

First International Conference on Materials for Energy 2010

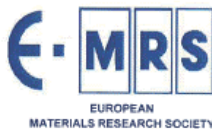
July 4-8, 2010 in Karlsruhe/Germany



PRELIMINARY PROGRAMME

(as of April 16, 2010 - subject to change)

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Programme Overview – Monday, July 5, 2010

08:00 - 09:30	Registration & Coffee				
09:30 - 10:00	Opening Ceremony E. Umbach, President of the Karlsruhe Institute of Technology (KIT)/D G. Oettinger, EU Energy Commission, Brussels/B (to be confirmed) add: someone from EU France or DoE USA				
10:00 - 11:00	Plenary Lecture: George Crabtree, Argonne National Laboratory, IL/USA The sustainable energy challenge				
11:00 - 11:30	Coffee Break				
11:30 - 12:30	Plenary Lecture: Alfred Voß, University of Stuttgart/D Energy technology perspectives for a sustainable energy provision				
12:30 - 14:00	Lunch Break				
	Materials for Large Power Plants	Materials for Fuel Cells - SOFC	Materials for Fuel Cells - PEMFC	Hydrogen Storage	Light-Weight Strategies, Concepts, Design, Materials, Processes and Methods
Chairs:	W.G. Sloof	E. Ivers-Tiffée & W.J. Quadackers	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	F. Henning
14:00 - 14:20	Keynote M.W. Barsoum	W.A. Meulenber	D. Bayer	C. Weidenthaler	O. Deisser
14:20 - 14:40		J. Joos	M. Schieda	C. Frommen	K. Sadayappan
14:40 - 15:00	H. Sarmiento Klapper	S. Pavlova	J. Richards	E.G. Bardaji	L.F. Berg
15:00 - 15:20	G. Vesper	C. Niedrig	Keynote D. Stolten	I. Lindemann	J. Kuppinger
15:20 - 15:40	K. Alexandrov	I.W.M. Brown		M. Dornheim	A. Piller
15:40 - 16:10	Coffee Break				
	Materials for Large Power Plants	Materials for Fuel Cells - SOFC	Materials for Fuel Cells - PEMFC	Hydrogen Storage	Light-Weight Strategies, Concepts, Design, Materials, Processes and Methods
Chairs:	W.G. Sloof	E. Ivers-Tiffée & W.J. Quadackers	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	F. Henning
16:10 - 16:30	S.B. Li	G. Falk	M. Sharifi	Keynote J.C. Zhao	R. Chaudhari
16:30 - 16:50	D. Jong	T. Franco	A. Pfrang		T. Holtermann
16:50 - 17:10	M. Hänsel	P. Huczowski	W.G. Bessler	F. Dolci	M. Lewandowska
17:10 - 17:30	S.A. Kuznetsov	Keynote N. Christiansen	M. Arenz	M.J. van Setten	Y. Taga
17:30 - 17:50	C. Honvault		T. Wadayama	B. Dam	J. Hohe
17:50 - 20:00	Poster Session 1				

Programme Overview – Tuesday, July 6, 2010

	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Materials for Fuel Cells - PEMFC	Hydrogen Storage	Catalysts for Sustainable Energy Applications
Chairs:	E. Roos & L. Singheiser	E. Dinjus & F. Ropital	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	M.-I. Baraton & J.A. Lercher
09:00 - 09:20	K. Schmidt	R. Palkovits	J. Becker	A. Borgschulte	Keynote H.-J. Fecht
09:20 - 09:40	J.R. Pauls	M.M. Titirici	U. Kramm	N. Hanada	
09:40 - 10:00	J. Pasternak	M. Roßbach	S. Pacheco Benito	I. Utz	G. Vesper
10:00 - 10:20	Keynote V.K. Vasudevan	E. Sulman	M. Boaventura	T. Schmidt	B. Reznik
10:20 - 10:40		A.V. Chistyakov	R. Devanathan	Y.F. Khalil	P. Jana
10:40 - 11:10	Coffee Break				
	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Materials for Fuel Cells - SOFC	Hydrogen Storage	Catalysts for Sustainable Energy Applications
	E. Roos & L. Singheiser	E. Dinjus & F. Ropital	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	M.-I. Baraton & J.A. Lercher
11:10 - 11:30	V.K. Vasudevan	T. Riittonen	Keynote G.H. Meier	J.R. Hattrick-Simpers	V.A. Sadykov
11:30 - 11:50	R. Pillai	T.J.S. Schubert		H. Li	O. Metin
11:50 - 12:10	V.V. Polyakova	V.V. Zhmakin	L. Niewolak	J. Huot	J. Valyon
12:10 - 12:30	T. Dudziak	L. Couture	D. Liu	K. Morita	Keynote A. Bell
12:30 - 12:50	E. Wirth	N. Boukis	K. Lu	W.P. Kalisvaart	
12:50 - 14:00	Lunch Break				
	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Materials for Fuel Cells - SOFC	Hydrogen Storage	Catalysts for Sustainable Energy Applications
Chairs:	R.S. Averback & D. Feron	C. Jooss	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	H.-J. Fecht & J.A. Lercher
14:00 - 14:20	C. Fazio	O. Diwald	Keynote F. Tietz	T.G. Voskuilen	N. Brun
14:20 - 14:40	C. Dethloff	S. Fiechter		U. Mueller	S.M. Coman
14:40 - 15:00	A. Moeslang	van de Krol	A. Utz	M. Russina	J.F. Puna
15:00 - 15:20	G.D.W. Smith	Keynote K. Domen	A. Muramatsu	Keynote M. Hirscher	Y. Sekine
15:20 - 15:40	C.-L. Chen		D. Klotz		M. Soorholtz
15:40 - 16:10	Coffee Break				
	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Materials for Fuel Cells - SOFC	Hydrogen Storage	Catalysts for Sustainable Energy Applications
	R.S. Averback & D. Feron	C. Jooss	E. Ivers-Tiffée & W.J. Quadackers	M. Fichtner & A. Züttel	C. Bianchini & J.A. Lercher
16:10 - 16:30	Keynote P. Bellon	Keynote M.D. Allendorf	A.J. Darbandi	P. Adelhelm	Keynote J. Ye
16:30 - 16:50			J. Hayd	F. Leardini	
16:50 - 17:10	V. Widak	U. Wijayantha	N. Nwosu	S.K. Singh	M.-I. Baraton
17:10 - 17:30	Z. Oksiuta	Q.-H. Zhang	C. Rockenhäuser	Q. Xu	C. Zhao
17:30 - 17:50	V.K. Vasudevan	B. Wood	I. Stijepovic	M.D. Allendorf	S. Castillo

Programme Overview – Wednesday, July 7, 2010

08:45 - 09:45	Plenary Lecture: Robert Schlögl, Fritz-Haber-Institute of the Max Planck Society, Berlin/D XXX				
09:45 - 10:15	Coffee Break				
10:15 - 11:15	Plenary Lecture: Tomas Diaz de la Rubia, Lawrence Livermore National Laboratory, CA/USA Materials challenges for the energy technology revolution: expanding the role of nuclear power and developing inertial fusion energy				
11:15 - 12:15	Plenary Lecture: Michael Schütze, DECHEMA e.V., Frankfurt am Main/D Non-conventional solutions for the protection of materials at high temperatures				
12:15 - 12:30	Poster Prize Awards				
12:30 - 14:00	Lunch Break				
	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Thermoelectrics: from Highly Efficient Structures to High-Temperature Generators	Hydrogen Storage	Catalysts for Sustainable Energy Applications
Chairs:	R.S. Averback & D. Feron	C. Jooss & D. Cahen	Y. Gelbstein & K. Nielsch	M. Fichtner & A. Züttel	M.-I. Baraton & A. Bell
14:00 - 14:20	V. Borodin	R. Beranek	N. Stein	S. Luzan	Keynote K. Seshan
14:20 - 14:40	J. Hohe	G.P. Demopoulos	D. Singh	M. Schlichtenmayer	
14:40 - 15:00	N. Holstein	Joint Panel Discussion "New strategies for maximum light harvesting"	M. Soulier	C. Matei Ghimbeu	L. Wang
15:00 - 15:20	M. Rieth		Keynote J. Nurnus	W. Lohstroh	N. Mezentseva
15:20 - 15:40	A. Weisenburger			N. Brun	M. Friedrich
15:40 - 16:10	Coffee Break				
	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Thermoelectrics: from Highly Efficient Structures to High-Temperature Generators	Electrochem. Energy Storage: Batteries and Supercapacitors	Catalysts for Sustainable Energy Applications
Chairs:	N. Bagcivan & F.J. Pérez-Trujillo	G. Flamant & D. Ginley	Y. Gelbstein & K. Nielsch	K.-C. Möller & M. Winter	M.-I. Baraton & A. Bell
16:10 - 16:30	Keynote B. Gleeson	Keynote T. Mayer	Q. Yan	X.Y. Peng	A. Pitois
16:30 - 16:50			S. Ezhilvalavan	F. Huang	L. Kapokova
16:50 - 17:10	B. Yildirim	M.F. Toney	N. Yang	N. Brun	A. Erdohelyi
17:10 - 17:30	E. Godlewska	P. Katal Mohseni	P. Zahn	Keynote S. Passerini	S.A. Kuznetsov
17:30 - 17:50	S. Oberhauser	B. Schmidt-Hansberg	D. Osborne		P. Pfeifer
17:50 - 20:00	Poster Session 2				
20:00 - 24:00	Conference Dinner				

Programme Overview – Thursday, July 8, 2010

	Materials for Large Power Plants	Materials for Renewable Energy Conversion	Thermoelectrics: from Highly Efficient Structures to High-Temperature Generators	Electrochem. Energy Storage: Batteries and Supercapacitors	Catalysts for Sustainable Energy Applications
Chairs:	N. Bagcivan & F.J. Pérez-Trujillo	G. Flamant & D. Ginley	J. Nurnus & M.-C. Record	K.-C. Möller & M. Winter	J.A. Lercher & J. Ye
09:00 - 09:20	Keynote A. Agüero	Keynote D. Cahen	Keynote Y. Gelbstein	F.I. Allen	M.V. Martinez-Huerta
09:20 - 09:40				C. Ziebert	A. Bhattacharyya
09:40 - 10:00	T. Hüttel	T. Mayer	M. Bardoux	W. Jaegermann	N. Yagihashi
10:00 - 10:20	M. Juez-Lorenzo	C. Jooss	J.R. Ares	S. Bouazza	Keynote C. Bianchini
10:20 - 10:40	F.J. Pérez-Trujillo	P. Wahnón	H. Böttner	T.J.S. Schubert	
10:40 - 11:10	Coffee Break				
	Nanostructures for Energy Applications	Materials for Renewable Energy Conversion	Materials for Energy Storage	Electrochem. Energy Storage: Batteries and Supercapacitors	Materials Research for Solid-State Lighting
	P.M. Ajayan & S.R.P. Silva	G. Flamant & D. Ginley	R. Tammé	K.-C. Möller & M. Winter	E. Keßenich & J. Phillips
11:10 - 11:30	O. Gutfleisch	T. Hanrath	J. Meinert	Keynote J. Tübke	Keynote W. Kowalsky
11:30 - 11:50	131 M. Noe	T. Brandau	A. Chalbi		
11:50 - 12:10	U. Wittstadt	J. Moghal	L. Huang	N. Hüsing	M. Kröger
12:10 - 12:30	Keynote K. Gschneidner, Jr.	M. Elbahri	T. Bauer	M. Au	A. Fuchs
12:30 - 12:50		A. Fuchs	R. Herrmann	R. Moenig	D.S. Setz
12:50 - 14:00	Lunch Break				
	Nanostructures for Energy Applications	Materials for Renewable Energy Conversion	Materials for Energy Storage	Electrochem. Energy Storage: Batteries and Supercapacitors	Materials Research for Solid-State Lighting
	P.M. Ajayan & S.R.P. Silva	G. Flamant & D. Ginley	B. Baretzky & D. Shchukin	K.-C. Möller & M. Winter	E. Keßenich & J. Phillips
14:00 - 14:20	T. Hofmann	Keynote J.D. Perkins	Keynote T.C. Monson	N. Sharma	Keynote A. Mascarenhas
14:20 - 14:40	J. Emah			R. Prakash	
14:40 - 15:00	A. Pohl	K. Ellmer	U. Klein	A. Latz	G.T. Wang
15:00 - 15:20	E. Vanhaecke	D. Meissner	G. Munz	T. Chrobak	U. Rossow
15:20 - 15:40	M.L. Ponce	Z.G. Zou	D. Shchukin	W.G. Bessler	K. Müller-Buschbaum
15:40 - 16:00	M.T. Martinez	J. Schaffner	C. Feldmann	A. Orphanou	O. Diwald
16:00 - 17:00	Farewell				

