles**
C. Gutsche, M. Knipper, H. Borchert, T. Plaggenborg, J. Parisi, University of Oldenburg/D
- 2.01-27 **Analysis and first assessment of metal resources used for the production of traction batteries**
B. Simon, Helmholtz Institute Ulm/D; Z. Saskia, Karlsruhe Institute of Technology/D; M. Weil, Helmholtz Institute Ulm/D
- 2.01-28 **Electrolyte additives for ionic liquid based Li-ion batteries**
M. Tosoni, M. Schulz, T. Hanemann, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-29 **Binder-free CNT paper as a highly catalytic air cathode for Li-O₂ battery**
K.-N. Jung, J.-I. Lee, S. Yoon, S.-H. Yeon, K.-H. Shin, J.-W. Lee, Korea Institute of Energy Research, Daejeon/ROK
- 2.01-30 **Nitrided solid electrolyte for enhanced chemical stability in alkaline media**
K.-N. Jung, J.-H. Jung, S. Yoon, S.-H. Yeon, K.-H. Shin, J.-W. Lee, Korea Institute of Energy Research, Daejeon/ROK
- 2.01-31 **Liquid electrolytes for anion transport in fluoride batteries**
F. Gschwind, Helmholtz Institute Ulm, Eggenstein-Leopoldshafen/D; M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D

- 2.01-32 **Ag-filled $\text{Li}_4\text{Ti}_5\text{O}_{12}$ spheres with hierarchical micro/nano architectures for high rate lithium ion batteries**
L. Cai, A. Choi, C. Liu, The Hong Kong University of Science and Technology/HK
- 2.01-33 **Electrospun cathode materials for lithium ion batteries**
K. Bachtin, Helmholtz Institute Ulm, Karlsruhe/D; R. Chen, S. Indris, Karlsruhe Institute of Technology/D; K. Nikolowski, Helmholtz Institute Ulm, Karlsruhe/D; C. Roth, Freie Universität Berlin/D; H. Ehrenberg, Helmholtz Institute Ulm, Karlsruhe/D
- 2.01-34 **Micro- and nano-structured electrodes for high power lithium-ion batteries: electrochemical and kinetic studies**
M. Mangang, P. Gotcu-Freis, R. Kohler, J. Pröll, H.J. Seifert, W. Pfleging, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-35 **In-line inspection for battery materials – quality and process control in battery film production**
H. Örley, Dr. Schenk GmbH, Planegg/D
- 2.01-36 **The role of inactive materials in the development of water-based pastes for NMC cathodes**
F. Çetinel, D. Nötzel, C. Brösicke, M. Müller, W. Bauer, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-37 **Initial stages of lithium plating on a graphite electrode: an in situ STM study**
C. Köntje, A. Farkas, Helmholtz Institute Ulm/D; T. Jacob, Ulm University/D
- 2.01-38 **In situ laboratory microdiffraction on $\text{Li}_2\text{Mn}_x\text{Ni}_{1-x}\text{SiO}_4$ cathode material for Li-ion batteries**
L. de Biasi, H. Gesswein, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; E. Bekaert, Zentrum für Sonnenenergie- und Wasserstoff-Forschung, Ulm/D; S. Glatthaar, R. Mönig, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; M. Wohlfahrt-Mehrens, Zentrum für Sonnenenergie- und Wasserstoff-Forschung, Ulm/D
- 2.01-39 **The influence of different modified carbon surfaces on the electroreduction of oxygen in different electrolytes**
A. Fiedler, F. Scheiba, H. Ehrenberg, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-40 **Functionalization of carbon nanotubes by water plasma for energy applications**
S. Hussain, R. Amade, E. Jover, E. Bertran, University of Barcelona/E
- 2.01-41 **In-situ studies of lithium nucleation and dendritic growth during electroplating**
J. Steiger, D. Kramer, R. Mönig, Karlsruher Institut für Technologie, Eggenstein-Leopoldshafen/D
- 2.01-42 **XRD total scattering and pair distribution (PDF) measurements on $\text{Li}(\text{Ni},\text{Mn})_2\text{O}_4$ spinel**
M. Yavuz, N. K. Yavuz, M. Knapp, K. Nikolowski, H. Ehrenberg, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-43 **The EERA joint programme on energy storage**
H. Seifert, C. Ziebert, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 2.01-44 **Nanoscale silicon and silicon/carbon composites as high capacity anodes for lithium ion batteries**
C. Erk, T. Brezesinski, M. Einert, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; H. Sommer, BASF SE, Ludwigshafen/D; J. Janek, University of Gießen/D
- 2.01-45 **Synthesis and electrochemical performance of Li_2MnO_3 based cathode materials with horizontal and vertical type Couette-Taylor reactor**
H. Kim, B. Jin, Korea Electrotechnology Research Institute, Changwon/ROK; S. Jik, ECOPRO Ltd., Ochang/ROK; S. Park, ECOPRO, Ochang/ROK
- LMP-2.01-46 **Study on thermal synthesis of $\text{Li}_{1.5}\text{Ni}_{0.25}\text{Mn}_{0.75}\text{O}_{2.5}$ from a co-precipitation based process**
W. C. Chen, N. L. Wu, National Taiwan University, Taipei/RC; Y. F. Song, C. C. Wang, National Synchrotron Radiation Research Center, Hsinchu/RC; H. C. Wu, Industrial Technology Research Institute, Hsinchu/RC
- LMP-2.01-47 **Study and optimization of a lithium ion battery to reduce its thermal effects.**
A. Chiali, EPST - Tlemcen/DZ; N.E. Chabane sari, R. Bensaha, N. Ghellai, Tlemcen University/DZ
- LMP-2.01-48 **Hollow carbon nanospheres/alloying metal anodes for Lithium-ion batteries**
M. Wagner, The George Washington University, Washington, DC/USA
- LMP-2.01-49 **In-situ X-ray diffraction studies of the TFSI anion intercalation process into the graphite cathode for dual-ion cells**
T. Placke, G. Schmuelling, R. Kloepsch, S. Rothermel, O. Fromm, P. Meister, H. W. Meyer, S. Passerini, M. Winter, University of Muenster, Muenster/D
- LMP-2.01-50 **A step forward into the future: standardizing sulfur electrodes for Li-S batteries**
F. Lodi-Marzano, J. Kulisch, T. Brezesinski, Karlsruher Institut für Technologie, Karlsruhe/D; H. Sommer, BASF SE, Ludwigshafen/D; J. Janek, JLU, Gießen/D

