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VDI

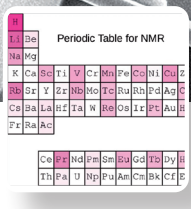
PROGRAMME AND LIST OF PARTICIPANTS

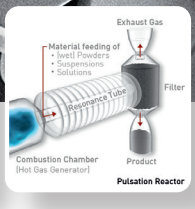
20 – 21 February 2020
DECHEMA-House · Frankfurt am Main · Germany

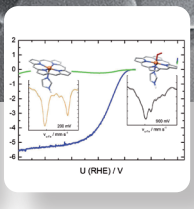
29th ATC
Industrial Inorganic Chemistry – Materials and Processes

www.processnet.org/en/29_atc

Poster Award







PROCESSNET
EINE INITIATIVE VON DECHEMA UND VDI-GVC

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The programme has been arranged by the Working Group “Applied Inorganic Chemistry” of ProcessNet:

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Wilfried Müller	Umicore AG & Co. KG, Hanau/D
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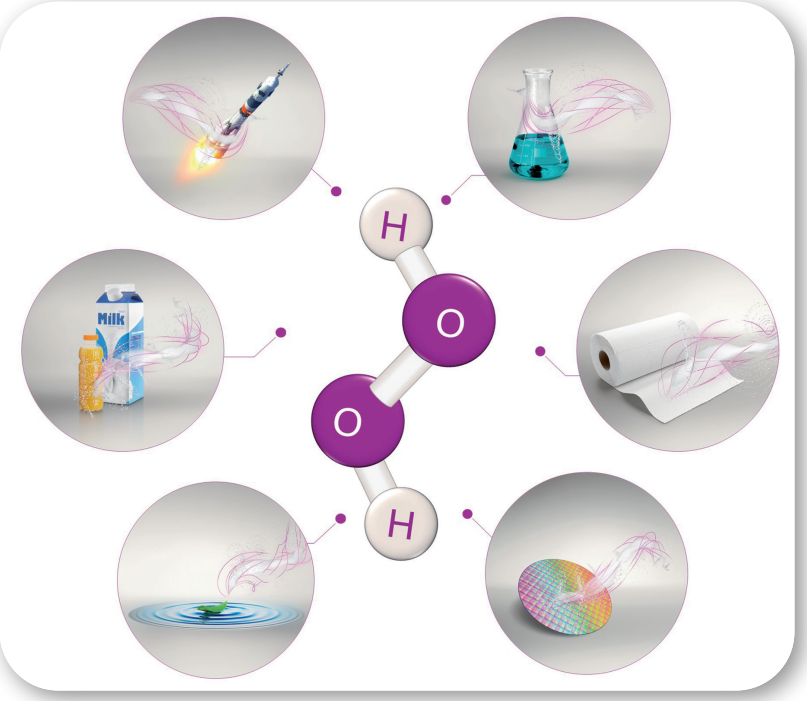
Coverpage pictures source: Main: Carsten Plüg, Merck KGaA, Darmstadt/D; Small from left to right: J. Schmedt auf der Günne, Universität Siegen/D; C. Klaus, IBU-tec advanced materials AG, Weimar/D; Ulrike Kramm, TU Darmstadt/D; Heraeus Additive Manufacturing GmbH, Hanau/D