Sunday, July 4, 2010

10:00 - 18:00	Assembly of Exhibition
18:00 - 20:00	Registration and Welcome Reception

Monday, July 5, 2010

08:00 - 09:30	Registration & Coffee
09:30 - 10:00	Opening Ceremony E. Umbach, President of the Karlsruhe Institute of Technology (KIT)/D G. Oettinger, EU Energy Commission, Brussels/B (to be confirmed) add: someone from EU France or DoE USA
Chair:	
10:00 - 11:00	Plenary Lecture The sustainable energy challenge G. Crabtree, Argonne National Laboratory, IL/USA
11:00 - 11:30	Coffee Break
Chair:	
11:30 - 12:30	Plenary Lecture Energy technology perspectives for a sustainable energy provision A. Voß, University of Stuttgart/D
12:30 - 14:00	Lunch Break

MATERIALS FOR LARGE POWER PLANTS

Monday, July 5, 2010

Chair: W.G. Sloof, Delft University of Technology/NL

14:00 - 14:40	<p>Keynote Lecture The max phases: ductile, machinable ternary carbides and nitrides for high temperature and other energy related applications M.W. Barsoum, Drexel University, Philadelphia, PA/USA</p>
14:40 - 15:00	<p>Recent progress in the qualification of materials used in geothermal energy conversion systems <u>H. Sarmiento Klapper</u>, R. Bäßler, A. Burkert, Federal Institute for Material Research and Testing (BAM), Berlin/D</p>
15:00 - 15:20	<p>Stabilizing nanoparticles for high-temperature reactive applications G. Vesper, National Energy Technology Laboratory and University of Pittsburgh, PA/USA</p>
15:20 - 15:40	<p>High temperature protective coatings with sensor function <u>K. Aleksandrov</u>, M. Schütze, DECHEMA e.V., Frankfurt am Main/D; I. Teliban, E. Quandt, CAU Kiel/D</p>
15:40 - 16:10	<p><i>Coffee Break</i></p>
16:10 - 16:30	<p>Repeatable crack healing of Ti₂AlC ceramic in high temperature applications for energy generation <u>S.B. Li</u>, G.M. Song, W.G. Sloof, S. van der Zwaag, Delft University of Technology/NL; Y.T. Pei, J.Th.M. de Hosson, University of Groningen/NL</p>
16:30 - 16:50	<p>Mullite based thermal and environmental barrier coating for SiC/SiC ceramic matrix composites <u>D. Jong</u>, S. van der Zwaag, C. Kwakernaak, W.G. Sloof, Delft University of Technology/NL</p>
16:50 - 17:10	<p>The effect of H₂/H₂O ratio on thermally grown chromia scales formed on Ni₂₅Cr(Mn) alloys in Ar-H₂-H₂O atmospheres at 1000°C L. Garcia-Fresnillo, <u>M. Hänsel</u>, V. Shemet, L. Singheiser, W.J. Quadackers, Forschungszentrum Jülich GmbH/D</p>
17:10 - 17:30	<p>Oxidation protection coatings for graphite articles and molybdenum microstructured reactor S.A. Kuznetsov, Kola Science Centre RAS, Apatity/RUS</p>
17:30 - 17:50	<p>Oxidation of a nickel ferrite based cermet at high temperature <u>C. Honvault</u>, V. Peres, M. Pijolat, Ecole Nationale Supérieure des Mines de Saint Etienne/F; P. Palau, Centre de Recherche de Voreppe/F</p>
17:50 - 20:00	<p>Poster Session 1</p>

MATERIALS FOR FUELS CELLS – SOFC (in parallel with PEMFC)

Monday, 5 July 2010

Chairs: E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D & W.J. Quadackers, Forschungszentrum Jülich GmbH/D

14:00 - 14:20	<p>Perovskites for energy applications - from cathode material for fuel cells to a gas separation membrane</p> <p>W.A. Meulenberg, Forschungszentrum Jülich GmbH/D; J.M. Serra, Instituto de Tecnología Química (UPV-CSIC), Valencia/E; S. Baumann, M. Betz, Forschungszentrum Jülich GmbH/D; V.B. Vert, Instituto de Tecnología Química (UPV-CSIC), Valencia/E; H.P. Buchkremer, D. Stöver, Forschungszentrum Jülich GmbH/D</p>
14:20 - 14:40	<p>3D reconstruction of porous electrodes and microstructure modelling</p> <p>J. Joos, B. Rüger, A. Weber, Karlsruhe Institute of Technology (KIT)/D; T. Carraro, University of Heidelberg/D; E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D</p>
14:40 - 15:00	<p>Structural features and transport properties of La(Sr)Fe_{1-x}Ni_xO_{3-δ} - Ce_{0.8}Gd_{0.1}O_{2-δ} nanocomposites - advanced materials for IT SOFC cathodes</p> <p>V. Zarubina, S. Pavlova, T. Kharlamova, V. Sadykov, T. Krieger, G. Alikina, A. Ishchenko, V. Kriventsov, V. Rogov, V. Belyaev, Boreskov Institute of Catalysis, Novosibirsk/RUS; N. Uvarov, Institute of Solid State Chemistry and Mechanochemistry of SB RAS, Novosibirsk/RUS</p>
15:00 - 15:20	<p>Thermal stability of mixed ionic-electronic conducting Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ}</p> <p>C. Niedrig, S. Taufall, S.F. Wagner, P. Müller, H. Störmer, D. Gerthsen, E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D</p>
15:20 - 15:40	<p>Ultrathin gas separation membranes</p> <p>I.W.M. Brown, J.P. Wu, G. Smith, Industrial Research Limited (IRL), Lower Hutt/NZ</p>
15:40 - 16:10	<p><i>Coffee Break</i></p>
16:10 - 16:30	<p>Processing of SOFC materials by colloidal field-assisted shaping of ceramic nanopowders: needs and prospects</p> <p>G. Falk, Saarland University, Saarbruecken/D</p>
16:30 - 16:50	<p>Materials and components for metal-supported SOFCs</p> <p>T. Franco, M. Rüttinger, A. Venskutonis, L.S. Sigl, PLANSEE SE, Reutte/A</p>
16:50 - 17:10	<p>Effect of gas composition on the corrosion behaviour of metallic materials for thin-walled high temperature heat exchangers in SOFC systems</p> <p>P. Huczowski, Forschungszentrum Jülich GmbH/D; H.-H. Angermann, BEHR GmbH Co. KG, Stuttgart/D; V. Haanappel, L.G.J. de Haart, L. Singheiser, W.J. Quadackers, Forschungszentrum Jülich GmbH/D</p>
17:10 - 17:50	<p>Keynote Lecture</p> <p>Experience with SOFC stacks</p> <p>N. Christiansen, Topsoe Fuel Cell A/S, Lyngby/DK</p>
17:50 - 20:00	<p>Poster Session 1</p>

MATERIALS FOR FUELS CELLS – PEMFC (in parallel with SOFC)

Monday, 5 July 2010

Chairs: E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D & W.J. Quadackers, Forschungszentrum Jülich GmbH/D

14:00 - 14:20	Electrochemical behaviour of denatured ethanol for use in direct ethanol fuel cells <u>D. Bayer</u> , B. Kintzel, M. Joos, C. Cremers, J. Tübke, FhI for Chemical Technology ICT, Pfinztal/D
14:20 - 14:40	Poly(diphenylsulfone-oxadiazole)s for proton exchange membrane fuel cells <u>M. Schieda</u> , R. Just, GKSS Research Centre Geesthacht GmbH/D; S. Nunes, King Abdullah University of Science and Technology, Thuwal/SAR
14:40 - 15:00	Effect of different surface treatments on the stability of stainless steels for use as bipolar plates in low and high temperature proton exchange membrane fuel cells <u>J. Richards</u> , K. Schmidt, FhI for Chemical Technology ICT, Wolfsburg/D; J. Tübke, C. Cremers, FhI for Chemical Technology ICT, Pfinztal/D
15:00 - 15:40	Keynote Lecture Title will follow D. Stolten, Forschungszentrum Jülich GmbH/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	Modified ordered mesoporous silica materials with high proton conductivity for fuel cell application <u>M. Sharifi</u> , R. Marschall, University of Hanover/D; D. Wallacher, BENSC at Helmholtz-Center Berlin for Materials and Energy/D; M. Wark, University of Hanover/D
16:30 - 16:50	X-ray computed tomography of PEM fuel cells <u>A. Pfrang</u> , D. Veyret, G. Tsotridis, Joint Research Centre of the European Commission, Petten/NL; G. Janssen, Energy Research Centre of the Netherlands ECN, Petten/NL
16:50 - 17:10	Elementary kinetic models for understanding fuel cell materials W.G. Bessler, German Aerospace Center (DLR), Stuttgart/D
17:10 - 17:30	Pt based electrocatalysts for PEM fuel cells: from model systems to applied catalysts M. Arenz, University of Copenhagen/DK
17:30 - 17:50	Electrochemical properties of Co_x/Pt(111) model catalyst surfaces <u>T. Wadayama</u> , N. Todoroki, H. Yoshida, Y. Yamada, Tohoku University, Sendai/J
17:50 - 20:00	Poster Session 1

HYDROGEN STORAGE

Monday, July 5, 2010

Chairs: M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & A. Züttel, EMPA, Duebendorf/CH

