DECHEMA

VDI

PROGRAMME

13 – 15 March 2019
congress centrum neue weimarhalle

# 52. Jahrestreffen Deutscher Katalytiker

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GECATS GERMAN CATALYSIS SOCIETY

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## INVITATION

**Welcome to Weimar for the 52nd German Catalysis Meeting (Jahrestreffen Deutscher Katalytiker)!**

What started as a small meeting of individual researchers in East Germany, who discussed catalytic results and commenced initial collaborations with industry, has become one of the most important European events in catalysis. More than 500 experts from universities, research institutes and industry meet annually in the beautiful and historically important town of Weimar to exchange their ideas and share new developments and the latest results in all areas of catalysis.

Renowned plenary speakers from academia and industry have been invited, setting additional highlights in the excellent scientific programme of the conference. We are very happy to welcome again a huge number of young scientists who are taking the opportunity to gain experience in presenting their scientific results and discussing these with their academic peers. Last but not least a large industrial and poster exhibition, the YounGeCatS start up session and several poster workshops will accompany the scientific lecture programme.

We also look forward to meeting you at the GeCatS party at a relaxed atmosphere with the award ceremonies, good catering and great music.

Welcome to Weimar!

Matthias Beller
Chairman


### ORGANISER

DECHEMA
Gesellschaft für Chemische Technik
und Biotechnologie e.V.
Theodor-Heuss-Allee 25
60486 Frankfurt
Germany

### CONTACT

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As of 28 February 2019, subject to alterations. Submission title and authors information as given by the submitter. No proof by DECHEMA.

# GENERAL INFORMATION

## VENUE

congress centrum neue weimarhalle
UNESCO-Platz 1
99423 Weimar
www.weimarhalle.de

## CONFERENCE OFFICE

Barbara Feisst
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E-mail: barbara.feisst@dechema.de

## OFFICE HOURS

| | |
|---|---|
| Wednesday, 13 March 2019 | 10:00 h – 18:00 h |
| Thursday, 14 March 2019 | 08:30 h – 19:00 h |
| Friday, 15 March 2019 | 09:00 h – 12:30 h |

## INTERNET ACCESS

W-LAN access throughout the congress venue is available and free of charge. As the W-LAN access can be used by all visitors, a loss of efficiency is possible. The wireless network is available on the ground floor exhibition.

Network: **Dechema2019**
Password: **52KAT2019**

## PHOTOGRAPHY

The use of cameras, video cameras, and cell phone photography is prohibited during programme sessions or in the poster exhibition.

## NAME BADGES

All participants are kindly requested to wear their name badges throughout the conference. In case you lost your badge, a new one will be available at the conference office.

## SMOKING

Smoking is prohibited inside the venue. You are kindly requested to smoke outside the building where ashtrays are available for your convenience.

## TAXI

In case you need a taxi, the conference office will be glad to assist you.



# PLENARY LECTURES / COMMITTEE

## PLENARY LECTURES

**Selectivity Control in C–H Activation**
Lutz Ackermann, University of Göttingen/D

**Frontiers in Olefin Metathesis**
Deryn Fogg, University of Ottawa/CDN

**Tracking the active center in single site and supported metal catalysts**
Jan-Dierk Grunwaldt, Karlsruhe Institute of Technology (KIT)/D

**Industrial Catalysis Research and Development: much more than just a recipe...**
Gerhard Mestl, Clariant AG, Bruckmühl/D

## SCIENTIFIC COMMITTEE

| | |
|---|---|
| **Malte Behrens** | Universität Duisburg-Essen |
| **Matthias Beller** | Leibniz-Institut für Katalyse e.V., Rostock (Chairman) |
| **Dana Demtröder** | DECHEMA e.V., Frankfurt am Main |
| **Richard Walter Fischer** | Clariant Produkte (Deutschland) GmbH, Bruckmühl , TU München |
| **Frank Glorius** | Westfälische Wilhelms-Universität Münster |
| **Udo Kragl** | Universität Rostock |
| **Johannes A. Lercher** | TU München |
| **Stefan Mecking** | Universität Konstanz |
| **Martin Muhler** | Ruhr-Universität Bochum |
| **Regina Palkovits** | RWTH Aachen |
| **Frank Rosowski** | Technische Universität Berlin BasCat UniCat BASF JointLab |
| **Nicole J. Schödel** | Linde AG, Pullach |
| **Thomas Tacke** | Evonik Resource Efficiency GmbH, Hanau |
| **Peter Wasserscheid** | Universität Erlangen-Nürnberg |

**WEDNESDAY, 13 MARCH 2019** **18:30 – 20:30**

**Posterparty A**

Learn about the latest scientific results, discuss them with the poster authors or enjoy the exchange with friends and colleagues with a glass of cooled beer.

**The authors are requested to be present at their poster(s) for discussion during the poster party.**

**THURSDAY, 14 MARCH 2019** **12:30 – 14:30**

**Posterparty B**

Discuss with poster authors and enjoy the exchange with friends and colleagues.
An original Thuringian grilled sausage or a vegetarian snack will be served.

**The authors are requested to be present at their poster(s) for discussion during the poster party.**

**THURSDAY, 14 MARCH 2019** **19:30 – 24:00**

**GeCatS Party**

Don't miss the GeCatS Party on Thursday evening, 14 March 2019.

Live cooking buffet, glamorous award ceremony, welcome the new band "Groovin Affairs" and shake your leg on the dance floor.

As capacity is limited, please order early to avoid disappointments!
Ticket: 39 € incl. Buffet and 2 Drinks


© Affairs

## POSTER PRIZES

The eight best posters will be selected for a poster prize. These prizes will be awarded during the GeCatS party.

## AWARD OF THE "ROTE LÖWEN"

These traditional awards will be presented at the GeCatS party.





**THURSDAY, 14 MARCH 2019** **17:15 – 19:15**

**"Start Ups in Catalysis"** Seminarraum 1+2

organised by YOUNGECATS GERMAN CATALYSIS SOCIETY

## PROGRAMME

This year's YounGeCatS career programme focus on ways to establish your own business. For this, we invited three lecturer who went different ways to found their companies. All three will share with us their experiences.
**Stefan Chang,** founder of Hygenator, created a system that cleans with radiation. He will give us insights on the challenges of early stage start-ups and tells us how he was able to create a start-up during his PhD-studies.
A different form of business foundation chose **Thorsten Hornung**, who created Susteen as a spin-off from UMSICHT. His company developed a process for a more efficient utilisation of biomass waste. He will tell us what is important to bridge the transition from a pure research facility towards the "real" business world.
Our third speaker **Daniel Teichmann,** CEO Hydrogenious, will give us insights on how to stay successful after the first years elapsed. Their process is capable of storing hydrogen in a clean and safe way. Overall, we will learn from their experiences how to set the first steps up to ways to stays successful.

## POSTERWORKSHOPS

Organised by the members of YOUNGECATS GERMAN CATALYSIS SOCIETY

**WEDNESDAY, 13 MARCH 2019** **17:30 – 18:30**

| | | |
|---|---|---|
| Posterworkshop 1 | $CO_2$ Activation and Utilization | Seminarhaus |
| Posterworkshop 2 | Chemicals from Biomass | |
| Posterworkshop 3 | Alternative stimuli: Light and Electrons | |
| Posterworkshop 4 | Mechanistic understanding – In-Situ Characterization | |
| Posterworkshop 5 | Zeolite Catalysts | |

Further information: **https://dechema.de/en/posterworkshop**

## Wednesday, 13 March 2019

| | Großer Saal |
|---|---|
| 11:30 | **GeCatS General Meeting** |
| 13:15 | **Welcome** |
| *Chair:* | *Beller* |
| 13.30 | PLENARY LECTURE<br>Ackermann |
| | **Redox Catalysis** |
| 14:15 | Kann |
| 14:35 | Frei |
| 14:55 | Unglaube |
| 15:15 | Bordet |
| 15:35 | Coffee break |
| | **Electrocatalysis** |
| *Chair:* | *Muhler* |
| 16:05 | Etzold |
| 16:25 | Mei |
| 16:45 | Exner |
| 17:05 | Reinisch |
| 17:30 - 18:30 | **Poster Workshops**<br>Seminarraum 1-5 |
| 18:30 - 20:30 | **Posterparty A**<br>Weimarhalle |

## Thursday, 14 March 2019

| | Großer Saal | |
|---|---|---|
| *Chair:* | *Muhler* | |
| 08:30 | PLENARY LECTURE<br>Grunwaldt | |
| 09:15 | Break for room change | |
| | **In Situ Characterisation** | **Active Sites** |
| | Großer Saal | Seminarhaus |
| *Chair:* | *Rosowski* | *Leitner* |
| 09:20 | Wolf | Bilke |
| 09:40 | Grauke | Rath |
| 10:00 | Plodinec | Wisser |
| 10:20 | Laudenschleger | Sarma |
| 10:40 | Coffee break | |
| | **Catalyst Preparation** | **Reaction Engineering** |
| *Chair:* | *Behrens* | *Schunk* |
| 11:10 | Preikschas | Liebau |
| 11:30 | Ziegler | Schlicher |
| 11:50 | Burger | Kreitz |
| 12:10 | Beierlein | Baumgärtl |
| 12:30 | **Snack and Posterparty B**<br>Weimarhalle | |
| | Großer Saal | |
| *Chair:* | *Palkovits* | |
| 14:30 | PLENARY LECTURE<br>Fogg | |
| 15:15 | Break for room change | |
| | Großer Saal | Seminarhaus |
| | **Acid-Base Catalysis** | **Oligo-/ Polymerisation** |
| *Chair:* | *Palkovits* | *Wasserscheid* |
| 15:20 | Marshall | Bermejo-Deval |
| 15:40 | Schütz | Britovsek |
| 16:00 | Coffee break | |
| *Chair:* | *Schödel* | *Kragl* |
| | **Syngas** | **Molecular and Biocatalysis** |
| 16:15 | Zeng | Vogelsang |
| 16:35 | Schwarz | Hammer |
| 16:55 | Folke | Faßbach |
| 17:15 - 19:15 | **"Start Ups in Catalysis" organised by YounGeCatS**<br>Seminarraum 1 + 2 | |
| 19:30 | **GeCatS Party**<br>**Award ceremony of the Jochen Block Prize**<br>**Award of the rote Löwen and Poster Prizes**<br>Großer Saal | |

## Friday, 15 March 2019

| | Großer Saal |
|---|---|
| *Chair:* | *Wolf* |
| 09:00 | Jochen Block-Prize |
| | **Theory and Data** |
| 09:30 | Schunk |
| 09:50 | Plessow |
| 10:10 | Coffee break |
| | **Model Catalysts** |
| *Chair:* | *Fischer* |
| 10:40 | Over |
| 11:00 | Rameshan |
| 11:20 | Hess |
| 11:40 | PLENARY LECTURE<br>Mestl |
| 12:25 | Closing remarks |

## Wednesday, 13 March 2019

*Großer Saal*

11:45 **GeCatS General Meeting**

13:15 **Welcome**

*Chair: M. Beller[1]; [1] Leibniz-Institut für Katalyse e.V., Rostock/D*

13:30 **PLENARY LECTURE**
**Selectivity Control in C–H Activation**
L. Ackermann[1]; [1] Georg-August-Universität Göttingen/D

### REDOX CATALYSIS

*Chair: M. Beller[1]; [1]Leibniz-Institut für Katalyse e.V., Rostock/D*

14:15 **Immobilized Ruthenium on Phosphine Catalysts for the Selective Hydrogenation of $CO_2$ to Formate**
A. Kann[1]; H. Hartmann[2]; A. Besmehn[2]; P. Hausoul[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D; [2] Forschungszentrum Jülich GmbH, Jülich/D