CONTENTS

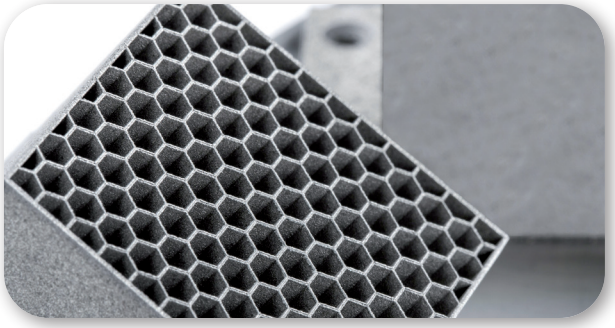


Picture source: J. Glenneberg, Evonik Resource Efficiency GmbH, Hanau/D

Thursday, 20 February 2020

09:00	Registration
10:00	**Welcome address** G. Sextl, Fraunhofer ISC, Würzburg/D
	SOL-GEL-CHEMISTRY I
	Chair: S. Kaskel, TU Dresden/D
10:10	PLENARY LECTURE **Sol-gel derived functional and porous architectures** N. Hüsing[1]; [1] Paris Lodron University Salzburg/A
10:55	**Novel developments of effect pigments by aqueous sol-gel-processes** C. Plüg[1], C. Handrosch[1]; [1] Merck KGaA, Darmstadt/D
11:25	Coffee break and poster viewing
	SOL-GEL-CHEMISTRY I
	Chair: N. Hüsing, Paris Lodron University Salzburg/A
11:45	**Silica-based aerogels and their applications in the field of thermal and acoustic insulation** B. Milow[1]; [1] German Aerospace Center (DLR), Cologne/D
12:15	**Nanoparticle synthesis via nonaqueous sol-gel chemistry: recent insights and trends** G. Garnweitner[1]; [1] Technische Universität Braunschweig/D
12:35	**A low temperature wet-chemistry toolbox for the green and up-scalable synthesis of inorganic nanostructures for catalysis** S. Gross[1]; F. Spolaore[1]; N. Dengo[1]; S. Diodati[1]; F. Tajoli[1]; [1] University of Padova/I
12:55	Lunch break and poster viewing

45/60 min. 30 min. 20 min.



Picture source: A. Elsen, Heraeus Additive Manufacturing GmbH, Hanau/D

Thursday, 20 February 2020

	ADVANCED CHARACTERISATION METHODS
	Chairs: B. Albert, TU Darmstadt/D; M. Fröba, Universität Hamburg/D
14:00	**Disorder, defects and dynamics in functional materials by NMR** J. Schmedt auf der Günne[1]; [1] Universität Siegen/D
14:30	**In-situ Mössbauer spectroscopy for the active site identification in non-precious metal catalysts for fuel cells** L. Ni[1]; C. Gallenkamp[1]; M. Kuebler[1]; P. Theis[1]; D. Wallace[1]; V. Krewald[1]; U. Kramm[1]; [1] TU Darmstadt/D
15:00	Coffee break and poster viewing
	INDUSTRIAL INORGANIC CHEMISTRY I
	Chairs: S. Kaskel, TU Dresden/D; F. Menzel, Evonik Industries AG, Hanau/D
15:20	**Ligand control on aluminum(III) and silicon(IV) – pushing the abundant elements away from their thermodynamic sink** L. Greb[1]; [1] Universität Heidelberg/D
15:50	**Particle synthesis and thermal treatment in the pulsation reactor** C. Klaus[1]; M. Ommer[1]; [1] IBU-tec advanced materials AG, Weimar/D
16:20	**Material and process development for additive manufacturing of metals** A. Elsen[1]; [1] Heraeus Additive Manufacturing GmbH, Hanau/D
16:50	Coffee break and poster viewing
17:10	**Aerospace applications and challenges in the industrialisation of metal powder bed fusion** W. Alm[1]; C. Heine[1]; Airbus Operations GmbH, Hamburg/D
	SPECIAL LECTURE
	Chair: G. Sextl, Fraunhofer ISC, Würzburg/D
17:40	**Classification of titanium dioxide – the white elephant** ***A costly but pointless exercise*** H. Liewald[1]; [1] German Association of Producers of Pigments and Fillers (VDMI), Frankfurt am Main/D
18:10	**Poster party**
20:30	End of the first day

Friday, 21 February 2020

SOL-GEL-CHEMISTRY II

Chairs: P. Kirsch, Merck KGaA, Darmstadt/D; W. Müller, Umicore AG & Co. KG, Hanau/D

09:00 TANDEM LECTURE
Sol-Gel derived siloxane polymers as encapsulation materials for rare earth reduced high power LEDs
G. Kickelbick[1]; K. Schmidtke[2]; [1] Universität des Saarlandes, Saarbrücken/D; [2] OSRAM Opto Semiconductors GmbH, Regensburg/D

10:00 **Supraparticles: new functionalities from building complex entities using colloidal building blocks**
K. Mandel[1]; [1] Fraunhofer ISC, Würzburg/D