14:00 - 14:20	New complex hydrides <u>C. Weidenthaler</u> , A. Pommerin, A. Wosylus, M. Felderhoff, F. Schüth, MPI für Kohlenforschung, Mülheim/D
14:20 - 14:40	Synthesis and characterization of novel double-cation borohydrides <u>C. Frommen</u> , N. Aliouane, S. Deledda, J.E. Fonnelløp, H. Grove, I. Llamas-Jansa, K. Lieutenant, S. Sartori, H. Østby, M.H. Sørby, B.C. Hauback, Institute for Energy Technology, Kjeller/N
14:40 - 15:00	Physical mixtures of metal borohydrides as hydrogen storage materials <u>E.G. Bardají</u> , E. Röhm, M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
15:00 - 15:20	A study of lithium-aluminum-borohydride <u>I. Lindemann</u> , R. Domènech Ferrer, IFW Dresden/D; Y. Filinchuk, Swiss-Norwegian Beam Lines at ESRF, Grenoble/F; R. Cerny, H. Hagemann, University of Geneva/CH; L. Schultz, O. Gutfleisch, IFW Dresden/D
15:20 - 15:40	Reaction mechanism and kinetics of MgH₂/borohydride based reactive hydride composites M. Dornheim, GKSS Forschungszentrum Geesthacht GmbH/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:50	Keynote Lecture Borohydrides, aluminoboranes and aminodiborane compounds for hydrogen storage <u>J.C. Zhao</u> , X. Chen, T. Yisgedu, Z. Huang, H.K. Lingam, B. Billet, J. Hoy, S.G. Shore, The Ohio State University, Columbus, OH/USA
16:50 - 17:10	In-situ neutron diffraction study of magnesium amide/lithium hydride hydrogen storage mixtures <u>F. Dolci</u> , E. Weidner, JRC Institute for Energy of the European Commission, Petten/NL; M. Hoelzel, Forschungs-Neutronenquelle Heinz Maier-Leibnitz, Garching/D; T. Hansen, Institute Laue Langevin, Grenoble/F; M. Fichtner, W. Lohstroh, Karlsruhe Institute of Technology (KIT)/D
17:10 - 17:30	Computational approaches to complex hydride decomposition: from thermodynamics to kinetics <u>M.J. van Setten</u> , W. Lohstroh, M. Fichtner, Karlsruhe Institute of Technology (KIT)/D
17:30 - 17:50	Hydrogenography: tuning the hydrogen absorption properties of metal hydrides at the nano-scale <u>B. Dam</u> , A. Baldi, Y. Pivak, L. Mooij, S.W.H. Eijt, Delft University of Technology/NL; P.E. De Jongh, Utrecht University/NL
17:50 - 20:00	Poster Session 1

LIGHT-WEIGHT STRATEGIES, CONCEPTS, DESIGN, MATERIALS, PROCESSES AND METHODS

Monday, July 5, 2010

Chair: F. Henning, Fhl for Chemical Technology ICT, Pfinztal/D & Karlsruhe Institute of Technology (KIT)/D

14:00 - 14:20	Hybrid beam structures <u>O. Deisser</u> , M. Kriescher, DLR-FK, Stuttgart/D; M. Holzapfel, DLR-BK, Stuttgart/D; O. Ruger, IFB, Stuttgart/D; R. Chaudhari, F. Henning, Fhl for Chemical Technology ICT, Pfinztal/D; M. Grigo, K. Weidenmann, Karlsruhe Institute of Technology (KIT)/D; J. Roettger, Dow Chemical Company, Schwalbach/D
14:20 - 14:40	Development of a magnesium front end for an automobile A. Luo, General Motors Company, Detroit, MI/USA; E. Nyberg, Pacific Northwest National Laboratory, Richland, WA/USA; <u>K. Sadayappan</u> , Natural Resources Canada, Ottawa/CDN; W. Shi, China Magnesium Corporation, Beijing/PRC
14:40 - 15:00	Reactive injection moulding – a new and efficient process for the production of high performance composite parts <u>L.F. Berg</u> , Fhl for Chemical Technology ICT, Pfinztal/D; P. Elsner, F. Henning, B. Thoma, Pfinztal and Karlsruhe Institute of Technology (KIT)/D; S. Pfister, Fhl for Chemical Technology ICT, Pfinztal/D
15:00 - 15:20	Polyurethane composites based sandwich structures for light weight applications <u>J. Kuppinger</u> , F. Wafzig, F. Henning, Fhl for Chemical Technology ICT, Pfinztal/D; S. Dietrich, K. Weidenmann, P. Elsner, Karlsruhe Institute of Technology (KIT)/D; G. Kopp, DLR-Institute of Vehicle Concepts, Stuttgart/D; M. Grzeschik, Institute for Aircraft Design, Stuttgart/D
15:20 - 15:40	Joining technologies <u>A. Piller</u> , M. Kriescher, L. Haeberle, M. Holzapfel, German Aerospace Center (DLR), Stuttgart/D; F. Henning, M. Reif, Fhl for Chemical Technology ICT, Pfinztal/D; M. Grigo, K. Weidenmann, Karlsruhe Institut of Technology (KIT)/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	Processing of engineering thermoplastics using LFT-D/ILC technology for structural automotive applications <u>R. Chaudhari</u> , M. Reif, A. Diehl, O. Gieger, F. Henning, A. Terenzi, Fhl for Chemical Technology ICT, Pfinztal/D
16:30 - 16:50	Textile materials for efficient energy conversion and storage T. Gries, <u>T. Holtermann</u> , RWTH Aachen University/D
16:50 - 17:10	Nanostructuring as a strategy for reducing specific weight of metals <u>M. Lewandowska</u> , K.J. Kurzydowski, Warsaw University of Technology/PL
17:10 - 17:30	Thin film coatings for energy saving automobile and building Y. Taga, Chubu University, Kasugai, Aichi/J
17:30 - 17:50	Strategies for numerical prediction of the uncertainty in the material response of solid foams <u>J. Hohe</u> , C. Beckmann, Fhl for Mechanics of Materials IWM, Freiburg/D
17:50 - 20:00	Poster Session 1

MATERIALS FOR LARGE LARGE POWER PLANTS

Tuesday, July 6, 2010

Chairs: E. Roos, University of Stuttgart/D & L. Singheiser, Forschungszentrum Jülich GmbH/D

09:00 - 09:20	Materials qualification and assessment for components of advanced fossil high efficiency power plants K. Schmidt, E. Roos, University of Stuttgart/D
09:20 - 09:40	PEO cross-linked hydrogels as a new material for CO₂-selective polymeric membranes in CCS technologies J.R. Pauls, GKSS Research Centre Geesthacht GmbH/D; K.V. Peinemann, King Abdullah University of Science and Technology, Thuwal/SAR
09:40 - 10:00	Properties and evaluation of martensitic steels (with 12%Cr, W and Co additions), similar and dissimilar welded joints designated for new boiler with supercritical parameters J. Pasternak, Boiler Engineering Company RAFAKO SA, Racibórz/PL; J. Dobrzanski, Institute for Ferrous Metallurgy, Gliwice/PL
10:00 - 10:40	Keynote Lecture Advanced boiler materials for ultra supercritical fossil fuel-fired power plants Q. Wu, ON Semiconductor, Phoenix, AZ/USA; H. Song, University of Cincinnati, OH/USA; J.P. Shingledecker, EPRI, Charlotte, NC/USA; V.K. Vasudevan, University of Cincinnati, OH/USA
10:40 - 11:10	<i>Coffee Break</i>
11:10 - 11:30	Microstructural evolution and hardening in IN740 superalloy Q. Wu, ON Semiconductor, Phoenix, AZ/USA; H. Song, University of Cincinnati, OH/USA; J.P. Shingledecker, EPRI, Charlotte, NC/USA; V.K. Vasudevan, University of Cincinnati, OH/USA
11:30 - 11:50	Comparison between the multiaxial generalisation of a creep law to an uniaxial implementation R. Pillai, K. Lucka, H. Köhne, Oel Waerme Institut gGmbH, Aachen/D
11:50 - 12:10	Nanostructuring of Ti-alloys by SPD for structural application in engineering I.P. Semenova, V.V. Polyakova, I.V. Skryabin, R.Z. Valiev, Ufa State Aviation Technical University/RUS
12:10 - 12:30	Oxidation of heat exchanger alloys in steam at 550 - 700°C T. Dudziak, N.J. Simms, M. Lukaszewicz, S.J. Mabbutt, J.E. Oakey, Cranfield University/UK
12:30 - 12:50	Innovative coupled analytic methods to characterize materials for carbon capture and sequestration E. Wirth, R. André, P. Le Parlouër, Setaram Instrumentation, Caluire/F; A. Levchenko, Setaram Inc., Newark, CA/USA
12:50 - 14:00	<i>Lunch Break</i>

MATERIALS FOR LARGE LARGE POWER PLANTS

Tuesday, July 6, 2010

Chairs: R.S. Averbach, University of Illinois, Urbana, IL/USA & D. Féron, CEA, Gif-sur-Yvette/F

14:00 - 14:20	Structural and cladding materials development and characterisation for innovative nuclear waste transmutation systems <u>C. Fazio</u> , M. Rieth, R. Lindau, J. Aktaa, H.-C. Schneider, J. Konys, M. Yurechko, G. Müller, A. Weisenburger, J.U. Knebel, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
14:20 - 14:40	Modeling of helium bubble formation and growth in RAFM steels under neutron irradiation <u>C. Dethloff</u> , E. Gaganidze, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; V. Svetukhin, M. Tikhonchev, Ulyanovsk State University/RUS; O. Weiss, J. Aktaa, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
14:40 - 15:00	From low activation steels to iron based nano-scaled superalloys: the nuclear energy perspective <u>A. Moeslang</u> , Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; A. Kimura, Kyoto University/J
15:00 - 15:20	Studies of new fission and fusion reactor materials on the nanometre scale by 3-D atom probe and TEM analysis E.A. Marquis, S. Humphry-Baker, <u>G.D.W. Smith</u> , C.A. Williams, University of Oxford/UK
15:20 - 15:40	Irradiation effects in FeCrAl ODS alloys <u>C.-L. Chen</u> , I-Shou University, Kaohsiung/RC; A. Richter, University of Applied Sciences Wildau (Berlin)/D; G. Talut, Research Center Dresden-Rossendorf FZD/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:50	Keynote Lecture Radiation resistant materials through dynamic self-organization and compositional patterning at the nanoscale <u>P. Bellon</u> , N. Vo, B. Stumphy, R.S. Averbach, University of Illinois, Urbana, IL/USA
16:50 - 17:10	Dissimilar welds of nuclear standard and ODS steels <u>V. Widak</u> , B. Dafferner, M. Rieth, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
17:10 - 17:30	Long-term high temperature thermal stability of an ODS RAF steel after high speed hydrostatic extrusion <u>Z. Oksiuta</u> , Bialystok Technical University/PL; M. Lewandowska, K.J. Kurzydowski, Warsaw University of Technology/PL; N. Baluc, EPFL-CRPP, Villigen/CH
17:30 - 17:50	Creep behavior of high temperature alloys for generation IV nuclear energy applications X. Wen, University of Cincinnati, OH/USA; L.J. Carroll, R. Wright, Idaho National Laboratory, Idaho Falls, ID/USA; T. Sham, Oak Ridge National Laboratory, TN/USA; <u>V.K. Vasudevan</u> , University of Cincinnati, OH/USA

MATERIALS FOR RENEWABLE ENERGY CONVERSION

Tuesday, July 6, 2010

Chairs: E. Dinjus, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & F. Ropital, IFP, Vernaison/F