14:35 **Reactivity of Ag nanoparticles in ethylene epoxidation: How model catalyst unravel the selective state of Ag**
E. Frei[1]; M. Lamoth[1]; A. Tarasov[1]; S. Wrabetz[1]; M. Plodinec[1]; L. Zwiener[1]; A. Klyushin[1]; T. Jones[1]; M. Geske[2]; F. Rosowski[3]; R. Schlögl[1]; [1] Fritz Haber Institute of the Max Planck Society, Berlin/D; [2] BasCat – UniCat BASF Joint Lab, Technische Universität Berlin, Berlin/D; [3] Process Research and Chemical Engineering, Process Catalysis Research, BASF SE, Berlin/D

14:55 **Phenazine Radical Cations as Metal-Free Catalysts for Selective Aerobic Oxidations**
F. Unglaube[1]; R. Brisar[2]; H. Dirk[3]; H. Jiao[1]; E. Mejia[1]; [1] Leibniz-Institut für Katalyse, Rostock/D; [2] Novartis, Mengeš/SLO; [3] Universität Rostock/D

15:15 **Metal Nanoparticles in Supported Ionic Liquid Phases as Catalysts for Selective Hydro(deoxy)genation reactions**
A. Bordet[1]; L. Offner-Marko[2]; S. Rengshausen[2]; W. Leitner[1]; [1] Max-Planck-Institut für Chemische Energiekonversion, Mülheim an der Ruhr/D; [2] RWTH Aachen University, Aachen/D

15:35 Coffee break





## Wednesday, 13 March 2019

*Großer Saal*

### ELECTROCATALYSIS

*Chair: M. Muhler[1]; [1]Ruhr-University Bochum/D*

16:05 **Tuning the Electrocatalytic Performance of Ionic Liquid Modified Pt Catalysts for Oxygen Reduction Reaction via Cationic Chain Engineering**
G. Zhang[1]; T. Wolker[1]; D. Sandbeck[2]; S. Cherevko[2]; K. Mayrhofer[2]; B. Etzold[1]; [1] Technische Universität Darmstadt, Darmstadt/D; [2] Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Erlangen/D

16:25 **„Buried" surfaces: Membrane-like coatings for favorable electrocatalytic selectivity**
B. Mei[1]; B. Endrődi[2]; V. Smulders[1]; A. Gomes[3]; N. Simic[3]; M. Widlock[3]; G. Mul[1]; A. Cornell[2]; [1] University of Twente, Enschede/NL; [2] KTH Royal Institute of Technology, Stockholm/S; [3] Nouryon, Bohus/S

16:45 **Free Energy Diagrams in Electrocatalysis**
K. Exner[1]; H. Over[2]; [1] University of Sofia, Sofia/BG; [2] Justus-Liebig Universität Gießen/D

17:05 **$CO_2$-crossover via carbonates in electrochemical $CO_2$ reduction systems**
D. Reinisch[1]; S. Bernhard[1]; N. Martić[1]; K. Ralf[1]; H. Landes[1]; C. Vogl[1]; T. Reichbauer[1]; K. Mayrhofer[2]; S. Günter[1]; [1] Siemens AG, Erlangen/D; [2] Helmholtz-Institut für Erneuerbare Energien, Erlangen/D

18:30 **Posterparty A** (18:30 – 20:30)

## Thursday, 14 March 2019

*Großer Saal*

*Chair: M. Muhler[1]; [1]Ruhr-University Bochum/D*

08:30 **PLENARY LECTURE**
**Tracking the active center in single site and supported metal catalysts**
J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D

09:15 Break for room change

*Großer Saal*

### SITU CHARACTERISATION

*Chair: F. Rosowski[1]; [1]BasCat-UniCat BASF JointLab, Berlin; Process Research and Chemical Engineering, Process Catalysis Research BASF SE, Berlin/D*

09:20 **Capturing water-induced deactivation mechanisms of cobalt-based Fischer-Tropsch catalysts *in situ***
M. Wolf[1]; N. Fischer[1]; M. Claeys[1]; [1] University of Cape Town/ZA

09:40 **Impact of Al activators on structure and activity of homogeneous Cr catalysts in ethylene oligomerization – A multitechnique in situ/operando study**
R. Grauke[1]; R. Schepper[2]; J. Rabeah[1]; U. Bentrup[1]; M. Bauer[2]; A. Brückner[1]; [1] Leibniz-Institut für Katalyse e.V., Rostock/D; [2] Universität Paderborn/D

10:00 **CO oxidation over Pt nanoparticles studied by Operando TEM**
M. Plodinec[1]; E. Stotz[2]; R. Farra[3]; M. Willinger[3]; R. Schlögl[3]; T. Lunkenbein[4]; [1] Fritz-Haber Institute of the Max Planck Society, Berlin/D

10:20 **On the identification of the active site of the Cu/ZnO/$Al_2O_3$ methanol synthesis catalyst**
D. Laudenschleger[1]; H. Ruland[2]; M. Muhler[1]; [1] Ruhr-Universität Bochum/D; [2] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

10:40 Coffee break

*Großer Saal*

### CATALYST PREPARATION

*Chair: M. Behrens[1]; [1]University of Duisburg-Essen, Essen/D*

11:10 **A Molecular Single-Source Precursor Approach to Well-Defined Rh-Based Catalysts for the Conversion of Syngas to Ethanol**
P. Preikschas[1]; J. Bauer[1]; X. Huang[2]; S. Yao[3]; R. Naumann d›Alnoncourt[1]; R. Kraehnert[1]; A. Trunschke[4]; F. Rosowski[1]; M. Driess[3]; [1] BasCat, UniCat BASF JointLab, TU Berlin/D; [2] Scientific Center for Optical and Electron Microscopy, ETH Zürich/CH; [3] Technische Universität Berlin/D; [4] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D

11:30 **Macrocyclization in Confined Spaces: Olefin Metathesis Catalyst Immobilized on Tailored Silica**
F. Ziegler[1]; I. Elser[1]; J. Teske[1]; W. Frey[1]; M. Buchmeiser[1]; [1] University of Stuttgart/D

11:50 **Unraveling the Improved $CO_2$ Methanation Performance of Ni-Fe-Al Catalysts by Targeted Doping at Ni Sites**
T. Burger[1]; H. Augenstein[1]; K. Köhler[1]; K. Hinrichsen[1]; [1] Technical University of Munich, Garching/D



LECTURE PROGRAMME

## Thursday, 14 March 2019

*Großer Saal*

*Chair: M. Muhler[1]; [1]Ruhr-University Bochum/D*

08:30 **PLENARY LECTURE**
**Tracking the active center in single site and supported metal catalysts**
J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D

09:15 Break for room change

*Seminarraum 1+2*

### ACTIVE SITES

*Chair: W. Leitner[1]; [1]Max-Planck-Institut für Chemische Energiekonversion, Mülheim an der Ruhr/D*

09:20 **Selective Chlorination of Methane – A Mechanochemical Approach**
M. Bilke[1]; P. Losch[1]; O. Vozniuk[1]; A. Bodach[1]; F. Schüth[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

09:40 **Chlorine Production by Photocatalytic Oxidation of HCl over $TiO_2$**
T. Rath[1]; A. Lüken[2]; A. Rittermeier[3]; M. Muhler[1]; [1] Ruhr University Bochum/D; [2] Covestro Deutschland AG, Dormagen/D; [3] Covestro Polymers Co., Ltd., Shanghai/CN

10:00 **Tailor Made Microporous Macroligands: Bridging the Gap between Homogeneous and Heterogeneous Catalysis**
F. Wisser[1]; Y. Mohr[1]; D. Farrusseng[1]; J. Canivet[1]; [1] IRCELYON, Univ. Lyon, Université Claude Bernard Lyon 1, Villeurbanne/F

10:20 **Atomically dispersed noble metals on $CeO_2$ as highly selective solid catalysts in a tandem olefin isomerization-hydrosilylation process**
B. Sarma[1]; J. Kim[1]; C. Weidenthaler[1]; N. Pfänder[1]; R. Arenal[2]; G. Prieto[1]; [1] Max-Planck Institut für Kohlenforschung, Mülheim an der Ruhr/D; [2] Instituto de Nanociencia de Aragon, Zaragoza/E

10:40 Coffee break

*Seminarraum 1+2*

### REACTION ENGINEERING

*Chair: S. Schunk[1]; [1]hte GmbH, Heidelberg/D*

11:10 **Influence of Reduction and Adsorption Properties on the Activity of Transition Metal Oxide-Containing Low-Temperature SCR-Catalysts**
M. Liebau[1]; W. Suprun[1]; M. Kasprick[1]; R. Gläser[1]; [1] Universität Leipzig/D

11:30 **Can Iron Oxides Keep Up with Noble Metals in Carbon Monoxide Oxidation?**
S. Schlicher[1]; R. Schoch[1]; M. Bauer[1]; C. Singer[2]; S. Kureti[2]; J. Gieshoff[3]; [1] University of Paderborn/D; [2] TU Bergakademie Freiberg/D; [3] Umicore AG & Co. KG, Hanau/D

11:50 **Transient methanation of $CO_2$ on Ni catalysts**
B. Kreitz[1]; J. Martin[1]; S. Flaischlen[1]; G. Wehinger[1]; T. Turek[1]; [1] Clausthal University of Technology, Clausthal-Zellerfeld/D

12:10 **Transport of Xylene Mixtures in ZSM-5 Zeolites: Details on the Pore Entrance Step**
M. Baumgärtl[1]; A. Jentys[1]; J. Lercher[1]; [1] Technische Universität München, Garching/D

12:30 Snack and Posterparty B

## Thursday, 14 March 2019

*Großer Saal*

12:10 **$CO_2$ Methanation on Highly Loaded Ni-$Al_2O_3$ Catalysts – From the Microscopic to the Macroscopic Level**
D. Beierlein[1]; D. Häussermann[1]; Y. Traa[1]; E. Klemm[1]; M. Pfeifer[2]; T. Schwarz[2]; K. Stöwe[2]; [1] University of Stuttgart/D; [2] Chemnitz University of Technology, Chemnitz/D

12:30 Snack and Posterparty B

*Großer Saal*

*Chair: R. Palkovits[1]; [1]RWTH Aachen University, Aachen/D*

14:30 **PLENARY LECTURE**
**Frontiers in Olefin Metathesis**
D. Fogg[1]; [1] University of Ottawa, Ottawa/CDN

15:15 Break for room change

*Großer Saal*

### ACID-BASE CATALYSIS

*Chair: R. Palkovits[1]; [1]RWTH Aachen University, Aachen/D*

15:20 **The strongest solid Lewis acid catalysts: $AlClxF_3$-x and HS-$AlF_3$**
C. Marshall[1]; B. Calvo[2]; M. Kervarec[2]; A. Trunschke[3]; G. Scholz[2]; T. Braun[2]; E. Kemnitz[2]; [1] Humboldt-Universität zu Berlin School of Analytical Sciences (SALSA), Berlin/D; [2] Humboldt-Universität zu Berlin/D; [3] Fritz Haber Institut der Max Planck Gesellschaft, Berlin/D

15:40 **Aldol Condensations Catalyzed by Ion Exchange Resins**
J. Schütz[1]; W. Bonrath[1]; Y. Pressel[1]; K. Topp[2]; E. Ferfecki[3]; [1] DSM Nutritional Products Ltd., Kaiseraugst/CH; [2] Dow Deutschland Vertriebs GmbH & Co. OHG, Schwalbach/D; [3] DOW Deutschland Anlagengesellschaft mbH, Rheinmünster/D

16:00 Coffee break

*Großer Saal*

### SYNGAS

*Chair: N. Schödel[1]; [1]Linde AG, Pullach/D*

16:15 **Synthesis of mixed alcohols with enhanced C3+ alcohol production by CO hydrogenation over potassium promoted molybdenum sulfide**
F. Zeng[1]; X. Xi[2]; H. Cao[2]; Y. Pei[2]; H. Heeres[2]; R. Palkovits[1]; [1] RWTH Aachen/D; [2] University of Groningen/NL