- LMP-2.01-51 **Influence of additives on the TFSI-anion intercalation into the graphite cathode for dual-ion cells by in-situ X-ray diffraction studies**
S. Rothermel, T. Placke, G. Schmuelling, P. Meister, O. Fromm, H.-W. Meyer, S. Passerini, M. Winter, Westphalian Wilhelm University of Munster/D
- LMP-2.01-52 **Iron fluoride nanoparticles embedded in multilayer graphene as high capacity cathode for Li-ion batteries**
A. Pohl, M. Fichtner, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- LMP-2.01-53 **Different types of cathode structures for lithium sulfur batteries**
C. Scherr, K.G. Schell, E.C. Bucharsky, S. Wagner, J. Schneider, M.J. Hoffmann, Karlsruhe Institute of Technology/D
- LMP-2.01-54 **Characterization of a Li-Ion battery with blend cathode – Transition from LiFePO_4 to $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$**
M. Petzl, Helmholtz-Institut Ulm (HIU)/D; M.A. Danzer, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Ulm/D
- LMP-2.01-55 **Study on the safety mechanism of Lithium-ion battery by hyper-branched polymer coated on cathode**
C.C. Lin, N.L. Wu, National Taiwan University, Taipei/RC; H.C. Wu, J.P. Pan, Industrial Technology Research Institute, Hsinchu/RC
- LMP-2.01-56 **Study of high current density electrodes for vanadium redox flow battery**
C.-H. Leu, S.-M. He, J.-W. Ma-Li, J.-M. Huang, C.-C. Chen, W.-S. Chang, Industrial Technology Research Institute, Hsinchu/RC
- LMP-2.01-57 **High voltage core-shell nanocomposites as positive electrode materials for advanced lithium-ion batteries**
A. Bittner, U. Guntow, B.-E. Olsowski, J. Schulz, M. Römer, V. Anfimovaite, Fraunhofer Institute for Silicate Research ISC, Würzburg/D
- LMP-2.01-58 **Surface modification of carbons by elevated temperature gas treatments for an improved solid electrolyte interphase formation**
V. Siozios, T. Placke, A. Heckmann, S. Passerini, M. Winter, Westfälische Wilhelms-Universität Muenster/D
- LMP-2.01-59 **Sub-20 nm diameter SnO_2 nanoparticles for high-rate lithium ion batteries**
C. Weidmann, T. Brezesinski, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; H. Sommer, BASF SE, Ludwigshafen/D; J. Janek, Justus-Liebig-University, Gießen/D
- 2.01-60 **In-situ stress evolution studies of (de)lithiated Si thin films**
S. Borhani Haghighi, S. Klink, E. Ventosa, W. Schuhmann, A. Ludwig, Ruhr-Universität Bochum/D
- H₂ and chemical storage**
- 2.02-01 **The materials challenges in energy – how to standardize and accelerate R+D for clean and alternative energies**
M. Schneider, Chemspeed Technologies AG, Augst/CH
- 2.02-03 **High-dynamic hydrogen solid-state storage based on hydride-graphite-composite materials**
C. Pohlmann, L. Röntzsch, S. Mauermann, T. Weißgärber, Fraunhofer IFAM, Dresden/D; K. Herbrig, B. Kieback, TU Dresden/D
- 2.02-04 **A fast, sensitive, and continuous fiber optic sensor for monitoring hydrogen concentrations**
R. Westerwaal, P. Ngene, T. Radeva, M. Slaman, Delft University of Technology/NL; C. Perrotton, Université de Strasbourg/F; B. Dam, Delft University of Technology/NL
- 2.02-05 **Formation reaction of Mg_2FeH_6**
A. Asselli, Université du Québec à Trois-Rivières/CDN; M. Danaie, G. Button, McMaster University, Hamilton/CDN; J. Huot, Université du Québec à Trois-Rivières/CDN
- 2.02-07 **Post-test analysis of electrode-supported solid oxide electrolyser cells**
M. Al Daroukh, F. Tietz, D. Sebold, H.P. Buchkremer, Forschungszentrum Jülich/D
- 2.02-08 **Modeling and validation of high-dynamic hydrogen storage tanks based on hydride-graphite-composites**
K. Herbrig, TU Dresden/D; L. Röntzsch, C. Pohlmann, S. Mauermann, T. Weißgärber, Fraunhofer IFAM, Dresden/D; B. Kieback, TU Dresden/D
- 2.02-09 **Gas phase prepared aluminium nanoparticles for hydrogen storage application**
A. Surrey, D. Pohl, L. Schultz, B. Rellinghaus, IFW Dresden/D
- 2.02-10 **Synthesis and characterization of nickel oxide and iron oxide doped PVDF carbon nanofibers via electrospinning for hydrogen storage**
Z. Yaakob, S.M. Tasirin, N.M. Jali, M. Mohamad, Universiti Kebangsaan Malaysia, Selangor/MAL
- 2.02-11 **NaBH_4 for hydrogen storage and energy application**
V. Minkina, S. Shabunya, V. Kalinin, V. Martynenko, Heat & Mass Transfer Institute of the NAS of Belarus, Minsk/BY