09:00 - 09:20	Hydrogenolysis - a versatile route for future bio-refinery concepts R. Palkovits, K. Tajvidi, A. Ruppert, J. Procelewska, MPI for Coal Research, Muelheim an der Ruhr/D
09:20 - 09:40	Hydrothermal carbonization of biomass: a route to meaningful nanostructured carbonaceous materials M.M. Titirici, R. White, R. Demir-Cakan, L. Zhao, S. Kubo, J. Popovic, MPI of Colloids and Interfaces, Potsdam/D
09:40 - 10:00	Hydrothermal carbonization - investigation of process parameters J. Steinbrück, M. Roßbach, D. Reichert, Karlsruhe Institute of Technology (KIT)/D; L. Walz, Energie Baden-Wuerttemberg AG, Karlsruhe/D; D. Eyler, European Institute for Energy Research, Karlsruhe/D; H. Bockhorn, Karlsruhe Institute of Technology (KIT)/D
10:00 - 10:20	Low-temperature catalytic pyrolysis - effective way of both biomass and polymeric wastes conversion E. Sulman, M. Sulman, Yu. Kosivtsov, Yu. Lugovoy, V. Alfyorov, Tver Technical University/RUS; N. Kumar, D. Murzin, Åbo Akademi University, Turku/FIN
10:20 - 10:40	New nanostructured catalysts for biomass' products conversion into fuel compounds M.V. Tsodikov, A.V. Chistyakov, F.A. Yandieva, V.Ya. Kugel, Topchiev Institute of Petrochemical Synthesis RAS, Moscow/RUS; A.E. Gekhman, I.I. Moiseev, Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow/RUS
10:40 - 11:10	<i>Coffee Break</i>
11:10 - 11:30	Catalytic valorization of bioethanol to biobutanol T. Riittonen, Åbo Akademi University, Turku/FIN; J.-P. Mikkola, Åbo Akademi University, Turku and Umeå University/FIN
11:30 - 11:50	Ionic liquid - key materials in biomass conversion? T.J.S. Schubert, IoLiTec Ionic Liquids Technologies GmbH, Denzlingen/D; S. Sauer, IoLiTec Ionic Liquids Technologies GmbH, Heilbronn/D
11:50 - 12:10	Porous membrane catalytic systems for conversion of biomass products into hydrogen-containing gas and syngas V.V. Zhmakin, M.V. Tsodikov, V.V. Teplyakov, A.V. Topchiev Institute of Petrochemical Synthesis RAS, Moscow/RUS; V.I. Uvarov, Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka/RUS
12:10 - 12:30	Corrosion of refractory alloys induced by sodium sulphate in simulated low oxygen potential atmospheres of the BTL plants L. Couture, A. Galerie, Y. Wouters, University of Grenoble, Saint Martin d'Hères/F; F. Grosjean, J. Kittel, F. Ropital, IFP, Solaize/F
12:30 - 12:50	Challenges of selecting materials for the process of biomass gasification in supercritical water N. Boukis, W. Habicht, E. Hauer, E. Dinjus, Karlsruhe Institute of Technology (KIT)/D
12:50 - 14:00	<i>Lunch Break</i>

MATERIALS FOR RENEWABLE ENERGY CONVERSION

Tuesday, July 6, 2010

Chair: C. Jooss, University of Göttingen/D

14:00 - 14:20	Functional interfaces in oxide nanoparticle networks: recombination versus separation of photogenerated charges N. Siedl, M.J. Elser, J. Bernardi, Vienna University of Technology/A; <u>O. Diwald</u> , University of Erlangen-Nuremberg/D
14:20 - 14:40	Ruthenium sulphide layers and nanoparticles as efficient catalyst for water oxidation C. Zachaeus, S. Brunken, A. Kratzig, I. Dorbandt, G. Zehl, K. Ellmer, P. Bogdanoff, <u>S. Fiechter</u> , Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D
14:40 - 15:00	A n-Si/n-Fe₂O₃ tandem photoanode for solar water splitting Y.Q. Liang, <u>R. van de Krol</u> , Delft University of Technology/NL
15:00 - 15:40	Keynote Lecture Overall water splitting on heterogeneous photocatalysts under visible light K. Domen, University of Tokyo/J
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:50	Keynote Lecture Kinetics of CO₂ and H₂O splitting by mixed-metal ferrites: an experimental and computational investigation <u>M.D. Allendorf</u> , G.H. Evans, B.W. Jacobs, A.H. McDaniel, Sandia National Laboratories, Livermore, CA/USA; J.E. Miller, Sandia National Laboratories, Albuquerque, NM/USA; J. Scheffe, A.W. Weimer, University of Colorado, Boulder, CO/USA
16:50 - 17:10	Alpha-Fe₂O₃ electrodes for photoelectrochemical hydrogen generation <u>U. Wijayantha</u> , A.A. Tahir, S. Saremi, Loughborough University/UK
17:10 - 17:30	CO₂ photo-catalytic conversion for renewable energy <u>Q.-H. Zhang</u> , W.-D. Han, Y.-J. Hong, J.-G. Yu, East China University of Science and Technology, Shanghai/PRC
17:30 - 17:50	Ab-initio modeling of water-semiconductor interfaces for direct solar-to-chemical energy conversion <u>B.C. Wood</u> , T. Ogitsu, E. Schwegler, Lawrence Livermore National Laboratory, CA/USA

MATERIALS FOR FUELS CELLS – PEMFC

Tuesday, 6 July 2010

Chairs: E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D & W.J. Quadackers, Forschungszentrum Jülich GmbH/D

09:00 - 09:20	Virtual material design of PEM fuel cell layers <u>J. Becker</u> , J. Seibt, A. Wiegmann, Fraunhofer ITWM, Kaiserslautern/D
09:20 - 09:40	Electrocatalysts for the oxygen reduction reaction based on the oxalate-supported pyrolysis of H₂TMPP <u>U. Kramm</u> , I. Herrmann, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D; I. Abs-Wurmbach, Institute of Technology Berlin/D; J. Radnik, Leibniz Institute for Catalysis, Rostock/D; P. Bogdanoff, S. Fiechter, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D
09:40 - 10:00	Hydrophobic carbon nanostructured layer as bi-functional gas diffusion media and catalyst support for PEM fuel cells <u>S. Pacheco Benito</u> , L. Lefferts, University of Twente, Enschede/NL
10:00 - 10:20	New electrocatalyst supports for high temperature PEM fuel cells (HT-PEMFC) <u>M. Boaventura</u> , L. Brandão, M.C. Campo, D.A. Pacheco Tanaka, A. Mendes, University of Porto/P
10:20 - 10:40	Molecular modeling of water percolation and proton transport in fuel cell membranes <u>R. Devanathan</u> , N. Idupulapati, M. Dupuis, Pacific Northwest National Laboratory, Richland, WA/USA
10:40 - 11:10	<i>Coffee Break</i>

MATERIALS FOR FUELS CELLS – SOFC

11:10 - 11:50	Keynote Lecture High temperature corrosion issues in SOFC systems K.Y. Jung, N.M. Yanar, F.S. Pettit, <u>G.H. Meier</u> , University of Pittsburgh, PA/USA; P. Singh, University of Connecticut, CT/USA
11:50 - 12:10	Suitability of different types of high-chromium ferritic steels as construction materials for interconnects in solid oxide fuel cells <u>L. Niewolak</u> , B. Kuhn, C. Asensio-Jimenez, Forschungszentrum Jülich GmbH/D; H. Hattendorf, ThyssenKrupp VDM GmbH, Altena/D; L. Singheiser, W.J. Quadackers, Forschungszentrum Jülich GmbH/D
12:10 - 12:30	Investigation of phase and strain distributions from Cr poisoning inside of solid oxide fuel cell using a microfocused X-ray method <u>D. Liu</u> , J. Almer, T. Cruse, Argonne National Laboratory, IL/USA
12:30 - 12:50	Compatibility between AISI441 interconnect and Sr-doped lanthanum manganite electrode in solid oxide fuel/electrolyzer cells <u>K. Lu</u> , T. Jin, Virginia Polytechnic Institute and State University, Blacksburg, VA/USA
12:50 - 14:00	<i>Lunch Break</i>
14:00 - 14:40	Keynote Lecture Ceramic-based anodes for SOFCs F. Tietz, Forschungszentrum Jülich GmbH/D
14:40 - 15:00	Electrochemical characterization of Ni patterned anodes in H₂/H₂O atmosphere <u>A. Utz</u> , H. Störmer, A. Weber, E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D
15:00 - 15:20	Promotion of SOFC anode performance by finely-structured Ni/YSZ cermet prepared by heterocoagulation technique Y. Sunagawa, K. Yamamoto, <u>A. Muramatsu</u> , Tohoku University, Sendai/J

15:20 - 15:40	Increase of anode performance of SOFC by reverse current treatment <u>D. Klotz</u> , A. Leonide, E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	Nanoparticulate cathode thin films with high electrochemical activity for low temperature SOFC <u>A. J. Darbandi</u> , University of Darmstadt/D; H. Hahn, Karlsruhe Institute of Technology (KIT)/D
16:30 - 16:50	Electrochemical performance of nanoscaled La_{0.6}Sr_{0.4}CoO_{3-δ} as intermediate temperature SOFC cathodes <u>J. Hayd</u> , Karlsruhe Institute of Technology (KIT)/D; U. Guntow, FHI for Silicate Research (ISC), Würzburg/D; E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D
16:50 - 17:10	Characterisation of solid oxide fuel cell cathodes manufactured by traditional and novel (low cost) techniques <u>N. Nwosu</u> , A.M. Davidson, W. Waugh, Edinburgh Napier University/UK
17:10 - 17:30	Cation transport studies by Samarium (Sm) dopant diffusion into polycrystalline CeO₂ substrates <u>C. Rockenhäuser</u> , B. Butz, Karlsruhe Institute of Technology (KIT)/D; N. Schichtel, C. Korte, J. Janek, University of Gießen/D; D. Gerthsen, Karlsruhe Institute of Technology (KIT)/D
17:30 - 17:50	Cobalt doped LSGM ceramics prepared by citrate sol-gel process for IT-SOFC application <u>I. Stijepovic</u> , M. Kolar, University of Novi Sad/YU; A. Darbandi, TU Darmstadt/D; V.V. Srdic, University of Novi Sad/YU

HYDROGEN STORAGE

Tuesday, July 6, 2010

Chairs: M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & A. Züttel, EMPA, Duebendorf/CH

09:00 - 09:20	Hydrogen sorption kinetics, reaction dynamics, and spectroscopy <u>A. Borgschulte</u> , R. Gremaud, A. Züttel, Empa - Swiss Federal Laboratories for Materials Testing and Research, Duebendorf/CH; T. Ramirez-Cuesta, ISIS Facility, Didcot/UK; P. Hamm, University of Zurich/CH
09:20 - 09:40	Electrochemical synthesis of high capacity metal hydrides in the system of Li-ion extraction and insertion <u>N. Hanada</u> , H. Suzuki, K. Takai, Sophia University, Tokyo/J; T. Ichiwaka, Y. Kojima, Hiroshima University, Higashi Hiroshima/J
09:40 - 10:00	Simulations and experimental results of a lab-scale hydrogen storage tank based on sodium alanate (NaAlH₄) <u>I. Utz</u> , F. Joppich, A. Wörner, German Aerospace Center (DLR), Stuttgart/D; O. Zabara, M. Fichtner, Karlsruhe Institute of Technology (KIT)/D
10:00 - 10:20	Reversible hydrogen storage in Ti-Zr-codoped NaAlH₄ under realistic operation conditions <u>T. Schmidt</u> , L. Röntzsch, Fraunhofer IFAM, Dresden/D
10:20 - 10:40	Adverse reactivity effects and risk mitigation methods for candidate hydrogen storage materials <u>Y.F. Khalil</u> , D.A. Mosher, United Technologies Research Center, East Hartford, CT/USA; J. Cortes, C.W. James, J. Gray, D.L. Anton, Savannah River National Laboratory, Aiken, SC/USA
10:40 - 11:10	<i>Coffee Break</i>
11:10 - 11:30	Raman spectroscopic observation of hydrogen cycling in ball-milled LiNH₂ - LiBH₄- MgH₂ nanoparticles <u>J.R. Hattrick-Simpers</u> , National Institute of Standards and Technology, Gaithersburg, MD/USA; M.U. Niemann, University of South Florida, Tampa, FL/USA; C. Chiu, J.E. Maslar, National Institute of Standards and Technology, Gaithersburg, MD/USA; S.S. Srinivasan, Tuskegee University, AL/USA; E.K. Stefanakos, University of South Florida, Tampa, FL/USA; L.A. Benderksy, National Institute of Standards and Technology, Gaithersburg, MD/USA
11:30 - 11:50	Influence of high-pressure gaseous hydrogen on the mechanical properties of Al 6082 T6 alloy <u>H. Li</u> , T. Michler, Adam Opel GmbH, Rüsselsheim/D; E. Sattler, E. Roos, University of Stuttgart/D
11:50 - 12:10	Use of neutron diffraction for structural analysis of iron-catalyzed Mg₆Pd alloys J. Lang, J.-G. Roqueferre, <u>J. Huot</u> , Université du Québec à Trois-Rivières/CDN; A.L. Yonkeu, I. Swainson, National Research Council Canada, Chalk River/CDN
12:10 - 12:30	Hydrogen storage and emission characteristics of an innovative composite materials of Pt_{3.3}Zr_{2.7}O/Li₂ZrO₃/Pt_{3.3}Zr_{2.7}O sandwich exposed to air vapor at room temperature <u>K. Morita</u> , Meijo University, Nagoya/J; B. Tsuchiya, S. Nagata, Tohoku University, Sendai/J; Y. Oya, K. Okuno, Shizuoka University/J
12:30 - 12:50	Hydrogen storage in binary and ternary Mg-based alloys: a comprehensive experimental study <u>W.P. Kalisvaart</u> , C.T. Harrower, J. Haagsma, B. Zahiri, E.J. Lubber, C. Ophus, D. Mitlin, University of Alberta, Edmonton/CDN; E. Poirier, H. Fritzsche, Canadian Neutron Beam Centre, Chalk River/CDN