16:35 **Ultra-low temperature methanol reforming using immobilized Ru-Pincer complexes**
C. Schwarz[1]; M. Haumann[1]; [1] FAU Erlangen-Nürnberg, Erlangen/D

16:55 **The effect of promoters on wuestite-based iron catalysts for ammonia synthesis**
J. Folke[1]; K. Kähler[1]; K. Dembele[2]; T. Lunkenbein[2]; R. Eckert[3]; B. Kniep[3]; S. Reitmeier[3]; A. Reitzmann[3]; H. Ruland[1]; R. Schlögl[1]; [1] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D; [2] Fritz Haber Institute of the Max Planck Society, Berlin/D; [3] Clariant Produkte (Deutschland) GmbH, Heufeld/D





## Thursday, 14 March 2019

*Großer Saal*

*Chair: R. Palkovits[1]; [1]RWTH Aachen University, Aachen/D*

14:30 **PLENARY LECTURE**
**Frontiers in Olefin Metathesis**
D. Fogg[1]; [1] University of Ottawa, Ottawa/CDN

15:15 Break for room change

*Seminarraum 1+2*

### OLIGO-/POLYMERISATION

*Chair: P. Wasserscheid[1]; [1]FAU Erlangen-Nürnberg, Erlangen/D*

15:20 **Nickel(II) in zeolites mimics its homogeneous complexes in 1-butene dimerization**
A. Ehrmaier[1]; S. Peitz[2]; Y. Liu[1]; C. Chin[1]; M. Sanchez-Sanchez[1]; R. Bermejo-Deval[1]; J. Lercher[1]; [1] TU München, Garching/D; [2] Evonik Technology and Infrastructure GmbH, Marl/D

15:40 **Ethylene Oligomerisation Beyond Schulz-Flory Distributions**
G. Britovsek[1]; C. Young[1]; A. Tomov[1]; J. Nobbs[1]; [1] Imperial College London, London/UK

16:00 Coffee break

*Seminarraum 1+2*

### MOLECULAR AND BIOCATALYSIS

*Chair: U. Kragl[1]; [1] Universität Rostock/D*

16:15 **Old finding, new brilliance – tremendous versatility by palladium catalysed carboxytelomerisation and amidotelomerisation**
D. Vogelsang[1]; D. Vogt[1]; A. Vorholt[2]; [1] TU Dortmund/D; [2] MPI für Chemische Energie Konversion, Mülheim an der Ruhr/D

16:35 **Directed evolution of an enzyme for aerobic anti-Markovnikov alkene oxidation by metal-oxo–mediated catalysis**
S. Hammer[1]; [1] University of Stuttgart/D

16:55 **Solvent-free Aminations with Dimcarb – a New Approach for the Recycling of Homogeneous Catalysts**
T. Faßbach[1]; A. Vorholt[1]; [1] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr and TU Dortmund/D

*Seminarraum 1+2*

17:15 **„Start Ups in Catalysis“ organised by YounGeCatS** (17:15 – 19:15)

*Großer Saal*

19:30 **GeCatS Party** (19:30 – 24:00)
**Award ceremony of the Jochen Block Prize**
**Award of the rote Löwen and Poster Prizes**

## Friday, 15 March 2019

*Großer Saal*

*Chair: D. Wolf[1]; [1]Evonik Resource Efficiency GmbH, Hanau/D*

09:00 **Jochen Block Lecture**

### THEORY AND DATA

*Chair: D. Wolf[1]; [1]Evonik Resource Efficiency GmbH, Hanau/D*

09:30 **Information Architectures for Catalysis – New Horizons for a Digital Future of Catalysis**
S. Schunk[1]; M. Scheffler[2]; R. Schlögl[2]; [1] hte GmbH, Heidelberg/D; [2] Fritz Haber Institute of the Max Planck Society, Berlin/D

09:50 **Modeling the Initiation Kinetics of the MTO Process based on ab-initio Computed Rate Constants**
P. Plessow[1]; F. Studt[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

10:10 Coffee break

### MODEL CATALYSTS

*Chair: R. Fischer[1]; [1]Clariant Produkte (Deutschland) GmbH und TU München, Garching b. München/D*

10:40 **Catalytic Stability Studies Employing dedicated Model Catalysts**
H. Over[1]; B. Smarsly[1]; F. Hess[2]; [1] Justus-Liebig University Gießen/D; [2] MIT Cambridge/USA

11:00 **Nanoparticle Exsolution: Tailoring Catalyst Surfaces and their Reactivity in Operando in Real Time by Polarization**
C. Rameshan[1]; [1] TU Wien/A

11:20 **What governs the stability of surfaces in nonstoichiometric mixed oxide catalysts? – Dopant segregation in perovskite-based SOFC electrodes**
F. Hess[1]; B. Yildiz[1]; [1] Massachusetts Institute of Technology, Cambridge, MA/USA

*Chair: R. Fischer[1]; [1]Clariant Produkte (Deutschland) GmbH und TU München, Garching b. München/D*

11:40 **PLENARY LECTURE**
**Industrial Catalysis Research and Development: much more than just a recipe...**
G. Mestl[1]; [1] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

12:25 Closing remarks





### ACADEMIC-INDUSTRIAL CATALYSIS RESEARCH

A.01.01 **Intermitting conditions in $CO_2$ hydrogenation to methanol**
H. Ruland[1]; K. Kähler[1]; R. Schlögl[1]; [1] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

A.01.02 **Propane Dehydrogenation Using Ga-Rh Supported Catalytically Active Liquid Metal Solutions (SCALMS)**
N. Raman[1]; M. Grabau[1]; S. Maisel[1]; N. Taccardi[1]; J. Debuschewitz[1]; H. Wittkämper[1]; T. Bauer[1]; M. Wu[1]; M. Haumann[1]; C. Papp[1]; A. Görling[1]; E. Spiecker[1]; J. Libuda[1]; H. Steinrück[1]; P. Wasserscheid[1]; [1] FAU Erlangen-Nürnberg, Erlangen/D

A.01.03 **Methane oxidation under rich conditions on $LaFeO_3$ catalyst**
N. Schreiter[1]; S. Kureti[1]; [1] TU Bergakademie Freiberg/D

A.01.04 **Walter Reppe Revival - the formation of the active species in the ethynylation of formaldehyde to form 1,4-butynediol**
T. Bruhm[1]; O. Thomys[1]; A. Abram[1]; K. Köhler[1]; [1] Technische Universität München, Garching bei München/D

A.01.05 **Mechanistic Studies for the Conversion of Syngas to Ethanol over $Rh/SiO_2$ catalysts**
J. Bauer[1]; F. Schuster[1]; P. Preikschas[1]; M. Konrad[1]; F. Rosowski[2]; R. Kraehnert[1]; [1] BasCat - UniCat BASF JointLab, TU Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

A.01.06 **Olefin-selective Fischer-Tropsch synthesis with Co supported on directional freeze-cast hybrid-backbone meso-macroporous micromonolith bodies**
K. Jeske[1]; J. Kim[2]; V. Nese[2]; J. Joos[3]; N. Duyckaerts[2]; N. Pfänder[4]; G. Prieto[2]; [1] Max-Planck Institut für Kohlenforschung, Bochum/D; [2] Max-Planck Institut für Kohlenforschung, Mülheim an der Ruhr/D; [3] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [4] Max-Planck Institut für Chemische EnergieKonversion, Mülheim an der Ruhr/D

A.01.07 **Increasing the Catalyst Performance in SILP-catalyzed Water-Gas Shift Reaction**
P. Wolf[1]; N. Schoedel[2]; B. Schichtel[2]; M. Haumann[1]; [1] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; [2] Linde AG, Pullach/D

A.01.08 **Higher alcohol synthesis over Co-Cu/ZnO/$Al_2O_3$-based catalyst: variation of space velocity and synthesis gas composition**
T. Wiesmann[1]; K. Laichter[1]; A. Reinsdorf[2]; H. Lohmann[1]; S. Kaluza[3]; [1] Fraunhofer UMSICHT, Oberhausen/D; [2] Evonik Resource Efficiency GmbH, Hanau-Wolfgang/D; [3] University of Applied Sciences, Düsseldorf/D

A.01.09 **Designing Zeolite Constraints for Butene Dimerization into Linear Octenes**
L. Löbbert[1]; A. Ehrmaier[1]; R. Bermejo-Deval[1]; J. Knossalla[1]; S. Peitz[2]; J. Lercher[1]; [1] TU München, Garching bei München/D; [2] Evonik Performance Materials GmbH, Marl/D

A.01.10 **Combined effects of nickel and Si/Al ratio on the dimerization of n-butenes over Ni-modified Al-MCM-41/ZSM-5 catalyst systems**
F. Alscher[1]; F. Nadolny[2]; J. Knossalla[2]; S. Peitz[2]; E. Borovinskaya[1]; C. Breitkopf[1]; W. Reschetilowski[1]; [1] Dresden University of Technology, Dresden/D; [2] Evonik Performance Materials GmbH, Marl/D

A.01.11 **(Re-)Synthesis of active materials and additives for FCC-Catalyst**
T. Göhler[1]; J. Fischer[1]; O. Busse[1]; J. Weigand[1]; [1] Technsiche Universität Dresden/D

A.01.12 **Carbonylation Reactions of Biomass-derived Alcohols: Ligand Effects and Substrate Suitability**
S. Eisen[1]; M. Eisenacher[1]; [1] Cologne University of Applied Sciences, Leverkusen/D

A.01.13 **The effect of co-cations on the catalytic behavior of Ni exchanged zeolite catalysts on butene dimerization**
A. Ehrmaier[1]; L. Löbbert[1]; Y. Liu[1]; M. Sanchez-Sanchez[1]; S. Peitz[2]; R. Bermejo de Val[1]; J. Lercher[1]; [1] TU München, Garching/D; [2] Evonik Performance Materials GmbH, Marl/D

A.01.14 **Tuning surface properties of carbon and covalent organic framework supporting materials to achieve efficient Ni-based catalysts for $CO_2$ methanation**
L. L. Gonçalves[1]; M. R. Pereira[2]; Y. Kolen'ko[3]; O. G. P. Soares[2]; J. S. Sousa[3]; [1] INL/LSRE-LCM, Braga/P; [2] LSRE-LCM, Porto/P; [3] INL, Braga/P

## ACID-BASE CATALYSIS

A.02.01 **Synthesis of methyl formate by methanol carbonylation with ion exchange resin Amberlyst A26**
L. Beckmann[1]; T. Lorenz[1]; M. Bertau[1]; [1] Freiberg University of Mining and Technology, Freiberg/D

A.02.02 **Effect of Inorganic Salts on Alcohol Dehydration Reactions**
N. Pfriem[1]; H. Shi[1]; G. Haller[2]; J. Lercher[1]; [1] TU München/D; [2] Yale University, New Haven/USA

A.02.03 **Reactivity of methanol and dimethylether in ZSM-5 and their role in the autocatalytic formation of olefins**
F. Kirchberger[1]; Y. Liu[1]; M. Tonigold[2]; M. Sanchez-Sanchez[1]; J. Lercher[1]; [1] TU München, Garching/D; [2] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

A.02.04 **Impact of particle size of Faujasite-type Zeolites in Isobutane/2-Butene Alkylation**
V. Höpfl[1]; T. Schachtl[2]; Y. Liu[2]; J. Lercher[2]; [1] TU München/D; [2] TU München, Garching/D

A.02.05 **Promoting alkane cracking on zeolitic acid site by the proximity of extra framework silica**
R. Zhao[1]; [1] TUM, Garching b. Muenchen/D

A.02.06 **Comparison of lanthanum-exchanged X zeolites with different crystallite sizes for alkylation of isobutane/butene**
T. Schachtl[1]; V. Höpfl[1]; Y. Liu[1]; J. Lercher[1]; [1] TU München, Garching/D

A.02.07 **A Computational investigation of OME-synthesis through homogeneous acid catalysis**
T. Gonçalves[1]; F. Studt[1]; P. Plessow[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