- 2.02-12 **A highly porous metal-organic framework, constructed from a cuboctahedral super-molecular building block, with exceptionally high CH₄ uptake**
U. Stoeck, S. Krause, V. Bon, I. Senkovska, S. Kaskel, Dresden University of Technology/D
- 2.02-13 **Hydrogen adsorption on metal-organic frameworks**
I. Senkovska, N. Klein, S. Kaskel, Dresden University of Technology/D
- LMP-2.02-15 **Novel organic hydrogen storage materials: dehydrogenation of dodecahydro-N-ethylcarbazole on Pt and Pd model catalysts**
M. Amende, M. Sobota, S. Schernich, I. Nikiforidis, O. Höfert, W. Zhao, Y. Lykhach, C. Papp, W. Hieringer, M. Laurin, D. Assenbaum, P. Wasserscheid, H.-P. Steinrück, A. Görling, J. Libuda, Universität Erlangen-Nürnberg/D
- LMP-2.02-16 **Hydrogen production by alkaline electrolysis of water using novel multiwall carbon nanotube/Ni nanoparticle cathodes**
M.A. McArthur, S. Coulombe, S. Omanovic, McGill University, Montreal/CDN
- LMP-2.02-17 **Energy storage and conversion of CO₂ to valuable products with electropositive metals**
D. Taroata, Siemens AG, Erlangen/D; M. Schiemann, R. Kellermann, P. Fischer, V. Scherer, Ruhr-Universität Bochum/D; H. Eckert, G. Schmid, Siemens AG, Erlangen/D
- LMP-2.02-18 **Borohydride ionic liquids – a new chemical hydrogen storage**
N. Mayer, Proionic GmbH, Grambach/A; D. Woisetschläger, W. Glasl, VTU Engineering GmbH, Grambach/A; M. Koncar, R. Kalb, Proionic GmbH, Grambach/A