HYDROGEN STORAGE

Tuesday, July 6, 2010

Chairs: M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & A. Züttel, EMPA, Duebendorf/CH

12:50 - 14:00	<i>Lunch Break</i>
14:00 - 14:20	Effective diffusion-limited kinetics of metal hydrides incorporating realistic particle morphology <u>T.G. Voskuilen</u> , K.C. Smith, T.L. Pourpoint, S. Fisher, Purdue University, West Lafayette, IN/USA
14:20 - 14:40	Hydrogen stored on metal-organic frameworks for automotive fuel-cell applications <u>U. Mueller</u> , N. Trukhan, E. Leung, BASF SE, Ludwigshafen/D; E. Mori, K. Hirose, Toyota Motor Corp., Higashifuji/J
14:40 - 15:00	Confinement effects and hydrogen storage in ice-based clathrates <u>M. Russina</u> , E. Kemner, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D; M. Celli, L. Ulivi, Istituto dei Sistemi Complessi, Sesto fiorentino/I; F. Mezei, Los Alamos National Laboratory, NM/USA
15:00 - 15:40	Keynote Lecture Physisorption of hydrogen on novel nanoporous materials <u>M. Hirscher</u> , B. Schmitz, I. Krkljus, M. Schlichtenmayer, K. Manickam, MPI for Metals Research, Stuttgart/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	NaAlH₄/carbon and NaH/carbon nanocomposites: synthesis, characterization and hydrogen storage properties <u>P. Adelhelm</u> , University of Giessen/D; J. Gao, K.P. de Jong, P.E. de Jongh, Utrecht University/NL
16:30 - 16:50	Room temperature and thermal decomposition of magnesium hydride/deuteride thin films J.R. Ares, <u>F. Leardini</u> , J. Bodega, M.D. Maciá, P. Diaz-Chao, I.J. Ferrer, J.F. Fernández, C. Sánchez, Universidad Autonoma de Madrid/E
16:50 - 17:10	Complete conversion of hydrous hydrazine to hydrogen at room temperature for chemical hydrogen storage <u>S.K. Singh</u> , Q. Xu, National Institute of Advanced Industrial Science and Technology (AIST), Ikeda, Osaka/J
17:10 - 17:30	Hydrogen generation from liquid hydrogen-storage materials X. Gu, <u>Q. Xu</u> , National Institute of Advanced Industrial Science and Technology (AIST), Ikeda/J
17:30 - 17:50	Effects of confinement on the thermodynamics and kinetics of metal hydrides templated in ordered nanoporous frameworks <u>M.D. Allendorf</u> , R. Bhakta, R. Behrens, Sandia National Laboratories, Livermore, CA/USA; E.H. Majzoub, X. Liu, D. Peaslee, University of Missouri, St. Louis, MO/USA; J.L. Herberg, Lawrence Livermore National Laboratories, CA/USA; L.K. Wagner, J.C. Grossman, Massachusetts Institute of Technology, Cambridge, MA/USA

CATALYSTS FOR SUSTAINABLE ENERGY APPLICATIONS

Tuesday, July 6, 2010

Chairs: M.-I. Baraton, Université de Limoges/F & J.A. Lercher, TU München, Garching/D

09:00 - 09:40	<p>Keynote Lecture Development of hierarchical nanostructures for high performance catalysts U. Hörmann, University of Ulm/D; N. Adkins, CERAM, London/UK; R. Wunderlich, <u>H.-J. Fecht</u>, University of Ulm/D</p>
09:40 - 10:00	<p>Tailoring mixed La/Ce-oxide nanocatalysts for water-gas-shift S. Liang, Y. Wang, University of Pittsburgh, PA/USA; <u>G. Veser</u>, National Energy Technology Laboratory and University of Pittsburgh, PA/USA</p>
10:00 - 10:20	<p>Autothermal hydrogen production over Rh catalyst: microscopical study of catalyst deactivation along the reaction path <u>B. Reznik</u>, M. Hartmann, O. Deutschmann, Karlsruhe Institute for Technology (KIT)/D</p>
10:20 - 10:40	<p>Co₃O₄ synthesized by different preparation methods and its application in methane decomposition <u>P. Jana</u>, V.A. de la Peña, J. Coronado, D. Serrano, IMDEA Energía, Mostoles (Madrid)/E</p>
10:40 - 11:10	<p><i>Coffee Break</i></p>
11:10 - 11:30	<p>Nanocrystalline doped ceria-zirconia solid solutions promoted by Pt and/or Ni: structure, surface properties and catalytic performance in reactions of hydrogen and syngas production N.V. Mezentseva, G.M. Alikina, E.G. Zevak, E.L. Gubanova, N.N. Sazonova, A. Bobin, <u>V.A. Sadykov</u>, Boreskov Institute of Catalysis, Novosibirsk/RUS; Y. Shuurman, C. Mirodatos, Institut de Recherches sur la Catalyse et l'Environnement de Lyon/F</p>
11:30 - 11:50	<p>Monodisperse nickel nanoparticles and their catalysis in hydrolytic dehydrogenation of ammonia borane <u>O. Metin</u>, Middle East Technical University, Ankara/TR; V. Mazumder, Brown University, Providence, RI/USA; S. Özkar, Middle East Technical University, Ankara/TR; S. Sun, Brown University, Providence, RI/USA</p>
11:50 - 12:10	<p>Catalytic hydroconversion of tricaprylin and caprylic acid as model reaction for bio-fuel production from triglicerydes L. Boda, MOL Plc, Százhalombatta/H; G. Onyestyák, H. Solt, F. Lónyi, <u>J. Valyon</u>, INC CRC HAS, Budapest/H; A. Thernes, MOL Plc, Százhalombatta/H</p>
12:10 - 12:50	<p>Keynote Lecture Conversion of sustainable energy resources to fuels: challenges and opportunities for the development of new catalysts A. Bell, University of California, Berkeley, CA/USA</p>
12:50 - 14:00	<p><i>Lunch Break</i></p>

CATALYSTS FOR SUSTAINABLE ENERGY APPLICATIONS

Tuesday, July 6, 2010

Chairs: H.-J. Fecht, University of Ulm/D & J.A. Lercher, TU München, Garching/D

14:00 - 14:20	<p>Biodiesel production by using lipase immobilized onto novel silica-based hybrid foams <u>N. Brun</u>, A. Babeau Garcia, V. Oestreicher, Université de Bordeaux, Pessac/F; G. Laurent, C. Sanchez, Université Pierre et Marie Curie, Paris/F; H. Deleuze, Université de Bordeaux, Talence/F; R. Backov, Université de Bordeaux, Pessac/F</p> <p>Green chemistry toward supported ionic liquid phase catalysis on silica-based novel hybrid foams <u>N. Brun</u>, S. Ungureanu, Université de Bordeaux, Pessac/F; M. Birot, Université de Bordeaux, Talence/F; P. Hesemann, CNRS - ENSCM, Montpellier/F; H. Deleuze, Université de Bordeaux, Talence/F; R. Backov, Université de Bordeaux, Pessac/F</p>
14:20 - 14:40	<p>Mesoporous tin-triflate materials as versatile catalysts for biodiesel production M. Verziu, University of Bucharest/RO; J. El Haskouri, D. Beltran, P. Amoros, Universitat de Valencia/E; D. Macovei, C.M. Teodorescu, National Institute of Materials Physics, Bucharest-Magurele/RO; <u>S.M. Coman</u>, V.I. Parvulescu, University of Bucharest/RO</p>
14:40 - 15:00	<p>CaO solid catalysts for biodiesel production: a new way to produce bioenergy by heterogeneous catalysis J.F. Gomes, <u>J.F. Puna</u>, ISEL - Instituto Superior de Engenharia de Lisboa/P; J.C. Bordado, Institute of Biotechnology and Bioengineering - IST, Lisboa/P; M.J.N. Correia, Chemical Process Centre - IST, Lisboa/P; A.P.S. Dias, ICEMS, IST, Lisboa/P</p>
15:00 - 15:20	<p>Catalysts for hydrogen production from biomass-ethanol and biomass-tar <u>Y. Sekine</u>, E. Kikuchi, Waseda University, Tokyo/J</p>
15:20 - 15:40	<p>Direct oxidation of methane to methanol at low temperatures <u>M. Soorholtz</u>, R. Palkovits, C. Baltés, F. Schüth, MPI for Coal Research, Muelheim an der Ruhr/D; P. Kuhn, A. Thomas, M. Antonietti, MPI of Colloids and Interfaces, Potsdam/D</p>
15:40 - 16:10	<p><i>Coffee Break</i></p>

Chairs: C. Bianchini, Istituto di Chimica dei Composti Organometallici (ICCOM-CNR), Sesto Fiorentino/I & J.A. Lercher, TU München, Garching/D

16:10 - 16:50	<p>Keynote Lecture Nano photocatalytic materials: possibilities & challenges J. Ye, National Institute for Materials Science (NIMS), Tsukuba/J</p>
16:50 - 17:10	<p>TiO₂ surface analysis for enhanced stability of DSSCs <u>M.-I. Baraton</u>, CNRS and University of Limoges/F; L. Merhari, CERAMEC R&D, Limoges/F</p>
17:10 - 17:30	<p>Hydrodeoxygenation of bio-derived phenols to hydrocarbons in water <u>C. Zhao</u>, X. Li, J.A. Lercher, TU München, Garching/D</p>
17:30 - 17:50	<p>Performance of new generation TWC catalytic systems working under different conditions in order to reduce the emission of a global warming gas: N₂O I. Mac-Beath, S. Castillo, R. Camposeco, M. Moran-Pineda, Instituto Mexicano del Petróleo, México, D.F./MEX (to be confirmed)</p>

Wednesday, July 7, 2010

Chair:	
08:45 - 09:45	Plenary Lecture NN R. Schlögl, Fritz-Haber-Institute of the Max Planck Society, Berlin/D
09:45 - 10:15	<i>Coffee Break</i>
Chair:	
10:15 - 11:15	Plenary Lecture Materials challenges for the energy technology revolution: expanding the role of nuclear power and developing inertial fusion energy T. Diaz de la Rubia, Lawrence Livermore National Laboratory, CA/USA
Chair:	
11:15 - 12:15	Plenary Lecture Non-conventional solutions for the protection of materials at high temperatures M. Schütze, DECHEMA e.V., Frankfurt am Main/D
12:15 - 12:30	Poster Prize Awards 6 poster prizes will be distributed in total
12:30 - 14:00	<i>Lunch Break</i>