A.02.08 **From acetaldehyde to 1,3 butanediol – revising an industrial classic**
J. Vosberg[1]; M. Eisenacher[1]; R. Palkovits[2]; [1] TH Köln - Cologne University of Applied Sciences, Leverkusen/D; [2] RWTH Aachen/D

A.02.09 **Systematic Study of Methylation Path from Benzene to Hexamethylbenzene**
M. Fečík[1]; P. Plessow[1]; F. Studt[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

A.02.10 **Phosphoric Acid Immobilized on Porous Silica for Continuous-Flow Friedel-Crafts-Alkylation**
H. Becker[1]; J. Titus[1]; M. Spanka[1]; C. Schneider[1]; R. Gläser[1]; [1] Universität Leipzig/D





## CATALYSIS FOR POLYMER SYNTHESIS

A.03.01 **Single-chain Polyethylene Nanocrystals by Living Polymerization in Aqueous Media**
M. Schnitte[1]; A. Staiger[1]; S. Mecking[1]; [1] University of Konstanz/D

A.03.02 **Combination of Chain Transfer Polymerization (CTP) and Nitroxide Mediated Radical Polymerization (NMP) to Design Block Copolymers**
S. Stadler[1]; I. Göttker-Schnetmann[1]; S. Mecking[1]; [1] University of Konstanz/D

A.03.03 **Linear di-block co-polymers of polycarbonate and polyethylene**
R. von Goetze[1]; C. Romain[1]; G. Britovsek[1]; [1] Imperial College London/UK

A.03.04 **Molecular Approaches in Investigating the Role of Internal Donors in Heterogeneous Ziegler-Natta Catalysts**
A. Tomov[1]; M. Clarembeau[2]; S. Bettonville[2]; G. Britovsek[1]; [1] Imperial College London/UK; [2] INEOS, Brussels/B

A.03.05 **Synthesis of Stereoregular Poly(Norbornene)s Through Ring-Opening Metathesis Polymerization Initiated by Group VI Imido Alkylidene Complexes**
M. Benedikter[1]; R. Schowner[1]; I. Elser[1]; P. Werner[1]; K. Herz[1]; L. Stöhr[1]; D. Imbrich[1]; M. Buchmeiser[1]; [1] University of Stuttgart/D

A.03.06 **Pushing the limit of neighboring group interactions in polymerization catalysis**
E. Schiebel[1]; S. Santacroce[2]; L. Falivene[3]; M. Baur[1]; L. Caporaso[2]; S. Mecking[1]; [1] Universität Konstanz/D; [2] Università di Salerno, Fisciano/I; [3] King Abdullah University of Science and Technology (KAUST), Thuwal/SAR

A.03.07 **Catalytic Insertion Polymerization in Polar Organic Media**
F. Wimmer[1]; P. Kenyon[1]; I. Göttker-Schnetmann[1]; S. Mecking[1]; [1] University of Konstanz/D

A.03.08 **Remarkable Aluminium Catalysts for the Stereoselective rac-Lactide Ring-Opening Polymerisation: Productive Interactions in the Second Coordination Sphere**
S. Gesslbauer[1]; R. Savela[2]; Y. Chen[1]; A. White[1]; C. Romain[1]; [1] Imperial College London/UK; [2] Abo Akademi University, Turku/FIN

A.03.09 **Hydrogenation of polyesters to short chain oligoethers**
B. Stadler[1]; S. Hinze[1]; S. Tin[1]; M. Beller[1]; J. de Vries[1]; [1] Leibniz-Institut für Katalyse e. V., Rostock/D

## CATALYST PREPARATION

A.04.01 **APPtec – a new generation of spray pyrolysis technology to produce advanced catalytic materials**
T. Jähnert[1]; M. Jacob[1]; [1] Glatt Ingenieurtechnik GmbH, Weimar/D

A.04.02 **Supported Precious Group Metal Catalysts for Various Hydrogenation Reactions and as Sustainable Resource**
H. Spod[1]; G. Meißner[1]; [1] Heraeus Deutschland GmbH & Co KG, Hanau/D

A.04.03 **Development of quaternary metal/metal oxide catalysts as micro-structured wall catalysts for "Power-to-Gas" applications through combinatorial High-Throughput Screening**
M. Pfeifer[1]; T. Schwarz[1]; K. Stöwe[1]; [1] TU Chemnitz/D

A.04.04 **5-Phosphasemibullvalenes: A new class of chiral P(III)-compounds**
F. Wossidlo[1]; M. Rigo[1]; C. Müller[1]; [1] Freie Universität Berlin/D

A.04.05 **Molybdenum Alkylidyne Complexes with Mono-, Bi- and Tridentate N-Heterocyclic Carbenes**
J. Groos[1]; I. Elser[1]; P. Hauser[1]; M. Koy[2]; M. Buchmeiser[1]; [1] University of Stuttgart/D; [2] Universität Münster/D

A.04.06 **Malachite-based precursors for alcohol synthesis from $CO_2$**
A. Hüttner[1]; G. Behrendt[1]; M. Behrens[1]; [1] Universität Duisburg-Essen, Essen/D

A.04.07 **New applications of the Impinging Jet Microreactor for high-throughput synthesis of photo- and electrocatalysts**
J. Hiemer[1]; K. Stöwe[1]; A. Clausing[1]; [1] TU Chemnitz/D

A.04.08 **Metathesis of ethylene with 2-butene over WOx-, MoOx- and ReOx-based catalysts: Influence of metal content and nature of support**
T. Otroshchenko[1]; [1] Leibniz-Institut für Katalyse e. V., Rostock/D

A.04.09 **Catalytic activity of chromium oxides with spinel and perovskite structure**
J. Buchheim[1]; J. Langebach[2]; B. Fähndrich[1]; P. Adelhelm[1]; [1] Friedrich-Schiller-Universität Jena/D; [2] JENOPTIK Automatisierungstechnik GmbH, Jena/D

A.04.10 **Controlling Tungsten Carbide Phase Composition: Designing Hydrogenation-Catalysts for Optimum Performance**
P. Bretzler[1]; M. Huber[1]; K. Köhler[1]; [1] Technische Universität München, Garching bei München/D

A.04.11 **Heteroatom doped porous carbon materials as catalysts for the oxidation of aqueous sulfurous acid to sulfuric acid**
J. Bölte[1]; S. Utgenannt[1]; M. Schmidt[1]; O. Klepel[1]; [1] BTU Cottbus-Senftenberg/D

A.04.12 **Microemulsion-assisted Co-precipitation of Cobalt Iron LDHs with Enhanced Electrocatalytic Properties**
A. Rabe[1]; K. Friedel Ortega[1]; M. Behrens[1]; [1] University of Duisburg-Essen, Essen/D

A.04.13 **Synthesis and characterization of copper-based catalysts applied in the one-step dimethyl ether synthesis**
S. Polierer[1]; S. Pitter[2]; J. Grunwaldt[1]; D. Guse[1]; K. Herrera Delgado[1]; J. Jelic[1]; M. Kind[1]; T. Otto[1]; M. Stehle[1]; F. Studt[1]; S. Wild[2]; T. Zevaco[1]; M. Zimmermann[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

A.04.14 **Redox Mechanism of Atomic Layer Deposition for Catalyst Synthesis**
K. Knemeyer[1]; J. Xie[1]; J. Kröhnert[2]; R. Kraehnert[1]; R. Naumann d›Alnoncourt[1]; M. Driess[3]; F. Rosowski[4]; [1] BasCat, UniCat BASF Jointlab, Technische Universität Berlin/D; [2] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [3] Technische Universität Berlin/D; [4] BasCat - UniCat BASF Joint Lab, Berlin/D

A.04.15 **Synthesis, characterization and catalytic hydrogenation activity of intra-zeolite transition metal sulfide clusters**
R. Weindl[1]; F. Vogelgsang[1]; H. Shi[1]; J. Lercher[1]; [1] TU Munich/D



POSTER PROGRAMME

A.04.16 **Preparation and properties of Fe40Ni40B20 metallic glass obtained by rapid quenching method**
M. Buchmann[1]; J. Buchheim[2]; N. Taghizadeh[1]; J. Binzer[1]; P. Adelhelm[2]; [1] BinNova Metal Fiber Technology GmbH, Jena/D; [2] Friedrich-Schiller-Universität, Jena/D

A.04.17 **Synthesis and characterization of Ag-delafossites 3R-$AgBO_2$ (B: Al, Ga, In) from rapid hydrothermal process**
L. Zwiener[1]; T. Jones[1]; E. Wolf[1]; F. Girgsdies[1]; M. Plodinec[1]; A. Klyushin[1]; E. Willinger[1]; F. Rosowski[2]; R. Schlögl[1]; E. Frei[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

A.04.18 **Innovative preparation procedure for $In_2O_3$-catalysts and their application for $CO_2$-hydrogenation to methanol**
P. Schühle[1]; J. Albert[1]; S. Reichenberger[2]; G. Marzun[2]; [1] Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D; [2] Universität Duisburg-Essen, Duisburg/D

A.04.19 **Development of high surface area ZnO as a catalyst support using atomic layer deposition**
P. Ingale[1]; R. Naumann d›Alnoncourt[1]; F. Rosowski[2]; A. Thomas[3]; [1] BasCat – Unicat BASF JointLab, Technische Universität Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D; [3] Technische Universität Berlin/D

A.04.21 **HF-loaded Aluminium chlorofluoride as a nanoscopic solid acid catalyst for hydrofluorination reactions**
M. Kervarec[1]; T. Braun[2]; [1] Humboldt-Universität zu Berlin, Berlin/D; [2] Humboldt Universität zu Berlin/D

A.04.22 **Encapsulated Pt-particles for bifunctional catalysis**
A. Damps[1]; F. Rößner[1]; [1] Carl von Ossietzky University of Oldenburg/D

A.04.23 **Porous Zirconia with High Specific Surface Area as Support for $CO_2$ Methanation Catalysts**
J. Titus[1]; K. Abel[1]; L. Rihko-Struckmann[2]; K. Sundmacher[3]; R. Gläser[1]; [1] Universität Leipzig/D; [2] Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [3] Max Planck Institute for Dynamics of Complex Technical Systems, Otto-von-Guericke Universität Magdeburg/D

A.04.24 **Recycling of Spent FCC Catalysts – From Waste to Innovative Industrial Catalysts**
M. Marschall[1]; O. Busse[1]; J. Weigand[1]; [1] Technische Universität Dresden/D

A.04.25 **Cerium oxide-based catalysts for the formation of diethyl carbonate from ethanol and carbon dioxide**
M. Buchmann[1]; M. Lucas[1]; M. Rose[1]; [1] TU Darmstadt/D

A.04.26 **Benefits of precursor phase purity on the activity of FexCoy/MgO ammonia decomposition and synthesis catalysts**
D. Rein[1]; K. Friedel Ortega[1]; M. Behrens[1]; J. Folke[2]; H. Ruland[2]; R. Schlögl[3]; [1] University of Duisburg-Essen, Essen/D; [2] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D; [3] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Fritz-Haber-Institut der Max-Planck-Gesellschaft Berlin/D

A.04.27 **Nanocrystalline-alpha-$Al_2O_3$ by mechanochemical activation: Synthesis and application in Fischer-Tropsch catalysis**
A. Amrute[1]; H. Schreyer[1]; K. Jeske[1]; G. Prieto[1]; F. Schüth[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

## CONVERSION OF BIO-RESOURCES

A.05.01 **Glycol production from biomass - from mechanistic understanding to an applicable catalytic system**
A. Beine[1]; X. Wang[1]; C. Glotzbach[2]; P. Hausoul[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D; [2] ThyssenKrupp Industrial Solutions AG, Dortmund/D

A.05.02 **Synthesis of HHD and HHD-derived Chemicals from HMF**
B. Wozniak[1]; J. Diekamp[1]; A. Spannenberg[1]; Y. Li[2]; S. Tin[1]; S. Hinze[1]; J. de Vries[1]; [1] Leibniz-Institut für Katalyse, Rostock/D; [2] Lanzou Institute of Chemical Physics, Lanzou/CN