10:20 **LUDOX® colloidal silica**
A. Lazaro[1]; A. Fines[2]; [1] W. R. Grace, Worms/D; [2] W. R. Grace, Columbia, MD/USA

10:40 **Poster prize award**

10:55 Coffee break and poster viewing

INDUSTRIAL INORGANIC CHEMISTRY II

Chairs: G. Sextl, Fraunhofer ISC, Würzburg/D; K. Schierle-Arndt, BASF SE, Ludwigshafen/D

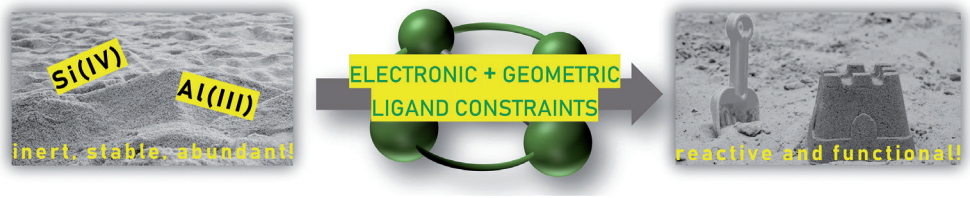
11:30 **Hydrogen peroxide – old molecule but future applications**
J. Glenneberg[1]; [1] Evonik Resource Efficiency GmbH, Hanau-Wolfgang/D

12:00 **Industrial sulphur chemistry: HydroBlue®90 – a 115 year old product revives**
S. Weiguny[1]; [1] BASF SE, Ludwigshafen/D

12:30 **Hyperpure polysilicon as basis for the semiconductor and solar industry**
K. Hesse[1]; [1] Wacker Chemie AG, Burghausen/D

13:00 **Closing remarks**
G. Sextl, Fraunhofer ISC, Würzburg/D

13:10 End of the programme
Possibility to have lunch at DECHEMA at own costs



Picture source: L. Greb, Universität Heidelberg/D

P01 **Metathesis of digermenes**
L. Klemmer[1]; M. Zimmer[1]; H. Volker[1]; D. Scheschkewitz[1]; [1] Saarland University, Saarbrücken/D

P02 **Luminescent diboranes(4)**
Y. Kaiser[1]; A. Grandjean[1]; V. Huch[1]; G. Jung[1]; D. Scheschkewitz[1]; [1] Saarland University, Saarbrücken/D

P03 **Boron and phosphorus containing heterosiliconoids: stable p- and n-doped unsaturated silicon clusters**
Y. Heider[1]; P. Willmes[1]; V. Huch[1]; M. Zimmer[1]; D. Scheschkewitz[1]; [1] Saarland University, Saarbrücken/D

P04 **Fabrication of highly ordered conductive ITO inverse opal thin films for optoelectronic applications.**
L. Galle[1]; S. Ehrling[1]; S. Kaskel[1]; J. Grothe[1]; [1] Technische Universität Dresden/D

P05 **Nanoparticle vs. nanoparticle-derived mesoporous Ceria-Zirconia structures as model catalysts in the HCl oxidation**
P. Cop[1]; R. Maile[1]; Y. Sun[2]; B. Smarsly[1]; H. Over[1]; [1] Justus-Liebig Universität Giessen/D; [2] East China University of Science and Technology, Shanghai/PRC

P06 **3D-printing of carbon precursors for all-solid-state micro-supercapacitors**
Y. Bräuniger[1]; S. Lochmann[1]; J. Grothe[1]; S. Kaskel[1]; [1] Technische Universität Dresden/D

P07 **Coated Wireless Light Emitters for photocatalytic formation of hydrogen peroxide**
H. Duong[1]; D. Wegstein[1]; B. Burek[1]; D. Bahnemann[2]; J. Bloh[1];[1] DECHEMA-Forschungsinstitut, Frankfurt/D; [2] Leibniz Universität Hannover/D

P08 **Carbon electrodes for all-solid-state micro-supercapacitors**
S. Lochmann[1]; S. Kaskel[1]; J. Grothe[1]; [1] Technische Universität Dresden/D

P09 **Continuous wet chemical synthesis of molybdenum carbide and hydroxyapatite in the microjet reactor**
M. Abdirahman Mohamed[1]; G. Kickelbick[1]; [1] Saarland University, Saarbrücken/D