Thermal storage

- 2.03-01 **Ionic liquids as heat transfer medium**
T.J. S. Schubert, H. Sahin, IOLITEC Ionic Liquids Technologies GmbH, Heilbronn/D; M. Götz, K. Bär, D. Buchholz, DVGW Research station at the Engler-Bunte-Institut of KIT, Karlsruhe/D
- 2.03-02 **Thermodynamics of a NiTi-based cooling process**
M. Schmidt, A. Schuetze, S. Seelecke, Saarland University, Saarbrücken/D
- 2.03-03 **Zeolite coatings prepared by microwave heating on stainless steel surfaces**
M. Tatlier, Istanbul Technical University/TR c/o Fraunhofer ISE, Freiburg/D; H. Kummer, G. Munz, S. Henninger, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D
- 2.03-04 **Influence of gas atmosphere on stability of SAPO-34 with regard to thermochemical heat storage**
G.M. Munz, H. Kummer, P. Schossig, S.K. Henninger, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D
- 2.03-05 **Development of salt hydrate eutectics as phase change materials for air conditioning**
S. Pinnau, A. Efimova, M. Mischke, TU Dresden/D; P. Schmidt, Lausitz University of Applied Sciences, Senftenberg/D; C. Breitkopf, TU Dresden/D
- 2.03-06 **Thermochemical energy storage at high temperature via redox cycles of Mn-Co mixed oxides**
A.J. Carrillo, J. Moya, A. Bayón, P. Jana, V.A. de la Peña, M. Romero, J. González-Aguilar, P. Pizarro, D.P. Serrano, J.M. Coronado, IMDEA Energy Institute, Mostoles/E
- 2.03-07 **A facile approach to metal-organic framework coatings for catalytic and energy transformation applications**
F. Jeremias, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D; C. Janiak, University of Düsseldorf/D; S.K. Henninger, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg/D
- 2.03-09 **Development and numerical investigation of metal foam based modular latent heat storage cell**
A. Kneer, TinniT Technologies GmbH, Karlsruhe/D; A. August, B. Nestler, Karlsruhe Institute of Technology/D; E. Martens, Hochschule Karlsruhe – Technik und Wirtschaft/D
- LMP-2.03-11 **Theoretical limits of PCM regarding melting enthalpy and entropy**
P. Hennemann, S. Hiebler, ZAE Bayern - Bavarian Center for Applied Energy Research, Garching/D