A.05.03 **Supported silver catalysts for the selective oxidation of 5-(hydroxymethyl)furfural**
O. Schade[1]; K. Kalz[1]; D. Neukum[1]; W. Kleist[2]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] Ruhr-University Bochum/D

A.05.04 **Hydrogenolysis of sorbitol to 1,2-propanediol and ethylene glycol over copper catalysts with fine controlled particle size in the presence of $Ca(OH)_2$**
X. Wang[1]; P. Hausoul[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D

A.05.05 **Microalgae conversion to transportation fuels over tungsten-based catalysts**
L. Milaković[1]; Y. Liu[1]; E. Baráth[1]; J. Lercher[1]; [1] Technische Universität München, Garching/D

A.05.10 **Nylon intermediates from bio-based levulinic acid**
F. El Ouahabi[1]; A. Marckwordt[1]; H. Amani[1]; S. Tin[1]; N. V. Kalevaru[1]; P. C. J. Kamer[1]; S. Wohlrab[1]; J. G. de Vries[1]; [1] Leibniz-Institut für Katalyse e.V., Rostock/D

A.05.06 **Active sites in NixFe1-x/$SiO_2$ for stearic acid hydrodeoxygenation**
C. Denk[1]; E. Baráth[1]; J. Lercher[1]; [1] Technische Universität München, Garching bei München/D

A.05.07 **Porous Tin-Organic Frameworks as Heterogeneous Catalysts for the Selective Epimerization of Aldoses**
A. Gantarev[1]; M. Rose[1]; I. Delidovich[2]; A. Hoffmann[2]; A. Willms[2]; [1] TU Darmstadt/D; [2] RWTH Aachen/D

A.05.08 **Blending real world gasoline with biofuel in a direct conversion process**
E. Nürenberg[1]; P. Schulze[1]; F. Kohler[1]; F. Schüth[1]; M. Zubel[2]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D; [2] RWTH Aachen University, Aachen/D

A.05.09 **Catalytic Deoxygenation of a Bio-Derivable β-Hydroxy Acid to Alkanes and Alcohols**
J. Mensah[1]; M. Fischer[1]; J. Quandt[1]; J. Artz[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D

## ELECTROCATALYSIS

A.06.01 **Towards Best Practices for Improving Paper-Based Microfluidic Fuel cells**
L. Shen[1]; G. Zhang[1]; T. Venter[1]; M. Biesalski[1]; B. Etzold[1]; [1] TU Darmstadt/D

A.06.02 **Modifier-Free Microfluidic Electrochemical Sensor for Heavy Metal Detection**
F. Schmitt[1]; L. Shen[1]; G. Zhang[1]; W. Li[1]; M. Biesalski[1]; B. Etzold[1]; [1] TU Darmstadt/D

A.06.03 **Mo-Ni-Materials in the Hydrogen Evolution Reaction: Does the Crystal Structure Matter?**
L. Rößner[1]; R. Zerdoumi[1]; M. Armbrüster[1]; [1] TU Chemnitz/D





A.06.04 **Addressing Stability of Intermetallic Compounds in the Electrochemical Methanol Oxidation**
R. Zerdoumi[1]; L. Rößner[1]; M. Armbrüster[1]; [1] Chemnitz University of Technology, Chemnitz/D

A.06.05 **Electrooxidative Rhodium-Catalyzed C–H/C–H Activation: Electricity as Oxidant for Cross-Dehydrogenative Alkenylation**
J. Struwe[1]; Y. Qiu[1]; W. Kong[1]; N. Sauermann[1]; T. Rogge[1]; A. Scheremetjew[1]; L. Ackermann[1]; [1] Georg-August-Universität Göttingen/D

A.06.06 **Iridium-Catalyzed Electrooxidative C–H Activation by Chemo- Selective Redox-Catalyst Cooperation**
M. Stangier[1]; Y. Qiu[1]; T. Meyer[1]; J. Oliveira[1]; L. Ackermann[1]; [1] Georg-August-University Göttingen/D

A.06.07 **The Influence of Supercritical $CO_2$ on $CO_2$RR using Carbon Supported Copper Catalysts**
K. junge Puring[1]; O. Evers[2]; M. Prokein[2]; S. Kaluza[2]; M. Renner[2]; M. Petermann[3]; E. Weidner[4]; U. Apfel[4]; [1] Fraunhofer UMSICHT / Ruhr University Bochum, Inorganic Chemistry I, Oberhausen / Bochum/D; [2] Fraunhofer UMSICHT, Oberhausen/D; [3] Ruhr University Bochum/D; [4] Fraunhofer UMSICHT / Ruhr University Bochum, Oberhausen / Bochum/D

A.06.08 **The effect of Ionic Liquid modification on the ORR performance of trimetallic PtNiMo/C catalysts**
M. George[1]; N. Schmitt[1]; K. Brunnengräber[1]; G. Zhang[1]; D. Sandbeck[2]; K. Mayrhofer[2]; S. Cherevko[2]; B. Etzold[1]; [1] TU Darmstadt/D; [2] Helmholtz Institute Erlangen-Nürnberg for renewable Energy, Erlangen/D

A.06.09 **Long-term stable electrochemical reduction of $CO_2$ towards ethylene at industrial relevant current densities**
N. Martić[1]; C. Reller[1]; B. Schmid[1]; D. Reinisch[1]; C. Vogl[1]; T. Reichbauer[1]; K. Mayrhofer[2]; G. Schmid[1]; [1] Siemens AG, Erlangen/D; [2] Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Erlangen/D

A.06.10 **Bio-inspired Iron-Nickel Sulfides for Tunable Electrocatalytic $CO_2$RR in Different Solvents**
S. Piontek[1]; K. junge Puring[2]; D. Siegmund[3]; M. Smialkowski[1]; I. Sinev[4]; D. Tetzlaff[1]; B. Roldan Cuenya[5]; U. Apfel[1]; [1] Ruhr-University Bochum/D; [2] Fraunhofer UMSICHT/ Ruhr-Universität Bochum, Oberhausen / Bochum/D; [3] Fraunhofer UMSICHT, Oberhausen/D; [4] Ruhr-Universität Bochum/D; [5] Fritz Haber Institute of the Max Planck Society, Berlin/D

A.06.11 **Full Cell Study of Electrooxidation of 5-Hydroxymethylfurfural (HMF) on Copper Foam**
S. Wöllner[1]; G. Zhang[1]; B. Etzold[1]; [1] TU Darmstadt/D

A.06.12 **Influence of additives on the oxygen reduction (ORR) and oxygen evolution (OER) reaction in ionic liquids for metal-air batteries**
M. Eckardt[1]; D. Alwast[1]; Z. Jusys[1]; J. Schnaidt[2]; R. Behm[1]; [1] Ulm University, Ulm/D; [2] Helmholtz-Institut Ulm/D

A.06.13 **Efficient Electrocatalytic Conversion of Bio-Derived Hydroxy Acid to Biofuels**
J. Meyers[1]; J. Mensah[1]; F. Holzhäuser[1]; S. Palkovits[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D

A.06.14 **Effect of experimental parameters on the electrocatalytic performance of NiCoOx catalysts for OER**
S. Bhandari[1]; P. Narangoda[1]; M. Tesch[1]; A. Mechler[1]; R. Schlögl[2]; [1] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, [2] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D and Fritz Haber Institute of the Max Planck Society, Berlin/D

A.06.15 **Electrochemical oxidation and surface sensitive in situ X-ray spectroscopy of iridium nanoparticles in confined electrolyte**
L. Frevel[1]; R. Mom[1]; J. Velasco-Vélez[1]; M. Plodinec[1]; A. Knop-Gericke[1]; R. Schlögl[1]; T. Jones[1]; [1] Fritz Haber Institute of the Max Planck Society, Berlin/D

A.06.16 **Influence of Synthesis Parameters on Structure and Activity of Mesoporous Iridium/Titanium Oxide Catalyst Coatings for the OER**
L. Kotil[1]; R. Sachse[1]; D. Bernsmeier[1]; B. Paul[1]; M. Bernicke[1]; R. Kraehnert[1]; [1] TU Berlin/D

A.06.17 **Intermetallic compound $Al_{21}Pt_8$ in the oxygen evolution reaction**
A. Barrios[1]; G. Algara-Siller[2]; Y. Grin[1]; R. Schlögl[2]; I. Antonyshyn[1]; [1] Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden/D; [2] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D

A.06.18 **Fe-induced Performance and Corrosion Changes of a Ni-Co-Oxide Catalyst for the Oxygen Evolution Reaction**
I. Spanos[1]; S. Bandlamudi[1]; A. Auer[1]; R. Schlögl[2]; A. Mechler[1]; [1] Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D; [2] Fritz Haber Institute of the Max Planck Society, Berlin/D

A.06.19 **Effects of Cation Ions on the Reactivity of Pt/C during the Hydrogen Oxidation Reaction**
M. Özaslan[1]; [1] Carl von Ossietzky Universität Oldenburg/D

A.06.20 **Active-site imprinting: A conservative preparation of metal-$N_4$ sites for non precious electrocatalysts with high activity for ORR in acidic medium**
T. Fellinger[1]; J. Pampel[2]; A. Mehmood[3]; [1] Technische Universität München, Garching/D; [2] Fraunhofer Institut IWS Dresden/D; [3] Imperial College London/UK

## EMISSION REDUCTION

A.07.01 **Exhaust gas after treatment of natural gas engines: A systematic study on sulfur poisoning and regeneration of methane oxidation catalysts**
P. Lott[1]; M. Eck[1]; D. Doronkin[1]; M. Casapu[1]; J. Grunwaldt[1]; O. Deutschmann[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D

A.07.02 **Development of High Temperature Stable Water-Gas Shift Catalysts for Novel Exhaust Gas Treatment Systems**
T. Janke[1]; J. Simböck[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D

A.07.03 **Application of mixed metal oxides as low-temperature methane oxidation catalyst**
C. Watermann[1]; H. Lohmann[1]; S. Kaluza[2]; M. Muhler[3]; A. Döring[4]; F. Koschany[4]; [1] Fraunhofer Institut für Umwelt-, Sicherheits-, Energietechnik UMSICHT, Oberhausen/D; [2] Fraunhofer Institut für Umwelt-, Sicherheits-, Energietechnik UMSICHT, Oberhausen/Hochschule Düsseldorf/D; [3] Ruhr University Bochum/D; [4] MAN Energy Solutions, Augsburg/D





A.07.04 **$SiO_2/Al_2O_3$-based Pt catalysts for $NO_x$ reduction by $H_2$ in lean exhaust gases**
E. Eßer[1]; S. Kureti[1]; [1] TU Bergakademie Freiberg/D

A.07.05 **The interplay of various catalyst and reaction parameters in the decomposition of $N_2O$ over supported Ru catalyst**
X. Zhang[1]; K. Köhler[1]; [1] Technical University of Munich, Garching/D

A.07.06 **HCHO and $CH_4$ oxidation of Fe based catalysts**
M. Mehne[1]; S. Kureti[1]; [1] TU Bergakademie Freiberg, Institute of Energy Process Engineering and Chemical Engineering, Freiberg/D

## HYDROGEN GENERATION/SYNTHESIS GAS

A.08.01 **In-Pd/$In_2O_3$ aerogels as catalysts for methanol steam reforming**
N. Köwitsch[1]; L. Thoni[2]; B. Klemmed[2]; A. Eychmüller[2]; M. Armbrüster[1]; [1] TU Chemnitz,/D; [2] TU Dresden/D

A.08.02 **$CO_2$, Water, and Renewable Energy to Value: Dynamic Integration of Co-Electrolysis and Syngas Methanation**
C. Asmelash[1]; R. Eichel[2]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D; [2] Forschungszentrum Jülich GmbH, Jülich/D