P10 **Novel alkoxysilanes as precursors for high refractive index polysiloxanes**
M. Briesenick[1]; D. Meier[1]; G. Kickelbick[1]; [1] Saarland University, Saarbrücken/D

P11 **Influence of the pH-value on the properties of ORMOCER® coatings**
S. Haller[1]; K. Emmert[1]; S. Amberg-Schwab[1]; P. Wenderoth[1]; G. Sextl[1];
[1] Fraunhofer Institute for Silicate Research ISC, Würzburg/D

P12 **Sustainable low-temperature hydrothermal synthesis of ternary and quaternary transition metal ferrites**
M. Franca[1]; S. Diodati[1]; M. Zscherp[2]; M. Bastianello[2]; S. Gross[1];
[1] University of Padova/I; [2] Justus-Liebig-University Giessen/D

P13 **Surfactant-free and green microfluidic synthesis of very small zinc sulfide nanoparticles for optical bioimaging applications**
F. Tajoli[1]; N. Dengo[1]; A. Faresin[1]; M. Mognato[2]; G. Lucchini[3]; T. Carofiglio[1]; M. Maggini[1]; A. Speghini[3]; S. Gross[1]; [1] Dept. of Chemical Sciences, University of Padova/I; [2] Dept. of Biology, University of Padova/I; [3] Dept. of Biotechnology, University of Verona/I

P14 **Additive manufacturing and hydrodynamic characteristics of 3D structured porous monoliths**
S. Hock[1]; M. Rose[1]; [1] TU Darmstadt, Ernst-Berl-Institute/D

P15 **Single-source precursors for FeGe-phases in chemical vapor deposition**
T. Büttner[1]; C. Präsang[1]; D. Scheschkewitz[1]; [1] Saarland University, Saarbrücken/D

P16 **Assessing bimodal size distributions at the nanoscale: issues and solutions in colloidal systems**
F. Spolaore[1]; C. Hengst[2]; F. Dornhaus[2]; S. Gross[1]; [1] University of Padova/I; [2] Umicore AG & Co. KG, Hanau/D

P17 **Flame made high surface mixed oxide catalysts for gas phase oxidations**
F. Spranger[1]; J. Grothe[1]; S. Kaskel[1]; [1] Technische Universität Dresden/D

P18 **Tunable synthesis of mesoporous N-doped carbon (MPNC): a key factor for enhanced electrochemical stability of Pt/MPNC oxygen reduction reaction catalysts**
S. Küspert[1]; J. Melke[1]; A. Fischer[2]; [1] University of Freiburg; Freiburg Materials and Research Center/D; [2] University of Freiburg; Freiburg Materials and Research Center; Freiburg Center for Interactive Materials and Bioinspired Technologies/D

P19 **Heterogeneous zirconium oxocluster-based hybrid catalysts: a composition-catalytic activity and stability correlation study**
G. Bragaggia[1]; F. Bassato[1]; M. Carraro[1]; S. Gross[1]; [1] University of Padua/I

P20 **Improving the activity of ORR/OER bifunctional catalyst materials obtained from a hard template process by examination of different synthesis conditions**
A. Schierz[1]; S. Zailskas[1]; M. Schulz[1]; P. Behrens[1]; [1] Leibniz Universität Hannover/D

P21 **Hydrogen production from formic acid catalyzed by homogeneous iridium complexes**
Y. Himeda[1]; [1] National Institute of Advanced Industrial Science and Technology, Tsukuba/J

P22 **Iridium complexes for continuous high-pressure H_2 and CO_2 production and separation process**
H. Kawanami[1]; M. Iguchi[1]; Y. Himeda[2]; [1] National Institute of Advanced Industrial Science and Technology (AIST), Sendai, Miyagi/J; [2] National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki/J

P23 **Novel sol-gel approaches towards highly porous α-Al_2O_3**
S. Carstens[1]; D. Enke[1]; [1] Universität Leipzig/D

P24 **TiO_2 for photocatalytic oxidation**
M. Stötzer[1]; S. Kintzel[1]; J. Grothe[1]; S. Kaskel[1]; [1] TU Dresden/D