Capacitors and supercapacitors

- 2.04-01 **Microwave-assisted synthesis and capacitive performance of polyaniline/RuO₂/graphene nanocomposites**
H.-J. Yang, Y.-F. Wang, C.-S. Liao, Yuan-Ze University, Taoyuan/TW
- 2.04-02 **Hydrothermal carbons from hemicellulose-derived aqueous hydrolysis products as electrode materials for supercapacitors**
M. Titirici, Queen Mary University of London/UK; C. Falco, Institute for Advanced Sustainability Studies, Potsdam/D; J.M. Sieben, E. Morallon, D. Cazorla, University of Alicante/E

- 2.04-03 **Silicon oxycarbide derived carbons for supercap application**
A. Meier, TU Dresden/D; H. Althues, Fraunhofer Institute of Materials and Beam Technology, Dresden/D; S. Kaskel, TU Dresden/D
- 2.04-04 **Electrodeposition of dendritic transition metal foams using dynamic hydrogen bubble template**
S. Eugénio, M.F. Montemor, M.J. Carmezim, M.T. Silva, Technical University of Lisbon/P
- 2.04-05 **Study of the storage mechanisms of Fe₃O₄ supercapacitors**
A. Leon-Reyes, T. Chavez-Capilla, J. Palma, R. Diaz, IMDEA Energy Institute, Mostoles/E; M. Epifani, IMM-CNR, Lecce/I
- LMP-2.04-06 **Electrochemical capacitor studies on carbide derived carbon electrode with natural graphite addition in a Mg based organic media.**
C. Ramasamy, P. Jesús, A. Marc, Imdea energy, Mostoles/E
- LMP-2.04-07 **Nitrogen-doped carbon nanofibers synthesized from electrospun cellulose as supercapacitor electrode**
V. Kuzmenko, H. Staaf, O. Naboka, M.M. Haque, P. Lundgren, P. Gatenholm, P. Enoksson, Chalmers University of Technology, Gothenburg/S
- LMP-2.04-08 **Carbon nanotubes as electrode for supercapacitors**
H. Staaf, Chalmers University of Technology, Gothenburg/S; A.M Saalem, Chalmers University of Technology, Smoltek AB, Gothenburg/S; G. Göransson, M. Haque, P. Lundgren, P. Enoksson, Chalmers University of Technology, Gothenburg/S
- LMP-2.04-09 **Study the influence of the morphology of nanostructured carbon on performance of supercapacitors**
O. Yurchenko, L. Hussein, G. Urban, X.J.H. Dreena, J. Sushank, F. Olcaytug, University of Freiburg/D

Conductor materials

- 3.01-01 **Structure, mechanical properties and conductivity of Cr and Hf bronzes after ECAP**
D.V. Shangina, Y.M. Maksimenkova, N.R. Bochvar, A.A. Baikov Institute of Metallurgy and Materials Science of RAS, Moscow/RUS; W. Skrotzki, TU Dresden/D; S.V. Dobatkin, A.A. Baikov Institute of Metallurgy and Materials Science of RAS, Moscow/RUS
- 3.01-02 **High-strength high-conductivity foils from Cu-Fe microcomposite alloy produced by severe cold rolling**
N. Stepanov, G. Salishchev, Belgorod State University/RUS; N. Khlebova, V. Pantyrny, LCC SPC Nanoelectro, Moscow/RUS