A.08.03 **Structure-selectivity correlation of iron based catalysts in Fischer-Tropsch synthesis**
C. Schmidt[1]; S. Kureti[1]; [1] TU Bergakademie Freiberg/D

A.08.04 **Ru Nanoparticles Supported on Carbon Nitride as Highly Active Light Induced Proton Reduction Catalyst**
M. Tasbihi[1]; I. Álvarez-Prada[2]; N. Romero[2]; X. Sala[2]; J. García-Antón[2]; M. Schwarze[1]; R. Schomäcker[1]; [1] TU Berlin/D; [2] Universitat Autònoma de Barcelona/E

A.08.05 **Sulfur poisoning of co-precipitated Ni-Al catalysts for the methanation of $CO_2$**
M. Wolf[1]; T. Burger[1]; K. Hinrichsen[1]; [1] Technical University of Munich, Garching near Munich/D

A.08.06 **Local structure analysis of titanium oxide photocatalysts for hydrogen generation**
E. Onur Sahin[1]; H. Tüysüz[1]; C. Chan[2]; W. Schmidt[1]; C. Weidenthaler[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D; [2] Arizona State University, Tempe/USA

A.08.07 **Decoupling size and support effects – the optimal support characteristics for $CO_2$ methanation**
J. Ilsemann[1]; M. Bäumer[1]; [1] University of Bremen/D

A.08.08 **Influence of the nature of promoters on the Fischer-Tropsch synthesis**
M. Einemann[1]; F. Roessner[1]; [1] Carl von Ossietzky University Oldenburg/D

A.08.09 **Improvement of the low-temperature activity of platinum-based catalysts for methane combustion in microchannels**
R. Zapf[1]; S. Neuberg[1]; H. Pennemann[1]; V. Shanmugam[1]; A. Ziogas[1]; G. Kolb[1]; [1] Fraunhofer IMM, Mainz/D

A.08.10 **Mechanism of the Water-Gas Shift Reaction Catalyzed by Efficient Ruthenium Based Catalysts**
R. Stepić[1]; C. Wick[1]; V. Strobel[1]; D. Berger[2]; N. Vučemilović-Alagić[1]; M. Haumann[1]; P. Wasserscheid[1]; A. Smith[1]; D. Smith[3]; [1] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; [2] Forschungszentrum Jülich GmbH, Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy (IEK-11), Nürnberg/D; [3] Ruđer Bo˘skovi´c Institute, Zagreb/HR

A.08.11 **Selective Nitrile Reduction Using Solid-Supported Triphos Ligands: Application in Continuous Flow**
R. Konrath[1]; F. Heutz[1]; N. Steinfeldt[2]; P. Kamer[2]; [1] University of St Andrews, St Andrews/UK; [2] Leibniz-Institut für Katalyse e. V., Rostock/D

## IN SITU CHARACTERISATION/NEW METHODS

B.09.01 **Ni-promoted sepiolite as efficient catalyst for $CO_2$ methanation: A catalytic and operando DRIFT spectroscopic study**
C. Cerdá Moreno[1]; A. Chica[1]; C. Rautenberg[2]; U. Bentrup[2]; [1] Instituto de Tecnología Química, Universitat Politècnica de València-Consejo Superior de Investigaciones Científicas, Valencia/E; [2] Leibniz-Institut für Katalyse e. V., Rostock/D

B.09.02 ***In-situ* DRIFT spectroscopy to investigate the sorption of alkanes on sulfated zirconia**
M. Glorius[1]; C. Breitkopf[1]; [1] TU Dresden/D

B.09.03 **Explaining the role of vanadium in homogeneous glucose transformation reactions using NMR and EPR spectroscopy**
J. Albert[1]; M. Mendt[2]; M. Mozer[1]; D. Voß[1]; [1] Universität Erlangen-Nürnberg, Erlangen/D; [2] Universität Leipzig/D

B.09.05 **Influence of the support's polymorph in $Cu/ZrO_2$ catalysts on the $CO_2$ Selectivity in Methanol Steam Reforming**
K. Ploner[1]; M. Watschinger[1]; B. Klötzer[1]; S. Penner[1]; L. Schlicker[2]; A. Gurlo[2]; A. Gili[3]; A. Doran[3]; L. Zhang[4]; M. Armbrüster[4]; [1] University of Innsbruck/A; [2] TU Berlin/D; [3] Lawrence Berkeley National Laboratory, Berkeley/USA; [4] Chemnitz University of Technology, Chemnitz/D

B.09.06 **In Situ FT-IR Studies on $Cu/t\text{-}ZrO_2$ Systems**
M. Watschinger[1]; K. Ploner[1]; E. Köck[1]; B. Klötzer[1]; S. Penner[1]; L. Zhang[2]; M. Armbrüster[2]; [1] University of Innsbruck/A; [2] Chemnitz University of Technology, Chemnitz/D

B.09.07 **Electrochemical XPS/XAS Using Confined Electrolyte and Graphene Windows: Ir vs. Au oxygen evolution reaction catalysts**
R. Mom[1]; L. Frevel[1]; J. Velasco-Vélez[1]; T. Jones[1]; A. Knop-Gericke[1]; R. Schlögl[1]; [1] Fritz Haber Institute of the Max Planck Society, Berlin/D

B.09.08 **Rationally improving $Pt/CeO_2$ oxidation catalysts using time and space resolved operando QEXAFS and IR-thermography**
F. Maurer[1]; A. Gänzler[1]; M. Casapu[1]; M. Votsmeier[2]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] Umicore AG & Co. KG, Hanau/D





B.09.09 **Operando DRIFTS and DFT study of propane dehydrogenation over solid and liquid supported GaxPty catalysts**
T. Bauer[1]; S. Maisel[1]; D. Blaumeiser[1]; J. Vecchietti[2]; N. Taccardi[1]; P. Wasserscheid[1]; A. Bonivardi[2]; A. Görling[1]; J. Libuda[1]; [1] FAU Erlangen-Nürnberg, Erlangen/D; [2] Universidad Nacional del Litoral and CONICET, Santa Fe/RA

B.09.10 **Operando spectrotomographic 3D imaging of structured honeycomb Cu-SSZ-13 exhaust gas catalyst at work**
J. Becher[1]; T. Sheppard[1]; D. Motta Meira[2]; D. Ferreira Sanchez[3]; D. Doronkin[1]; S. Pascarelli[2]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] European Synchrotron Radiation Facility (ESRF), Grenoble/F; [3] Paul Scherrer Institut (PSI), Villigen/CH

B.09.11 **Detailed TEM Study of $Cu/ZnO/Al_2O_3$ Catalysts**
K. Dembélé[1]; E. Frei[1]; R. Schlögl[1]; T. Lunkenbein[1]; [1] Fritz Haber Institute of the Max Planck Society, Berlin/D

B.09.12 **Temperature-programmed desorption and ATR-IR spectroscopy as characterization methods for functionalized carbon blacks**
M. Göckeler[1]; C. Berger[1]; M. Muhler[1]; [1] Ruhr-Universität Bochum/D

B.09.13 **Electronic and Structural Modification of ZnO by Fluorine Treatment**
E. Wolf[1]; M. Millet[1]; F. Seitz[1]; F. Redeker[2]; T. Drews[2]; W. Riedel[2]; G. Scholz[3]; W. Hetaba[1]; S. Wrabetz[1]; T. Risse[2]; S. Hasenstab-Riedel[2]; R. Schlögl[1]; E. Frei[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] Freie Universität Berlin/D; [3] Humboldt-Universität zu Berlin/D

B.09.14 **In-situ Raman and near-ambient-pressure X-ray photoemission study of Ag-based catalysts: From impurities to promoters**
A. Klyushin[1]; J. Travis[2]; M. Lamoth[2]; L. Zwiener[2]; Y. Wang[2]; E. Carbonio[1]; M. Hävecker[3]; F. Rosowksi[4]; A. Knop-Gericke[3]; R. Schlögl[2]; E. Frei[2]; [1] Helmholtz Zentrum Berlin für Materialien und Energie and Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [3] Max-Planck-Institut für Chemische Energiekonversion (MPI-CEC), Mülheim an der Ruhr/D; [4] BasCat – UniCat BASF Joint Lab, Technische Universität Berlin/D

B.09.15 **ChemiTEM – an easy to use TEM with optimized workflows for chemistry and material synthesis applications**
W. Hetaba[1]; R. Imlau[2]; S. Kujawa[2]; R. Schlögl[1]; T. Lunkenbein[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] Thermo Fisher Scientific, Eindhoven/NL

B.09.16 **The dynamic nature of Cu sites in Cu-SSZ-13 and the origin of the seagull shaped NOx conversion profile during NH3-SCR**
D. Zengel[1]; A. Fahami[2]; T. Günter[1]; D. Doronkin[1]; M. Casapu[1]; T. Vuong[3]; A. Brückner[3]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology, Karlsruhe/D; [2] Politecnico di Milano, Milano/I; [3] Leibniz-Institut für Katalyse, Rostock/D

B.09.17 **Oxygen Interaction with Silver - Case Study: Ethylene epoxidation on a high performance catalyst**
A. Tarasov[1]; S. Wrabetz[1]; T. Jones[1]; F. Rosowski[2]; R. Schlögl[1]; E. Frei[1]; [1] Fritz Haber Institute of the Max Planck Society, Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

B.09.18 **In-situ XRD studies of solid state – gas reactions with the XRK 900 reaction chamber**
A. Jones[1]; [1] Anton Paar GmbH, Graz/A

B.09.19 **CO adsorption from the gas and liquid phase on Pd/$TiO_2$**
T. Rath[1]; P. Naliwajko[2]; A. Lüken[1]; S. Stürmer[1]; J. Strunk[2]; M. Muhler[1]; [1] Ruhr-University Bochum/D; [2] Leibniz-Institut für Katalyse e. V., Rostock/D

B.09.20 **Studies on phase composition of iron-based catalysts under Fischer-Tropsch conditions**
M. Schaller[1]; E. Reichelt[1]; B. Matthey[1]; M. Jahn[1]; N. Fischer[2]; M. Claeys[2]; [1] Fraunhofer IKTS, Dresden/D; [2] DST-NRF Centre of Excellence in Catalysis c*change and Catalysis Institute, University of Cape Town, Cape Town/ZA

B.09.21 **XAS under real conditions: Two in-situ cells and their applications in homogeneous and heterogeneous catalysis**
R. Schoch[1]; M. Bauer[1]; [1] Paderborn University, Paderborn/D

B.09.22 **Environmental Transmission Electron Microscopy on a Co@HZSM5 Catalyst Active in Fischer-Tropsch Synthesis**
A. Straß-Eifert[1]; T. Sheppard[2]; C. Damsgaard[3]; J. Grunwaldt[2]; R. Güttel[1]; [1] Ulm University, Ulm/D; [2] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [3] Technical University of Denmark (DTU), Kopenhagen/DK

B.09.23 **An in situ XAS and in situ XRD study on the microstructure of Cu particles of Cu/SBA-15 catalysts in methanol steam reforming**
G. Koch[1]; T. Ressler[2]; [1] BasCat, Fritz Haber Institute, Berlin/D; [2] Technische Universität Berlin/D

B.09.24 **Operando XAS and XRD studies of the superior stability of $Ni_3Fe/Al_2O_3$ under dynamic $CO_2$ methanation**
M. Serrer[1]; A. Zimina[1]; K. Kalz[1]; H. Lichtenberg[1]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

B.09.25 **Insights from Operando Spectroscopy and Temporal Analysis of Products Enhancing Our Understanding of Supported Au Catalysts**
K. Wiese[1]; D. Widmann[1]; J. Bansmann[1]; T. Häring[1]; G. Kucerova[1]; R. Behm[1]; A. Abdel-Mageed[1]; [1] Ulm University, Ulm/D

B.09.26 **Redox kinetics of vanadium substituted heteropoly acid catalysts in biomass oxidation gained from liquid core waveguide membrane microreactor in situ studies**
S. Ponce[1]; A. Jakob[2]; A. Drochner[1]; B. Etzold[1]; [1] TU Darmstadt/D; [2] Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D