MATERIALS FOR LARGE POWER PLANTS

Wednesday, July 7, 2010

Chairs: R.S. Averbach, University of Illinois, IL/USA & D. Féron, CEA, Gif-sur-Yvette/F

14:00 - 14:20	New insights on microcrack propagation in Bcc iron <u>V. Borodin</u> , Russian Research Centre of the Kurchatov Institute, Moscow/RUS; P. Vladimirov, A. Möslang, Karlsruhe Institute of Technology (KIT)/D
14:20 - 14:40	On the potential of tungsten-vanadium composites for high temperature application in nuclear fusion <u>J. Hohe</u> , Fhl for Mechanics of Materials IWM, Freiburg/D; P. Gumbsch, Karlsruhe Institute of Technology (KIT)/D
14:40 - 15:00	Electrochemically-based technologies for processing of tungsten components in fusion technology <u>N. Holstein</u> , J. Konys, W. Krauss, J. Lorenz, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
15:00 - 15:20	Tungsten materials for structural divertor applications <u>M. Rieth</u> , Karlsruhe Institute of Technology (KIT)/D; A. Hoffmann, PLANSEE Metall GmbH, Reutte/A; E. Materna-Morris, M. Rohde, Karlsruhe Institute of Technology (KIT)/D
15:20 - 15:40	Pulsed E-beams to improve corrosion barriers for lead alloy cooled reactors: overview and dedicated mechanical tests <u>A. Weisenburger</u> , A. Jianu, A. Heinzl, M. Del Giacco, G. Müller, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
15:40 - 16:10	<i>Coffee Break</i>

Chairs: N. Bagcivan, RWTH Aachen University/D & F.J. Pérez-Trujillo, Universidad Complutense de Madrid/ES

16:10 - 16:50	Keynote Lecture Trends in the design of metallic coatings for harsh turbine environments B. Gleeson, University of Pittsburgh, PA/USA
16:50 - 17:10	Advanced TBCs deposited by EB-PVD technology: double- and quadruple-ceramic layers consisting of 7YSZ and La₂Zr₂O₇ K. Bobzin, N. Bagcivan, S. Theiss, <u>B. Yildirim</u> , RWTH Aachen University/D
17:10 - 17:30	Magnetron-sputtered coatings for titanium aluminide alloys <u>E. Godlewska</u> , M. Mitoraj, R. Mania, S. Zimowski, M. Kot, AGH University of Science and Technology, Krakow/PL
17:30 - 17:50	Formation and properties of periodic patterns in protective diffusion coatings containing aluminum <u>S. Oberhauser</u> , Incoia GmbH, Neustadt a.d. Donau/D; C. Strobl, University of Applied Sciences Ingolstadt/D; D. Rafaja, TU Bergakademie Freiberg/D
17:50 - 20:00	Poster Session 2
20:00 - 24:00	Conference Dinner

MATERIALS FOR RENEWABLE ENERGY CONVERSION

Wednesday, July 7, 2010

**Chair: C. Jooss, University of Göttingen/D &
D. Cahen, Weizmann Institute of Science, Rehovot/IL**

14:00 - 14:20	Engineering of novel photoactive inorganic/organic semiconductor hybrid materials R. Beranek, University of Erlangen-Nuremberg, Erlangen/D
14:20 - 14:40	New cost-effective manufacture of DSSC TiO₂ paste with enhanced sensitizer anchoring properties <u>G. Demopoulos</u> , C. Charbonneau, K.E. Lee, G.-B. Shan, M.A. Gomez, R. Gauvin, McGill University, Montreal/CDN
14:40 – 15:40	Joint Panel Discussion: New strategies for maximum light harvesting NN, David Ginley, Dieter Meissner (to be confirmed)
15:40 - 16:10	Coffee Break

Chairs: G. Flamant, CNRS, Font-Romeu/F & D. Ginley, National Renewable Energy Laboratory NREL, Golden, CO/USA

16:10 - 16:50	Keynote Lecture Electronic structure at interfaces of organic solar cell materials C. Hein, E. Mankel, <u>T. Mayer</u> , W. Jaegermann, Darmstadt University of Technology/D
16:50 - 17:10	Nanoscale morphology of bulk heterojunctions in organic photovoltaics <u>M.F. Toney</u> , C.E. Miller, Stanford Synchrotron Radiation Lightsource, Menlo Park, CA/USA; R. Gysel, N. Cates, Z. Beiley, M.D. McGehee, Stanford University, CA/USA
17:10 - 17:30	Semiconductor nanowire-carbon nanotube hybrid structured flexible solar cells <u>P. Katal Mohseni</u> , G. Lawson, A. Adronov, R.R. LaPierre, McMaster University, Hamilton/CDN
17:30 - 17:50	Morphology formation in solution cast polymer-fullerene blends for organic photovoltaics <u>B. Schmidt-Hansberg</u> , Karlsruhe Institute of Technology (KIT)/D; M. Sanyal, MPI for Metals Research, Stuttgart/D; B. Brenneis, M. Baunach, M.F.G. Klein, A. Colsmann, U. Lemmer, Karlsruhe Institute of Technology (KIT)/D; E. Barrena, MPI for Metals Research, Stuttgart/D; P. Scharfer, W. Schabel, Karlsruhe Institute of Technology (KIT)/D
17:50 - 20:00	Poster Session 2
20:00 - 24:00	Conference Dinner

THERMOELECTRICS: FROM HIGHLY EFFICIENT STRUCTURES TO HIGH-TEMPERATURE GENERATORS

Wednesday, July 7, 2010

Chairs : Y. Gelbstein, Ben-Gurion University of the Negev, Beer-Sheva/IL & K. Nielsch, University of Hamburg/D

14:00 - 14:20	Influence of spark plasma sintering parameters on the thermo-electric performance of nanocrystalline silicon <u>N. Stein</u> , G. Schierning, N. Petermann, H. Wiggers, R. Theissmann, R. Schmechel, University of Duisburg-Essen, Duisburg/D
14:20 - 14:40	Modeling phonon transport and thermal conductivity in Si/Ge superlattices and nanocomposites <u>D. Singh</u> , J.Y. Murthy, T.S. Fisher, Purdue University, West Lafayette, IN/USA
14:40 - 15:00	Enhanced thermoelectric performance of nanostructured Bismuth Antimony tellurium bulk alloys M. Soulier, C. Navone, J. Simon, <u>M. Plissonnier</u> , CEA, Grenoble/F
15:00 - 15:40	Keynote Lecture Wafer based thermoelectric generators, coolers and sensors: state of art and future prospects J. Nurnus, Micropelt GmbH, Freiburg/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	Assembled Sb₂Te₃ nanoparticles by vapor transport growth with enhanced thermoelectric properties J. Chen, T. Sun, H. Hng, J. Ma, F. Boey, <u>Q. Yan</u> , Nanyang Technological University, Singapore/SGP
16:30 - 16:50	Thermoelectric properties of n-type Bi₂Te_{2.7}Se_{0.3} and p-type Bi_{0.5}Sb_{1.5}Te₃ films for micro-cooler applications P. Qizhen, S. Ye Ko, <u>S. Ezhilvalavan</u> , Republic Polytechnic, Woodlands/SGP; M. Jan, H. Huey Hoon, Nanyang Technological University/SGP
16:50 - 17:10	Thermoelectric properties of nanostructured (Bi, Sb)₂Te₃ alloys <u>N. Yang</u> , P.A. Sharma, A. Morales, Sandia National Laboratories, Livermore, CA/USA; Z. Zhang, Y. Zhou, E.J. Laverna, University of California, Davis, CA/USA
17:10 - 17:30	Conductivity anisotropy in nanostructured materials N.F. Hinsche, B.Y. Yavorsky, <u>P. Zahn</u> , I. Mertig, University of Halle/D
17:30 - 17:50	Optimization of dimensionless figure of merit in oxide thin film thermoelectrics <u>D. Osborne</u> , S. Huxtable, Virginia Tech, Blacksburg, VA/USA; A. Tiwari, University of Utah, Salt Lake City, UT/USA; J.T. Abiade, Virginia Tech, Blacksburg, VA/USA
17:50 - 20:00	Poster Session 2
20:00 - 24:00	Conference Dinner

HYDROGEN STORAGE

Wednesday, July 7, 2010

Chairs: M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & A. Züttel, EMPA, Duebendorf/CH

14:00 - 14:20	Hydrogen storage in MOF materials at temperatures near ambient <u>S. Luzan</u> , A.V. Talyzin, Umeå University/S
14:20 - 14:40	High specific surface area metal organic frameworks (MOFs) and activated carbons for hydrogen storage <u>M. Schlichtenmayer</u> , M. Hirscher, MPI for Metals Research, Stuttgart/D; N. Klein, I. Senkovska, S. Kaskel, Dresden University of Technology/D
14:40 - 15:00	Hydrogen storage in ordered and porous carbon/Pd composites C. Matei Ghimbeu, P. Dibandjo, Institut de Science des Matériaux de Mulhouse/F; C. Zlotea, Institut de Chimie et des Matériaux Paris-Est, Thiais/F; R. Gadiou, Institut de Science des Matériaux de Mulhouse/F; M. Latroche, Institut de Chimie et des Matériaux Paris-Est, Thiais/F; C. Vix-Guterl, Institut de Science des Matériaux de Mulhouse/F
15:00 - 15:20	Thermodynamic properties of NaAlH₄ / activated carbon fibre composites <u>W. Lohstroh</u> , A. Roth, M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
15:20 - 15:40	LiBH₄ heterogeneous nucleation within hierarchically structured carbonaceous foams: application as host sites for hydrogen storage <u>N. Brun</u> , R. Backov, Université de Bordeaux, Pessac/F; H. Deleuze, Université de Bordeaux, Talence/F; C. Sanchez, Université Pierre et Marie Curie, Paris/F; R. Janot, M. Morcrette, Université de Picardie, Amiens/F
15:40 - 16:10	<i>Coffee Break</i>

ELECTROCHEMICAL ENERGY STORAGE: BATTERIES AND SUPERCAPACITORS

Wednesday, July 7, 2010

Chairs: K.-C. Möller, Fraunhofer ISC, Würzburg/D & M. Winter, University of Münster/D

16:10 - 16:30	Electrochemically reduced graphene oxide films for supercapacitor <u>X.-Y. Peng</u> , Dublin City University/IRL; X.-X. Liu, Northeastern University, Shenyang/PRC; D. Diamond, K.-T. Lau, Dublin City University/IRL
16:30 - 16:50	Composite of conducting polymers and carbon nanostructures for energy storage <u>F. Huang</u> , E. Vanhaecke, M. Rønning, Norwegian University of Science and Technology (NTNU), Trondheim/N; M. Thomassen, SINTEF Materials and Chemistry, Trondheim/N; D. Chen, Norwegian University of Science and Technology (NTNU), Trondheim/N
16:50 - 17:10	Hierarchically structured carbonaceous foams generation and their use as electrochemical energy storage devices <u>N. Brun</u> , R. Backov, Université de Bordeaux, Pessac/F; M. Birot, H. Deleuze, G. Pécastaing, Université de Bordeaux, Talence/F; S.R.S. Prabaharan, M. Morcrette, Université de Picardie, Amiens/F
17:10 - 17:50	Keynote Lecture Lithium metal batteries: backward to the future? S. Passerini, University of Münster/D
17:50 - 20:00	Poster Session 2
20:00 - 24:00	Conference Dinner

CATALYSTS FOR SUSTAINABLE ENERGY APPLICATIONS

Wednesday, July 7, 2010

Chairs: M.-I. Baraton, Université de Limoges/F & A. Bell, University of California, Berkeley, CA/USA