Solid-state lighting

- 4.01-01 **Chiral transition-metal tryptophanate coordination architectures containing bis(pyridyl) ligands exhibiting tunable emission**
S. Mendiratta, Academia Sinica, Taipei/TW; Y.C. Lin, National Taiwan University, Taipei/TW; K.L. Lu, Academia Sinica, Taipei/TW
- 4.01-02 **Color tuning of luminescent inorganic-organic hybrid materials by Co-doping of MOFs with lanthanide ions**
P.R. Matthes, L.V. Meyer, J.-C. Rybak, K. Müller-Buschbaum, Universität Würzburg/D
- 4.01-03 **Synthesis and characterization of new SrZnO₂:Eu nanophosphor**
H.C. Streit, G. Ersengün, C. Wickleder, University of Siegen/D
- 4.01-04 **Red-green-blue photoluminescence of Ba₂SiO₄:M (M = Eu³⁺, Eu²⁺, Sr²⁺) nanophosphors**
H.C. Streit, J. Kramer, M. Suta, C. Wickleder, Universität Siegen/D

Thermal insulation

- 4.02-01 **Nano-foams by „continuity inversion“ of dispersions (NF-CID)**
A. Müller, L. Grassberger, R. Strey, University of Cologne/D
- 4.02-02 **Thermal insulation of electronic devices based on high temperature polymer materials**
K. Majchrowicz, R. Lebkowski, B. Romelczyk, Z. Pakiela, Warsaw University of Technology, Faculty of Materials Science and Engineering/PL

Catalysis

- 4.03-01 **[FeFe]-hydrogenase model complexes for hydrogen production as a future energy source**
M. El-khateeb, King Abdulaziz University, Alkamil/SAR; W. Weigand, University Jena/D
- 4.03-02 **Replacing rare earth in FCC catalysts – a scientific approach**
R. Bergstraesser, S. Wellach, Grace GmbH & Co. KG, Worms/D; S. Sirotin, A. Vimont, J.-P. Gilson, A. Travert, LCS, Caen/F
- 4.03-03 **Dual nitrogen and sulfur doped carbons as metal free catalysts for the oxygen reduction reaction in fuel cells**
M. Titirici, Queen Mary University of London/UK; S. Wohlgemuth, MPI of Colloids and Interfaces, Potsdam/D; R. White, TU Berlin/D
- 4.03-04 **Use of the DSC and TG-DSC techniques for the investigations of gas interaction on zeolites**
R. Andre, P. Leparlour, SETARAM Instrumentation, Caluire/F
- 4.03-05 **Materials development enabler: formulation to turn active materials into finish products**
Y.F. Chang, F. Zhang, L. Du, Sigma Innova LLC, Houston, TX/USA
- 4.03-07 **Electrocatalytic activity of Ag₂O/carbon fiber electrode for electrooxidation of glucose in alkaline solution for fuel cells**
A. Aytaç, M. Gürbüz, Gazi University, Ankara/TR; A.E. Sanli, Turgut Ozal University, Ankara/TR; S. Aytaç, Republic of Turkey Prime Ministry Privatization Administration, Ankara/TR
- 4.03-08 **Selective epoxidation of propene on optical excited plasmonic nanoparticles of Copper**
M. Andiappan, J. Zhang, S. Linic, University of Michigan, Ann Arbor, MI/USA
- 4.03-09 **Ethylene epoxidation in a low-temperature parallel plate dielectric barrier discharge system with two SiO₂ dielectric layers**
W. Dulyalaksananon, T. Suttikul, S. Chavadej, Chulalongkorn University, Bangkok/THA
- 4.03-10 **Catalytic partial oxidation of methane over NiO/CeO₂-ZrO₂-MgO catalysts**
R. Sukkaeo, T. Rirksomboon, Chulalongkorn University, Bangkok/THA; V. Meeyoo, Mahanakorn University of Technology, Bangkok/THA
- 4.03-11 **Ethylation of toluene with ethanol over modified HZSM-5 catalysts via chemical liquid deposition**
A. Sunipasa, T. Rirksomboon, Chulalongkorn University, Bangkok/THA
- 4.03-12 **Kinetics of acetic acid steam reforming over Ni/ and Co/Ce_{0.75}Zr_{0.25}O₂ catalysts**
N. Phongprueksathat, T. Rirksomboon, Chulalongkorn University, Bangkok/THA; V. Meeyoo, Mahanakorn University of Technology, Bangkok/THA
- 4.03-13 **Molecular understanding of the processes at the ethylene carbonate | Cu(111) interface**
F. Buchner, B. Uhl, F. Hanieh, J. Behm, Helmholtz Institute Ulm/D
- 4.03-14 **Processing of organic waste by low-temperature catalytic pyrolysis**
Y. Kosivtsov, E. Sulman, Y. Lugovoy, K. Chalov, Tver Technical University/RUS
- 4.03-15 **Catalytic co-pyrolysis of peat and polymeric wastes**
Y. Kosivtsov, E. Sulman, Y. Lugovoy, K. Chalov, Tver Technical University/RUS
- 4.03-16 **Synthesis and characterization of AlCl₃/sub₃ impregnated nano sulphated zirconium oxide for catalytic isomerization of alkane at normal condition**
A. Dhar, University of Calcutta, Kolkata/IND; D. Ghosh, Numaligarh refinery limited, Assam/IND; U.R. Choudhuri, University of Calcutta, Kolkata/IND
- 4.03-17 **Role of reaction conditions for methane aromatization over various zeolites**
M. Bernauer, J. Heyrovsky Institute, Prague/CZ; M. Guichane, Institute of Chemical Technology, Prague/CZ; R. Sancer, Institute of Technology, Prague/CZ; V. Fila, J. Heyrovsky Institute, Prague/CZ; B. Bernauer, Institute of Technology, Prague/CZ; Z. Sobalik, J. Heyrovsky Institute, Prague/CZ
- LMP-4.03-18 **Catalytic activity of alumina supported Ni-based bimetallic catalysts**
K. Ray, S. Sengupta, G. Deo, Indian Institute of Technology Kanpur/IND
- LMP-4.03-19 **Preparation and characterization of carbon nanotube supported H₄SiW₁₂O₄₀ and Pt- H₄SiW₁₂O₄₀ catalysts for electrooxidation of cyclohexane**
M. Saleh, King Saudi University, Riyadh/SAR
- LMP-4.03-20 **The preferential oxidation of CO over nickel oxide catalysts and the doping effects of platinum in hydrogen rich streams**
Z. Mohamed, University of Kwa-Zulu Natal, Durban/ZA; S. Singh, H.B. Friedrich, University of KwaZulu-Natal, Durban/ZA
- LMP-4.03-21 **Dehydration of methanol to DME over metal-modified hexagonal mesoporous silica**
B. Sabour, M.H. Peyrovi, Shahid Beheshti University, Tehran/IR; S. Mohammadi Gorji, Islamic Azad University, Sari/IR