B.09.27 **Design of in situ cells for 2D and 3D X-ray and electron microscopy in catalysis research**
Y. Fam[1]; T. Sheppard[1]; J. Becher[1]; D. Scherhaufer[1]; H. Lambach[1]; S. Kulkarni[2]; T. Keller[2]; A. Wittstock[3]; F. Wittwer[2]; M. Seyrich[2]; D. Brueckner[2]; M. Kahnt[2]; A. Schropp[2]; C. Schroer[2]; J. Grunwaldt[1]; [1] Karlsruhe Institute of Technology (KIT), Karlsruhe/D; [2] Deutsches Elektronen-Synchrotron (DESY), Hamburg/D; [3] Bremen University, Bremen/D



POSTER PROGRAMME

## MODEL CATALYSTS/SURFACE SCIENCE

B.10.01 **Steady-state kinetic analysis of CO oxidation over manganese oxide surfaces**
M. Dreyer[1]; S. Becker[1]; K. Friedel Ortega[1]; M. Behrens[1]; [1] University of Duisburg-Essen, Essen/D

B.10.02 **Enantioselective reactions on chirally-modified Pt(111) surfaces**
C. Schröder[1]; J. Weber[1]; M. Schmidt[1]; S. Attia[1]; S. Schauermann[1]; [1] CAU Kiel/D

B.10.03 **Comparison of Sintering by Particle Migration and Ripening through First Principles based Simulations**
E. Dietze[1]; P. Plessow[1]; [1] Karlsruhe Institute of Technology, Karlsruhe/D

B.10.04 **Unrevealing promotor effects on Ni-Al catalysts by TPD**
S. Ewald[1]; T. Burger[1]; K. Hinrichsen[1]; [1] Technical University of Munich, Garching near Munich/D

B.10.05 **Characterization of Pd-, Pt- and Rh-based SCALMS by in-situ infrared spectroscopy in UHV and under ambient conditions**
D. Blaumeiser[1]; M. Kettner[1]; T. Bauer[1]; C. Stumm[1]; S. Maisel[1]; N. Taccardi[1]; M. Schwarz[1]; C. Schuschke[1]; P. Wasserscheid[1]; A. Görling[1]; J. Libuda[1]; [1] FAU Erlangen-Nürnberg, Erlangen/D

B.10.06 **Oxide Lewis acidity as a descriptor for promotion effects in Cu catalysis: hydrogenation of propylene carbonate to methanol**
J. Kim[1]; [1] Max-Planck-Institute für Kohlenforschung, Mülheim an der Ruhr/D

B.10.07 **Identification of surface species on modified mixed oxide catalysts during $CO_2/H_2$ reaction**
E. Borovinskaya[1]; S. Trebbin[1]; F. Alscher[1]; C. Breitkopf[1]; [1] TU Dresden/D

## MOLECULAR CATALYSIS/BIOCATALYSIS

A.11.01 **Progress in homogeneously catalyzed oxidation reactions - sustainability through catalyst recycling**
J. Vondran[1]; D. Vogt[1]; T. Seidensticker[1]; [1] TU Dortmund/D

A.11.02 **Rh-catalyzed reductive amination of undecanal eith mixed ligands in multiphase systems**
A. Weber[1]; R. Schomäcker[1], [1] TU Berlin/D

A.11.03 **Hydrogenation of $CO_2$ to Formic Acid in DMSO based Reaction Media: Solved and Unsolved Challenges for Process Development**
C. Jens[1]; M. Scott[1]; B. Liebergesell[1]; C. Westhues[1]; P. Schäfer[1]; G. Franciò[1]; K. Leonhard[1]; W. Leitner[2]; A. Bardow[1], [1] RWTH Aachen/D; [2] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

A.11.04 **Reactive Ionic Liquids for Immobilization of Homogeneous Catalysts in Amination Reactions**
M. Terhorst[1]; A. Vorholt[2]; D. Vogt[1]; T. Seidensticker[1], [1] TU Dortmund,/D; [2] MPI für Chemische EnergieKonversion, Mülheim an der Ruhr/D

A.11.05 **Mechanistic Kinetic Modelling of the Biocatalysed Formation of Galacto-Oligosaccharides with Enzymes of Different Origins**
I. Mueller[1]; S. Kirschtowski[2]; A. Seidel-Morgenstern[2]; C. Hamel[1]; [1] Anhalt University of Applied Sciences, Koethen/D; [2] Otto von Guericke University, Magdeburg/D

A.11.06 **Transfer hydrogenation of cyclic carbonate and polycarbonate to methanol and diols by well-denfined iron pincer catalysts**
X. Liu[1]; T. Werner[1], [1] Leibniz Institute for Catalysis (LIKAT), Rostock/D

A.11.07 **Homogeneously Catalyzed Reductive Amination: Chemical and Process Engineering Solutions**
J. Bianga[1]; T. Roesler[1]; T. Modl[1]; D. Vogt[1]; T. Seidensticker[1]; [1] TU Dortmund/D

A.11.08 **Mn-catalyzed hydroboration of challenging carbonyl groups**
C. Erken[1]; A. Kaithal[2]; S. Sen[2]; T. Weyhermüller[3]; M. Hölscher[2]; C. Werlé[3]; W. Leitner[1], [1] Max-Planck-Institute for Chemical Energy Conversion, Mülheim/D and RWTH Aachen University, Mülheim an der Ruhr/Aachen/D; [2] RWTH Aachen University, Aachen/D; [3] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

## PHOTOCHEMISTRY

B.12.01 **Nanostructured Spinel Ferrite Materials for Photoelectrochemical Water Splitting**
K. Kirchberg[1]; R. Marschall[2]; [1] Justus-Liebig University Giessen/D; [2] Universität Bayreuth/D

B.12.02 **Synthesis and characterization of GaN:ZnO photocatalysts for overall water splitting prepared by co-precipitation and moisture-assisted nitridation**
H. Jansen[1]; J. Menze[1]; M. Muhler[1]; [1] Ruhr University Bochum/D

B.12.04 **Mesoporous $TiO_2$ thin films with pulse plated plasmonic Au nanoparticles**
E. Gent[1]; M. Janssen[1]; M. Wark[1]; [1] Carl von Ossietzky Universität Oldenburg/D

B.12.05 **Photocatalytic overall water splitting: Observing $H_2$ and $O_2$ transients with Ni/NiOx-modified Mg:$SrTiO_3$**
K. Han[1]; R. Jong[1]; G. Mul[1]; B. Mei[1]; [1] University of Twente, Enschede/NL

B.12.06 **Selective oxidation of $C_2$-$C_3$ alcohols to aldehydes and ketones under visible light illumination on graphitic carbon nitride**
R. Khare[1]; A. Jentys[1]; J. Lercher[1]; [1] Technical University of Munich, Garching/D

B.12.07 **Photocatalytic $CO_2$ Reduction Using Highly Porous Cu/$TiO_2$ Aerogels in the Presence of Oxygen**
S. Kreft[1]; E. Kondratenko[1]; S. Wohlrab[1]; H. Junge[1]; M. Beller[1]; [1] Leibniz-Institut für Katalyse e.V., Rostock/D

B.12.08 **Photocatalytic Reduction of $CO_2$ by using Photodeposited Pt nanoparticles on Carbon-doped Titania**
M. Tasbihi[1]; M. Schwarze[1]; C. Spöri[1]; R. Schomäcker[1]; [1] TU Berlin/D

B.12.09 **Microwave-assisted solvothermal synthesis of $SrTiO_3$ for $CO_2$ reduction**
J. Hildebrand[1]; M. Weers[1]; D. Taffa[1]; N. Moustakas[2]; T. Peppel[2]; J. Strunk[2]; M. Wark[1]; [1] Carl-von-Ossietzky Universität Oldenburg/D; [2] Leibniz-Institut für Katalyse, Rostock/D

B.12.10 **Photocatalytic $CO_2$ reduction and kinetic study over carbon nitride**
J. Rieß[1]; M. Maierhof[1]; M. Schwarze[1]; R. Schomäcker[1]; [1] TU Berlin/D





B.12.11 **Palladium-Catalyzed Decarboxylative Heck-Type Coupling of Activated Aliphatic Carboxylic Acids Enabled by Visible Light**
M. Koy[1]; F. Sandfort[1]; A. Tlahuext-Aca[1]; A. Lerchen[1]; T. Knecht[1]; J. Ernst[1]; L. Quach[1]; C. Daniliuc[1]; K. Bergander[1]; F. Glorius[1]; [1] Westfälische Wilhelms-Universität Münster/D

B.12.12 **Methods for Determining the Band Gap of Photocatalysts via UV/Vis Spectroscopy: Influence of Phase Composition**
E. Welter[1]; M. Goepel[1]; R. Gläser[1]; [1] Universität Leipzig/D

B.12.13 **QuinoLight – Development of Photocatalytic Processes**
J. Patzsch[1]; F. Guba[2]; A. Blößer[3]; J. Timm[3]; D. Ziegenbalg[2]; R. Marschall[3]; J. Bloh[1]; [1] DECHEMA-Forschungsinstitut, Frankfurt/D; [2] Ulm University, Ulm/D; [3] University of Bayreuth/D

## POROUS MATERIALS/ZEOLITES/MOFS

B.13.01 **Frequency response method for investigation of mass transport in porous materials**
R. Grün[1]; C. Breitkopf[1]; [1] Technische Universität Dresden/D

B.13.02 **Correlating acid site properties of zeolites with catalytic activity in gas-phase synthesis of Diesel substitutes**
A. Grünert[1]; P. Losch[1]; C. Ochoa-Hernández[1]; W. Schmidt[1]; F. Schüth[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

B.13.03 **3D Printed Activated Carbon Monoliths with Tunable Pore Structure**
H. Steldinger[1]; J. Gläsel[1]; B. Etzold[1]; [1] Technische Universität Darmstadt/D

B.13.04 **Oxidative Dehydrogenation of Ethane with Carbon Dioxide over Selected Metal-Impregnated Zeolite Catalysts**
A. De Cuyper[1]; C. Wilhelm[1]; S. Ernst[1]; [1] TU Kaiserslautern/D

B.13.05 **Synthesis of highly porous α-$Al_2O_3$ via the sol-gel process using citric acid as structure directing agent**
S. Carstens[1]; D. Enke[1]; [1] Universität Leipzig/D

B.13.06 **Methods for the Preparation of Intermetallic Cu2NiSn Alloys Supported on Zeolites**
J. Schaumlöffel[1]; C. Wilhelm[1]; S. Ernst[1]; H. Schreyer[2]; K. Braunsmann[2]; U. Müller[2]; [1] TU Kaiserslautern/D; [2] BASF SE, Ludwigshafen am Rhein/D

B.13.07 **Design of new single-site catalysts based on DUT-5 for selective aerobic oxidation reactions**
C. Yildiz[1]; W. Kleist[1]; [1] Ruhr-Universität Bochum/D

B.13.08 **Reviewing Titanium Silicalite-1**
S. Tragl[1]; S. Wrabetz[1]; M. Hashagen[1]; L. Frevel[1]; T. Jones[1]; F. Seitz[1]; R. Schlögl[1]; T. Lunkenbein[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D

B.13.09 **Single Pt Atoms and Clusters in Metal-Organic Framework as Highly Active and Stable Catalysts: Where is the Difference?**
A. Abdel-Mageed[1]; B. Rungtaweevoranit[2]; T. Harry[1]; O. Yaghi[2]; R. Behm[1]; [1] Universität Ulm,/D; [2] University of California Berkeley/USA

B.13.10 **Dynamics of Oxygen Activation and Storage on Cu Metalated Metal-Organic Frameworks: A Temporal Analysis of Products (TAP) Study**
C. Fauth[1]; A. Abdel-Mageed[1]; B. Rungtaweevoranit[2]; O. Yaghi[2]; R. Behm[1]; [1] Ulm University, Ulm/D; [2] University of California, Berkeley/USA