14:00 - 14:40	Keynote Lecture Steam reforming - fossil to sustainable feed stocks K. Seshan, University of Twente, Enschede/NL
14:40 - 15:00	Generation of CO_x-free H₂ for fuel cell from ammonia decomposition: a combined DBD plasma and cheap catalysts technique <u>L. Wang</u> , Y. Zhao, W. Gong, H. Guo, Dalian University of Technology/PRC
15:00 - 15:20	Nanocomposite cermets for hydrogen production and SOFC anodes <u>N. Mezentseva</u> , V. Sadykov, G. Alikina, V. Pelipenko, Boreskov Institute of Catalysis, Novosibirsk/RUS; J.R.H. Ross, University of Limerick/IRL
15:20 - 15:40	The role of the intermetallic compound PdZn in methanol steam reforming <u>M. Friedrich</u> , M. Armbrüster, MPI for Chemical Physics of Solids, Dresden/D
15:40 - 16:10	<i>Coffee Break</i>
16:10 - 16:30	CO desorption kinetics under conditions of relevance to PEM fuel cells operating with reformat gas <u>A. Pitois</u> , A. Pilenga, G. Tsotridis, Joint Research Centre of the European Commission, Petten/NL
16:30 - 16:50	Dry reforming of methane over LnFe_{1-x}Ni_xO₃ perovskites and their composites with Gd-doped ceria S. Pavlova, G. Alikina, R. Bunina, <u>L. Kapokova</u> , V. Sadykov, T. Krieger, A. Ishchenko, V. Rogov, Boreskov Institute of Catalysis SB RAS, Novosibirsk/RUS
16:50 - 17:10	Changes of the surface structure of supported Cu catalysts during the ethanol reforming K. Marko, I. Sarusi, K. Baán, A. Oszko, K. Nagy, <u>A. Erdohelyi</u> , University of Szeged/H
17:10 - 17:30	New generation of catalytic coatings and novel microstructured reactor for the water-gas shift reaction A.R. Dubrovskiy, V.S. Dolmatov, <u>S.A. Kuznetsov</u> , Kola Science Centre RAS, Apatity/RUS; E.V. Rebrov, J.C. Schouten, University of Technology, Eindhoven/NL
17:30 - 17:50	Nanomaterials as highly active catalysts for microreactors in hydrogen and fuel applications <u>P. Pfeifer</u> , O. Görke, K. Haas-Santo, P. Piermartini, T. Schuhmann, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; A. Ates, Cumhuriyet University, Sivas/TR; A. Merker, D. Telitschkin, EADS Astrium Space Transportation, Lampoldshausen/D
17:50 - 20:00	Poster Session 2
20:00 - 24:00	Conference Dinner

MATERIALS FOR LARGE POWER PLANTS

Thursday, July 8, 2010

Chairs: N. Bagcivan, RWTH Aachen University/D & F.J. Pérez-Trujillo, Universidad Complutense de Madrid/ES

09:00 - 09:20	Keynote Lecture Steam oxidation behavior of high strength newly developed ferritic/martensitic steels at 650° C A. Agüero, V. González, Instituto Nacional de Técnica Aeroespacial, Torrejón de Ardoz/E; P. Mayr, Massachusetts Institute of Technology, Cambridge, MA/USA
09:20 - 09:40	Behaviour of ceramic thermal barrier coating systems on martensitic steels in steam at temperatures between 550 and 650°C T. Hüttel, L. Singheiser, W.J. Quadackers, Forschungszentrum Jülich GmbH/D
09:40 - 10:00	High temperature protection of alloy 347 by coating with spherical μ-Al particles M. Juez-Lorenzo, V. Kolarik, H. Fietzek, P. Kodjamanova, FhI for Chemical Technology ICT, Pfinztal/D
10:00 - 10:20	Steam oxidation resistant nanostructured coatings on gamma-TiAl by HIPIMS I. Lasanta, M. Tejero, A. Rey, A. Fernandez, S. Mato, M.P. Hierro, J. Nieto, F.J. Pérez Trujillo, Universidad Complutense de Madrid/E

NANOSTRUCTURES FOR ENERGY APPLICATIONS

Thursday, July 8, 2010

Chairs: P.M. Ajayan, Rice University, Houston, TX/USA & S.R.P. Silva, University of Surrey, Guildford/UK

11:10 - 11:30	Energy related applications of magnetic materials O. Gutfleisch, T. Woodcock, J. Lyubina, K. Skokov, L. Schultz, IFW Dresden/D
11:30 - 11:50	High-temperature superconducting materials for power system applications M. Noe, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
11:50 - 12:10	Design and analysis of highly efficient adsorptive heat exchanger U. Wittstadt, L. Schnabel, G. Földner, FhI for Solar Energy Systems (ISE), Freiburg/D; F.P. Schmidt, Karlsruhe Institute of Technology (KIT)/D; P. Schossig, H.-M. Henning, FhI for Solar Energy Systems (ISE), Freiburg/D
12:10 - 12:50	Keynote Lecture Magnetocaloric materials for near room temperature magnetic refrigeration - an energy efficient, green cooling technology K.A. Gschneidner, Jr., V.K. Pecharsky, Iowa State University, Ames, IA/USA
12:50	<i>Lunch Break</i>
14:00 - 14:20	Nanoporous SiO₂ anti reflective coating on glass for solar applications T. Hofmann, Centrosolar Glas GmbH & Co. KG, Fürth/D
14:20 - 14:40	Effect of nano-imprinting on open-circuit voltage of organic solar cells J.B. Emah, R.J. Curry, S.R.P. Silva, University of Surrey, Guildford/UK
14:40 - 15:00	Nano-inclusion materials from solutions A. Pohl, G. Westin, Å. Ekstrand, E. Wäckelgård, T. Boström, Uppsala University/S; K. Jansson, Stockholm University/S
15:00 - 15:20	Development of nanostructured electrodes on foils E. Vanhaecke, F. Huang, M. Rønning, D. Chen, Norwegian University of Science and Technology (NTNU), Trondheim/N
15:20 - 15:40	Electron conducting poly-1,2,4-triazoles A. Boschetti de Fierro, M.L. Ponce, V. Abetz, GKSS Research Centre Geesthacht GmbH/D
15:40 - 16:00	Single-walled carbon nanotubes/anatase composites for energy applications I. Tacchini, E. Terrado, A. Anson, M.T. Martinez, Instituto de Carboquímica-CSIC, Zaragoza/E

MATERIALS FOR RENEWABLE ENERGY CONVERSION

Thursday, July 8, 2010

Chairs: G. Flamant, CNRS, Font-Romeu/F & D. Ginley, National Renewable Energy Laboratory
NREL, Golden, CO/USA

09:00 - 09:40	Keynote Lecture New (and renewed) vistas for solar cells, via molecular control over interfaces D. Cahen, Weizmann Institute of Science, Rehovot/IL
09:40 - 10:00	OPV-hybride: bulk sensitization of inorganic matrices by organic absorber molecules <u>T. Mayer</u> , A. Decker, A. Naumann, E. Mankel, W. Jaegermann, Darmstadt University of Technology/D
10:00 - 10:20	Photovoltaic energy conversion based on strongly correlated oxides G. Saucke, B. Iffland, C. Thees, University of Goettingen/D; Y. Zhu, Brookhaven National Laboratory, Upton, NY/USA; J. Hoffmann, <u>C. Jooss</u> , University of Goettingen/D
10:20 - 10:40	New intermediate band materials for better use of solar spectrum in photovoltaic cells P. Palacios, I. Aguilera, K. Sánchez, <u>P. Wahnón</u> , Universidad Politecnica de Madrid/E; R. Lucena, J.C. Conesa, CSIC, Madrid/E
10:40	Coffee Break
11:10 - 11:30	Quantum-confined nanocrystals as building blocks for next-generation photovoltaics <u>T. Hanrath</u> , J. Choi, K. Bian, Y.F. Lim, Cornell University, Ithaca, NY/USA
11:30 - 11:50	Preparation of silicon granules with tight size distribution - two novel low cost high throughput processes for the silicon industry <u>T. Brandau</u> , E. Brandau, BRACE GmbH, Alzenau/D
11:50 - 12:10	Nanostructured antireflectance coatings and their application to solar cells <u>J. Moghal</u> , University of Oxford/UK; G. Wakefield, M. Gardener, Oxford Advanced Surfaces/UK; A.A.R. Watt, University of Oxford/UK
12:10 - 12:30	Transparent conductors based on plasmonic nanocomposites <u>M. Elbahri</u> , GKSS-Forschungszentrum Geesthacht GmbH and University of Kiel/D; V.S.K. Chakravadhanula, M. Keshavarz Hedayati, V. Zaporotchenko, F. Faupel, University of Kiel/D
12:30 - 12:50	New inorganic thin film solar cells: surface properties needed for n-i-p devices <u>A. Fuchs</u> , A. Klein, W. Jaegermann, Darmstadt University of Technology/D
12:50	<i>Lunch Break</i>
14:00 - 14:40	Keynote Lecture Combinatorial development of amorphous mixed metal oxide transparent conductors for photovoltaics <u>J.D. Perkins</u> , T. Gennett, J.E. Leisch, P.A. Parilla, M.F.A.M. van Hest, J.J. Berry, L.M. Gedvilas, V. Bollinger, D.S. Ginley, National Renewable Energy Laboratory, Golden, CO/USA
14:40 - 15:00	Large-area, low-temperature deposition of chalcopyrite absorbers for thin film solar cells by reactive magnetron sputtering K. Ellmer, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH/D
15:00 - 15:20	CZTS monograin membranes <u>D. Meissner</u> , M. Altosaar, J. Krustok, E. Mellikov, Tallinn University of Technology/EST
15:20 - 15:40	Photoelectrochemical solar energy conversion and hydrogen production by oxide semiconductor heterojunction electrodes Z.G. Zou, Nanjing University/PRC
15:40 - 16:00	CdTe thin film solar cells: optimization of material, morphology and device preparation <u>J. Schaffner</u> , A. Barati, V. Krishnakumar, G. Fu, H.-J. Schimper, G. Haindl, A. Swirschuk, E. Gunnesch, A. Schneikart, A. Tüschen, A. Klein, W. Jaegermann, Darmstadt University of Technology/D
16:00	<i>Farewell</i>

THERMOELECTRICS: FROM HIGHLY EFFICIENT STRUCTURES TO HIGH-TEMPERATURE GENERATORS

Thursday, July 8, 2010

Chairs : J. Nurnus, Micropelt GmbH, Freiburg/D & M.-C. Record, University of Aix-Marseille/F

09:00 - 09:40	Keynote Lecture Practical considerations for thermoelectric power generation using IV-VI compounds Y. Gelbstein, Ben-Gurion University of the Negev, Beer-Sheva/IL
09:40 - 10:00	Simultaneous measurements of Seebeck coefficient and thermal conductivity from 4K to 400K <u>M. Bardoux</u> , X. Kleber, P. Chantrenne, CNRS - INSA de Lyon, Villeurbanne/F
10:00 - 10:20	Palladium sulfide (PdS) films a a new thermoelectric sulfide compound <u>J.R. Ares</u> , P. Díaz-Chao, J. Clamagirand, M.D. Maciá, I.J. Ferrer, C. Sánchez, Universidad Autonoma de Madrid/E
10:20 - 10:40	Thermoelectrics for high temperatures - a survey about state of the art H. Böttner, Fhl for Physical Measurement Techniques, Freiburg/D