Light weight materials

- 4.04-01 **Microstructural enhancement of aluminum alloy 6061 through Strain-Induced Melt Activation (SIMA) process**
A.A. Bakhshian Nik, D. Peyro Hedayati, University of Tehran/IR
- 4.04-02 **Effects of grain refinement of core alloy on forming and brazing characteristics of 4xxx/3xxx/7xxx aluminum clad sheets**
J.S. Shin, S.C. Park, S.H. Ko, K.T. Kim, Korea Institute of Industrial Technology, Incheon/ROK
- 4.04-03 **Casting process of CNTs-Al composites using composite powder precursors and intensive melt shear technology**
J.S. Shin, B.Y. Kim, S.H. Ko, K.T. Kim, Korea Institute of Industrial Technology, Incheon/ROK; B. Mckay, Brunel University, London/UK
- LMP-4.04-04 **Elaboration and characterization of multimaterials based on aluminum alloys**
A. Harichane, N. Mesrati, Ecole Nationale Polytechnique, Alger/DZ
- LMP-4.04-05 **Microstructure characterization of AlMg₅Si₂Mn casting alloy**
V. Boyko, T. Link, TU-Berlin/D; N. Korzhova, IPMS, Kiev/UA; K. Mykhalenkov, NTUU, Kiev/UA