POSTER PROGRAMME

P25 **Hierarchically porous (organo-) silica species as supporting materials for selective oxidation Ti-based catalysts**
P. Funnemann[1]; A. Hoppe[2]; D. Enke[2]; M. Fröba[1]; [1] University of Hamburg/D; [2] University of Leipzig/D

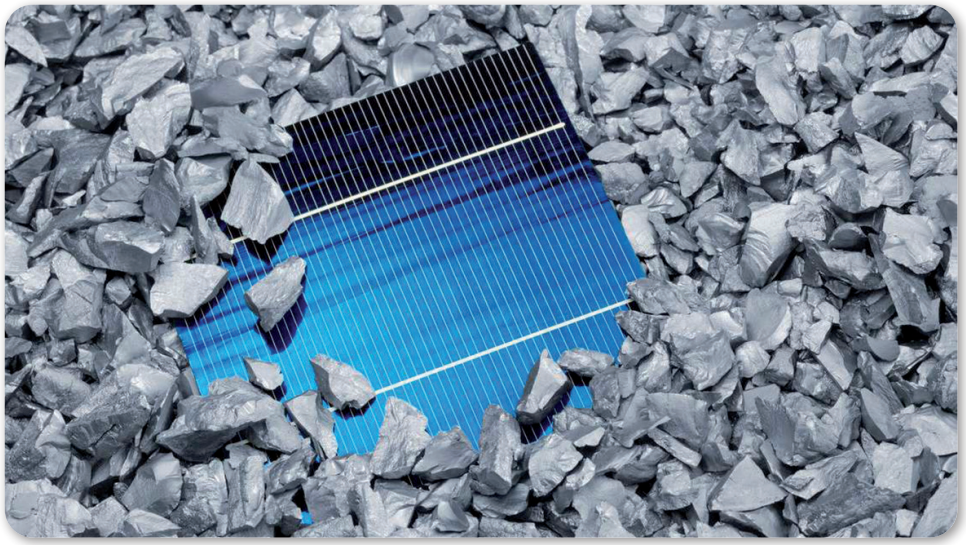
P26 **Grafting of transition metals to siliconoids: side chain attachment vs. core expansion**
N. Poitiers[1]; D. Scheschkewitz[1]; [1] Saarland University, Saarbrücken/D

P27 **Shape-stabilized phase change materials synthesized via combination of hard/soft templates in an in situ sol-gel process**
F. Marske[1]; D. Enke[2]; T. Hahn[1]; [1] Martin-Luther-Universität Halle-Wittenberg, Halle/D; [2] Universität Leipzig/D

P28 **Reactive Ge=Si double bond responsible for a intramolecular [2+4] cycloaddtion of a phenyl ring**
T. Kunz[1]; C. Schrenk[1]; A. Schnepf[1]; [1] Eberhard Karls Universität Tübingen/D

P29 **$GeClMCp(CO)_3]_4$ (M= Cr, Mo, W): a series of transition metal substituted four-membered cyclogermanes**
L. Preissing[1]; C. Schrenk[1]; A. Schnepf[1]; [1] Eberhard Karls Universität Tübingen/D

P30 **Is the degradation of FeNC catalysts in proton exchange fuel cells caused by hydrogen peroxide formation?**
V. Gridin[1]; T. Harnstein[1]; M. Kuebler[1]; L. Ni[1]; U. Kramm[1]; [1] Darmstadt University of Technology/D



Picture source: K. Hesse, Wacker Chemie AG, Burghausen/D

P31 **Molecular level modeling of sol-gel process: understanding the kinetics and porosity development**
A. Malani[1]; [1] Indian Institute of Technology Bombay, Mumbai/IND

P32 **Ultrasound synthesis of graphene oxide nanosheets in various temperature and its morphological and optical properties**
A. Meidanchi[1]; M. Ehyaei[1]; N. Khansari[2]; [1] Payame Noor Universituy, Tehran/IR; [2] Hamadan University of Medical Sciences, Hamadan/IR

P33 **Development of bismuth based luminescent complexes with soft donor ligands**
M. Imran[1]; [1] University of the Punjab, Lahore/PK

P34 **Decoration of bismuth molybdate for luminescence, dielectric and catalytic efficiency**
M. Imran[1]; [1] University of the Punjab, Lahore/PK

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