MATERIALS FOR ENERGY STORAGE

Chair: R. Tamme, German Aerospace Center, Stuttgart/D

11:10 - 11:30	High-performance latent heat storage by means of cellular metals and composites <u>J. Meinert</u> , O. Andersen, P. Quadbeck, J. Schmidt, Fraunhofer-Institute for Manufacturing and Advanced Materials, Dresden/D
11:30 - 11:50	Synthesis of nanoporous polyurethane beyond supercritical drying of aerogels <u>A. Chalbi</u> , E. Khazova, V. Posselt, T. Sottmann, R. Strey, University of Cologne/D; W. Friederichs, S. Lindner, Bayer MaterialScience AG, Leverkusen/D
11:50 - 12:10	Latent heat storage media for cold storage and distribution applications <u>L. Huang</u> , C. Pollerberg, C. Doetsch, Fhl for Environmental, Safety, and Energy Technology UMSICHT, Oberhausen/D
12:10 - 12:30	Combined sensible and latent heat storage with binary anhydrous salt mixtures with melting temperatures in the range 300 to 500 °C <u>T. Bauer</u> , C. Muehlhausen, D. Laing, R. Tamme, German Aerospace Center (DLR), Stuttgart/D
12:30 - 12:50	Tailored zeolite coatings for improved heat transformation <u>R. Herrmann</u> , J. Bauer, SorTech AG, Halle/D; J. Ofili, W. Schwieger, University Erlangen-Nuremberg/D
12:50	<i>Lunch Break</i>

Chairs: B. Baretzky, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D & D. Shchukin, MPI for Colloidal Research, Golm/D

14:00 - 14:40	Keynote Lecture Nanoparticle barium titanate composite capacitors for high energy and power density applications <u>T.C. Monson</u> , D.L. Huber, C.B. Diantonio, M.R. Winter, T.P. Chavez, T.E. Stevens, B.D. Fellows, E.J. Cooley, J.L. Leger, A.W. Roesler, Sandia National Laboratory, Albuquerque, NM/USA
14:40 - 15:00	High temperature superconductors for power applications U. Klein, Bruker ASC GmbH, Bergisch Gladbach/D
15:00 - 15:20	Hydrothermal treatment of sorption materials - implications on adsorption heat pumps S.K. Henninger, Fraunhofer ISE, Freiburg/D; <u>G. Munz</u> , PSE AG, Freiburg/D; S. Müller, K.-F. Ratzsch, P. Schossig, H.-M. Henning, Fraunhofer ISE, Freiburg/D
15:20 - 15:40	Polymer coating as a novel approach for energy storage T. Borodina, <u>D. Shchukin</u> , MPI of Colloids and Interfaces, Golm/D
15:40 - 16:00	Nanoscale hollow spheres: container-functionalities, gas sorption, sensor applications and catalysis H. Gröger, F. Gyger, C. Kind, P. Leidinger, C. Zurmühl, <u>C. Feldmann</u> , Karlsruhe Institute of Technology (KIT)/D

ELECTROCHEMICAL ENERGY STORAGE: BATTERIES AND SUPERCAPACITORS

Thursday, July 8, 2010

Chairs: K.-C. Möller, Fraunhofer ISC, Würzburg/D & M. Winter, University of Münster/D

09:00 - 09:20	Imaging ionic species in block copolymer electrolytes for solid state battery applications <u>F.I. Allen</u> , Lawrence Berkeley National Laboratory and University of California, CA/USA; M. Watanabe, Lehigh University, Bethlehem, PA/USA; N.P. Balsara, A.M. Minor, Lawrence Berkeley National Laboratory and University of California, CA/USA
09:20 - 09:40	Magnetron sputtered thin film solid state electrolytes in the materials system Li-V-Si-O with increased ionic conductivity <u>C. Ziebert</u> , A. Knorr, S. Ulrich, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; D. Gerthsen, Karlsruhe Institute of Technology (KIT)/D
09:40 - 10:00	Interface investigations on all solid state thin film batteries S. Jacke, J. Song, G. Cherkashinin, <u>W. Jaegermann</u> , Technical University Darmstadt/D
10:00 - 10:20	Polyol synthesis of lithium titanium phosphate nanoparticles for Li-ion-conductive solid electrolyte M. Singh, <u>S. Bouazza</u> , M. Willert-Porada, University of Bayreuth/D
10:20 - 10:40	Novel electrolytes for batteries and supercapacitors T.F. Beyersdorff, IoLiTec Ionic Liquids Technologies GmbH, Denzlingen/D; M. Taige, <u>T.J.S. Schubert</u> , IoLiTec Ionic Liquids Technologies GmbH, Heilbronn/D
10:40	<i>Coffee Break</i>
11:10 - 11:50	Keynote Lecture Electrolytes for lithium batteries <u>J. Tübke</u> , C. Hupbauer, FhI for Chemical Technology ICT, Pfinztal/D
11:50 - 12:10	TiO₂ rutile nanowhiskers as negative electrode for Li-ion batteries M. Pfanzelt, P. Kubiak, ZSW-Center for Solar Energy and Hydrogen Research, Ulm/D; T. Fröschl, J. Geserick, <u>N. Hüsing</u> , Ulm University/D; M. Wohlfahrt-Mehrens, ZSW-Center for Solar Energy and Hydrogen Research, Ulm/D
12:10 - 12:30	Nanostructured metal and metal oxides for anodes of Li-ion rechargeable batteries <u>M. Au</u> , T. Adams, S. McWhorter, H. Ajo, Savannah River National Laboratory, Aiken, SC/USA; J. Gibbs, Y. Zhao, University of Georgia, Athens, GA/USA
12:30 - 12:50	Microscopic investigations of electrode materials for use in lithium-ion batteries <u>R. Moenig</u> , D. Chen, A. Sedlmayr, M. Kamlah, O. Kraft, Karlsruhe Institute of Technology (KIT)/D
12:50	<i>Lunch Break</i>
14:00 - 14:20	Insights into Li ion batteries using <i>in-situ</i> neutron powder diffraction <u>N. Sharma</u> , V.K. Peterson, M.M. Elcombe, M. Avdeev, A.J. Studer, Australian Nuclear Science and Technology Organisation (ANSTO), Menai/AUS; N. Kamarulzaman, Universiti Teknologi MARA, Selangor/MAL
14:20 - 14:40	Carbon encapsulated-Fe LiF nanocomposite as stable electrode material <u>R. Prakash</u> , M. Fichtner, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D
14:40 - 15:00	Mesosopic modeling and simulation of charge and ion transport in Li-ion battery cells <u>A. Latz</u> , J. Zausch, O. Iliev, Fraunhofer ITWM, Kaiserslautern/D
15:00 - 15:20	Studies on LiFePO₄ as cathode materials in lithium-ion-batteries <u>T. Chrobak</u> , M. Ender, J. Illig, J.P. Schmidt, D. Klotz, E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT)/D
15:20 - 15:40	Electrochemical and thermal modeling for state-of-charge diagnostics of LiFePO₄-based cells <u>W.G. Bessler</u> , C. Hellwig, German Aerospace Center (DLR), Stuttgart/D
15:40 - 16:00	Physical modeling of carbon nanotube ultracapacitor <u>A. Orphanou</u> , T. Yamada, C. Yang, Santa Clara University, CA/USA
16:00 - 17:00	<i>Farewell</i>

CATALYSTS FOR SUSTAINABLE ENERGY APPLICATIONS

Thursday, July 8, 2010

Chairs: J.A. Lercher, TU München, Garching/D & J. Ye, National Institute for Materials Science (NIMS), Tsukuba/J

09:00 - 09:20	Electrooxidation of H₂/CO on carbon-supported PtRuMo nanoparticles for polymer electrolyte fuel cells N. Tsiouvaras, Spanish National Research Council (CSIC), Madrid/E; F. Alcaide, G. Álvarez, CIDETEC- IK4, San Sebastian/E; M.A. Peña, J.L.G. Fierro, <u>M.V. Martínez-Huerta</u> , Spanish National Research Council (CSIC), Madrid/E
09:20 - 09:40	Catalytic slurry hydrocracking of heavy oil <u>A. Bhattacharyya</u> , B.J. Mezza, M.L. Bricker, L.J. Bauer, D.B. Gillis, UOP Honeywell, Des Plaines, IL/USA
09:40 - 10:00	Preparation of alumina-supported copper-zinc oxide catalyst by liquid-phase reduction method and development of small hydrogen generator <u>N. Yagihashi</u> , M. Nakaya, A. Muramatsu, Tohoku University, Sendai/J
10:00 - 10:40	Keynote Lecture Molecular and nanosized catalysts for the conversion of renewables into energy and chemicals C. Bianchini, Istituto di Chimica dei Composti Organometallici (ICCOM-CNR), Sesto Fiorentino/I
10:40 - 11:10	<i>Coffee Break</i>

MATERIALS RESEARCH FOR SOLID-STATE LIGHTING

Thursday, July 8, 2010

Charis: E. Keßenich, BASF Future Business GmbH, Ludwigshafen/D &
J. Phillips, Sandia National Laboratories, Albuquerque, NM/USA

11:10 - 11:50	Keynote Lecture Transparent OLEDs W. Kowalsky, TU Braunschweig/D
11:50 - 12:10	Field-induced charge carrier separation in stacked OLEDs <u>M. Kröger</u> , Innovation Lab GmbH, Heidelberg/D; J. Meyer, Princeton University, NJ/USA and TU Braunschweig/D; S. Hamwi, TU Braunschweig/D; F. Gnam, Innovation Lab GmbH, Heidelberg/D; T. Riedl, H.-H. Johannes, TU Braunschweig/D; A. Kahn, Princeton University, NJ/USA; W. Kowalsky, TU Braunschweig/D
12:10 - 12:30	Charge transport in amorphous films of Alq₃ <u>A. Fuchs</u> , C. Lennartz, InnovationLab GmbH, Heidelberg and BASF SE, Ludwigshafen/D; A. Lukyanov, D. Andrienko, MPI for Polymer Research, Mainz/D
12:30 - 12:50	Light where it should be - application tailored beam-shaping of organic light-emitting diodes <u>D.S. Setz</u> , B.C. Krummacher, K. Heuser, Osram Opto Semiconductors GmbH, Regensburg/D; A. Winnacker, University of Erlangen-Nuremberg/D
12:50 - 14:00	Lunch
14:00 - 14:40	Keynote Lecture Green LEDs for color mixing white light using lattice-mismatched GaInP alloys A.J. Mascarenhas, National Renewable Energy Laboratory, Golden, CO/USA
14:40 - 15:00	III-nitride nanowires: novel materials for solid-state lighting <u>G.T. Wang</u> , Q. Li, J. Huang, Sandia National Laboratories, Albuquerque, NM/USA; A.A. Talin, Sandia National Laboratories, Livermore, CA/USA; Y. Lin, Sandia National Laboratories, Albuquerque, NM/USA; I. Arslan, Sandia National Laboratories, Livermore, CA/USA; A. Armstrong, Sandia National Laboratories, Albuquerque, NM/USA; P.C. Upadhyaya, R.P. Prasankumar, Los Alamos National Laboratory, NM/USA
15:00 - 15:20	Materials issues with GaN-based blue-green light emitters A. Hangleiter, H. Jönen, A.D. Dräger, T. Langer, H. Bremers, <u>U. Rossow</u> , TU Braunschweig/D
15:20 - 15:40	Tuning of luminescence in Ln-N-MOFs with the toolbox of rare earth cations and N-donor ligands J.-C. Rybak, A. Zurawski, C.J. Höller, <u>K. Müller-Buschbaum</u> , University of Munich/D
15:40 - 16:00	Photoluminescent nanoparticle surfaces A. Sternig, M. Müller, S. Stankic, E. Knözinger, J. Bernardi, Vienna University of Technology/A; <u>O. Diwald</u> , University of Erlangen-Nuremberg/D
16:00 - 17:00	<i>Farewell</i>