Molecular science in energy

- 5.01-01 **Energy characteristics of lanthanide (Sm, Eu, Yb) halides**
D.N. Sergeev, M.F. Butman, V.B. Motalov, D.A. Ivanov, L.S. Kudin, Ivanovo State University of Chemistry and Technology/RUS; K.W. Krämer, University of Bern/CH
- 5.01-02 **Elastic properties and pressure-induced phase transitions of LiBH₄**
S.N. Li, X. Ju, University of Science and Technology, Beijing/PRC

Ion transport

- 5.02-01 **Local structure and oxygen dynamics in Ti/Ta doped CeO₂ investigated by ¹⁷O NMR spectroscopy**
R. Heinzmann, I. Issac, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D; J.-P. Eufinger, University of Gießen/D; G. Ulbrich, TU Berlin/D; J. Janek, University of Gießen/D; M. Lerch, TU Berlin/D; S. Indris, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen/D
- 5.02-02 **Gelation of methylphosphonate Ionic Liquids by cellulose and investigation of the electrochemical properties of the obtained ionogels**
S. Sachnov, S. Thiemann, P.S. Schulz, J. Zaumseil, P. Wasserscheid, Universität Erlangen-Nürnberg, Erlangen/D
- 5.02-03 **Interface controlled property changes of titanate nanostructures**
M. Elser, A. Sternig, B. Schürer, W. Peukert, O. Diwald, University of Erlangen-Nürnberg, Erlangen/D
- 5.02-04 **Electronic conductivity and chemical diffusion coefficient of single crystalline mayenite (Ca₁₂Al₁₄O₃₃)**
R. Dolle, H.-D. Wiemhöfer, University of Münster/D; H. Krause, S. Ebbinghaus, University of Halle-Wittenberg/D
- LMP-5.02-05 **Interpretation of GITT measurements for phase transformation electrodes**
C. Heubner, Fraunhofer IKTS Dresden/TU Dresden/D; M. Schneider, Fraunhofer IKTS Dresden/D; U. Langklotz, TU Dresden/D; A. Michaelis, Fraunhofer IKTS Dresden/TU Dresden/D

Charge separation and transfer at interfaces

- 5.04-01 **Modified TiO₂ nanofilms characterisation by potentiodynamic electrochemical impedance spectroscopy**
P.V. Chulkin, G.A. Ragoisha, E.A. Streltsov, S.M. Rabchynski, Belarusian State University, Minsk/BY; O.L. Stroyuk, S.Y. Kuchmiy, L. V. Pisarzhevsky Institute of Physical Chemistry, Kyiv/UA
- 5.04-02 **Functional interfaces from nanoparticle mixtures: generation of TiO₂-SnO₂ heterojunctions via surface charge induced heteroaggregation**
N. Siedl, S.O. Baumann, M.J. Elser, University of Erlangen-Nuremberg, Erlangen/D; J. Bernardi, Vienna University of Technology/A; O. Diwald, University of Erlangen-Nuremberg, Erlangen/D
- 5.04-03 **From synthesis to aging of In₂O₃ nanoparticles: the influence of processing parameters on the photoelectric properties**
N. Siedl, P. Gügel, O. Diwald, University of Erlangen-Nuremberg, Erlangen/D
- LMP-5.04-04 **Measuring surface exchange characteristics of mixed conductors using Kelvin probe force microscopy**
K. Schmale, M. Bernemann, University of Münster/D; M. Kapuschinsky, U. Guntow, Fraunhofer ISC, Würzburg/D; G. Ulbrich, M. Lerch, TU, Berlin/D; H.-D. Wiemhöfer, University of Münster/D

Energy efficient magnetic materials

- 5.05-01 **Magnetic refrigeration in 2014 – pushing the materials envelope – multi-sector**
T. Lorkin, Cooltech Applications, Strasbourg/F
- 5.05-02 **Resource-efficient hot-deformed Nd-Fe-B magnets with optimized electrical and magnetic properties**
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