B.13.11 **Carbon-supported Cobalt Nanoparticles for H-transfer Hydrogenation of Furfural**
C. Ochoa-Hernández[1]; N. Rankovic[1]; A. Bähr[1]; F. Schüth[1]; H. Tüysüz[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

B.13.12 **Direct Arylation of Heteroaromatics using Heterogeneous Single Site Catalysts**
Y. Mohr[1]; F. Wisser[1]; D. Farrusseng[1]; J. Canivet[1]; [1] IRCELYON, Université Claude Bernard Lyon 1, Villeurbanne/F

B.13.13 **Stabilities of $C_3$-$C_5$ Alkoxide Species inside H-FER Zeolite – Ab Initio Studies**
Q. Ren[1]; M. Rybicki[2]; J. Sauer[2]; [1] Shanghai University, Shanghai/CN; [2] Humboldt-Universität zu Berlin, Berlin/D

## REACTION ENGINEERING

B.14.01 **Reductive amination of a long chain aldehyde: solvent effects and gas solubility**
S. Kirschtowski[1]; C. Kadar[2]; D. Strauch[1]; A. Seidel-Morgenstern[3]; C. Hamel[4]; [1] Otto von Guericke University, Magdeburg/D; [2] Nuremberg Institute of Technology, Nuremberg/D; [3] Otto-von-Guericke University and Max-Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [4] Anhalt University of Applied Sciences, Köthen/D

B.14.02 **Deactivation and regeneration of VOx catalyst for dehydrogenation of propane in multifunctional reactors**
A. Brune[1]; A. Seidel-Morgenstern[1]; C. Hamel[2]; [1] Otto-von-Guericke-Universität Magdeburg/D; [2] Hochschule Anhalt, Köthen/D

B.14.03 **Deactivation and regeneration strategy for Ni/(Al)MCM-41 for the direct conversion of ethylene to propene**
M. Felischak[1]; T. Wolff[2]; L. Alvarado-Perea[3]; A. Seidel-Morgenstern[4]; C. Hamel[5]; [1] Otto-von-Guericke-Universität Magdeburg/D; [2] Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [3] Universidad Autonoma de Zacatecas/MEX; [4] Otto-von-Guericke University and Max-Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [5] Hochschule Anhalt, Köthen/D

B.14.04 **Iron Based Core-Shell Model Catalysts for Methanation of CO/$CO_2$ Mixtures**
C. Zambrzycki[1]; R. Güttel[1]; [1] Universität Ulm/D

B.14.05 **Iron Based Core-Shell Catalysts for Methanation of $CO_2$-Effect of Core Size on Carbon Formation**
J. Kirchner[1]; C. Zambrzycki[2]; Z. Baysal[1]; S. Kureti[1]; R. Güttel[2]; [1] TU Bergakademie Freiberg/D; [2] Universität Ulm/D





B.14.06 **Experimental deactivation study of Re- and NiRe-catalysts for the metathesis of ethene and 2 butene**
T. Wolff[1]; M. Felischak[2]; L. Alvarado-Perea[3]; C. Hamel[4]; A. Seidel-Morgenstern[5]; [1] Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [2] Otto von Guericke University, Magdeburg/D; [3] Universidad Autónoma de Zacatecas/MEX; [4] Anhalt University of Applied Sciences, Köthen/D; [5] Max Planck Institute for Dynamics of Complex Technical Systems; Otto von Guericke University, Magdeburg/D

B.14.07 **$CO_2$ methanation on novel Mg-promoted Fe catalysts**
Z. Baysal[1]; J. Kirchner[1]; S. Kureti[1]; [1] TU Bergakademie Freiberg/D

B.14.08 **Catalyst screening and reactive studies for the synthesis of oxymethylene ethers (OME) from dimethyl ether**
P. Haltenort[1]; K. Malzew[1]; U. Arnold[1]; J. Sauer[1]; [1] Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D

B.14.09 **Catalyst stability in the rhodium diphosphite catalyzed hydroformylation of long chain olefins**
M. Gerlach[1]; M. Wendt[1]; A. Seidel-Morgenstern[2]; C. Hamel[3]; [1] Otto von Guericke University, Institute of Process Engineering, Magdeburg/D; [2] Otto von Guericke University, Institute of Process Engineering/Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; [3] Anhalt University of Applied Sciences, Process Engineering/ Otto von Guericke University, Institute of Process Engineering, Magdeburg/D

B.14.10 **Microkinetic Model for Methanol-to-Olefins (MTO) on ZSM-5**
S. Standl[1]; T. Kühlewind[1]; F. Kirchberger[1]; M. Tonigold[2]; J. Lercher[1]; K. Hinrichsen[1]; [1] Technical University of Munich, Garching near Munich/D; [2] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

B.14.11 **Oxidative Dehydrogenation of Ethane over MoVTeNb Mixed Metal Oxides: Kinetic Investigation and Modeling**
P. Donaubauer[1]; D. Melzer[1]; K. Wanninger[2]; G. Mestl[2]; M. Sanchez-Sanchez[1]; J. Lercher[1]; K. Hinrichsen[1]; [1] Technical University of Munich, Garching near Munich/D; [2] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

B.14.12 **Ceramic tapes as easy scalable Fischer-Tropsch supports**
M. Schaller[1]; E. Reichelt[1]; M. Jahn[1]; U. Scheithauer[1]; A. Michaelis[1]; [1] Fraunhofer IKTS, Dresden/D

B.14.13 **Reductive Amination with subsequent catalyst recovery via thermomorphic multiphase systems: From Laboratory to Miniplant**
K. Kuennemann[1]; J. Dreimann[1]; D. Vogt[1]; [1] TU Dortmund/D

B.14.14 **Investigation of the Effect of Water on Catalyst Activity and Product Selectivity in the Oxidative Coupling of Methane**
Z. Aydin[1]; E. Kondratenko[1]; D. Linke[1]; [1] Leibniz-Institut für Katalyse e. V., Rostock/D

B.14.15 **Base-catalyzed transesterification of WCO in microreactors: Experiments and kinetic modelling**
E. Borovinskaya[1]; A. Pilipenko[2]; W. Reschetilowski[1]; C. Breitkopf[1]; [1] TU Dresden/D; [2] Saint-Petersburg State Institute of Technology (Technical University), St. Petersburg/RUS

## SELECTIVE HYDROGENATION/DEHYDROGENATION

B.15.01 **Tailored Hydrolysis of Borohydride in Ionic Liquids**
E. Klindtworth[1]; N. Guntermann[1]; I. Delidovich[1]; R. Palkovits[1]; [1] RWTH Aachen University, Aachen/D

B.15.02 **Phosphine-free Pincer Cobalt Catalyst Precursors for the Selective Hydrogenation of Olefins**
P. Puylaert[1]; A. Dell'Acqua[1]; F. El Ouahabi[1]; T. Roisnel[2]; S. Hinze[1]; S. Tin[1]; J. de Vries[1]; [1] Leibniz-Institut für Katalyse, Rostock/D; [2] Université Rennes/F

B.15.03 **Acetaldehyde from Ethanol over $Cu/ZrO_2$**
Ö. Agbaba Sener[1]; W. Schmidt[1]; F. Schüth[1]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

B.15.04 **Reduction of esters and α,β-unsaturated carbonyl compounds to alcohols using Fe or Ru MACHO-BH catalysts and ethanol as a source of hydrogen**
S. Kirchhecker[1]; R. Farrar-Tobar[1]; Z. Wie[1]; H. Jiao[1]; S. Tin[1]; S. Hinze[1]; J. de Vries[1]; [1] Leibniz-Institut für Katalyse, Rostock/D

B.15.05 **Heterogeneously Catalysed Amination of Alcohols: A Computational Study**
J. Engel[1]; A. Roldan[1]; [1] Cardiff University, Cardiff/UK

B.15.06 **Vanadia based catalysts for the dehydrogenation of 1-butene with $CO_2$**
K. Ifflaender[1]; D. Seeburg[1]; H. Lund[1]; N. Steinfeldt[1]; [1] Leibniz-Institut für Katalyse e. V., Rostock/D

B.15.07 **Activation during Semi-Hydrogenation of Acetylene: The Highly Selective $Pd_{11}Bi_2Se_2$**
I. Aviziotis[1]; A. Götze[2]; F. Göhler[1]; H. Kohlmann[2]; M. Armbrüster[1]; [1] Chemnitz University of Technology, Chemnitz/D; [2] Leipzig University, Leipzig/D

B.15.08 **Applying Le Chatelier's Principle for a Highly Efficient Catalytic Transfer Hydrogenation with Ethanol as the Hydrogen Source**
P. Weingart[1]; W. Thiel[1]; [1] TU Kaiserslautern/D

B.15.09 **Rhodium nanoparticles on phosphonium-based SILPs for the hydrodeoxygenation of aromatic ketones**
G. Moos[1]; A. Bordet[1]; W. Leitner[1]; [1] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

B.15.10 **Propane dehydrogenation with zincosilicates**
L. Ni[1]; R. Bermejo-Deval[1]; J. Lercher[1]; [1] Technische Universität München, Garching/D

B.15.11 **Pd-Pt/C Bimetallic Catalyst for the Thermo- and Electrocatalysis for High Selective Hydrogenation of Cinnamaldehyde**
F. Deng[1]; G. Cheng[1]; E. Ember[1]; A. Jentys[1]; J. Lercher[1]; [1] Technische Universität München/D

B.15.12 **H-Transfer reactions of alkenes with tertiary amines as H-donors on carbon supported noble metals**
G. Berger[1]; G. Yang[1]; G. Haller[2]; E. Baráth[3]; [1] Technische Universität München, Garching/D; [2] Yale University, New Haven/USA; [3] Technische Universität München/D

B.15.13 **Effect of supported metal and promoter for $ZrO_2$ on activity and selectivity in non-oxidative alkane dehydrogenation**
A. Perechodjuk[1]; E. Kondratenko[1]; [1] Leibniz-Institut für Katalyse e.V., Universität Rostock/D





B.15.14 **Oxygenate Formation over $K/\beta\text{-}Mo_2C$ Catalysts Role of Preparation and Promotion**
W. Marquart[1]; D. Morgan[2]; G. Hutchings[2]; M. Claeys[1]; N. Fischer[1]; [1] DST-NRF Centre of Excellence in Catalysis c*change and Catalysis Institute, University of Cape Town/ZA; [2] Cardiff Catalysis Institute, Cardiff/UK

B.15.15 **Ru-Based Bimetallic Catalysts for the Aqueous-Phase Hydrogenation of Glycolic Acid**
F. Harth[1]; A. Kojčinović[1]; M. Goepel[1]; R. Gläser[1]; [1] Universität Leipzig/D

B.15.16 **Mechanistic Insight of Benzyl Aldehyde Hydrogenation: Effects of Solvent on Hydrogenation Steps**
G. Cheng[1]; E. Ember[1]; A. Jentys[1]; Y. Chin[2]; J. Lercher[1]; [1] Technische Universität München/D; [2] University of Toronto/CDN

B.15.17 **Regeneration of supported catalytically active liquid metal solutions (SCALMS) for propane dehydrogenation**
M. Wolf[1]; N. Raman[1]; N. Taccardi[1]; M. Haumann[1]; P. Wasserscheid[2]; [1] University of Erlangen-Nuremberg (FAU), Erlangen/D; [2] University of Erlangen-Nuremberg (FAU), Helmholtz Institute Erlangen-Nürnberg for Renewable Energy (HI ERN), Erlangen/D

B.15.18 **Bifunctional $Ni_2P/H$ ZSM 5 Catalysts for Hydrodesulfurization (HDS) of Fuel Gases**
N. Stegmann[1]; W. Schmidt[1]; T. Optenhostert[2]; [1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D; [2] Zentrum für BrennstoffzellenTechnik (ZBT) GmbH, Duisburg/D

B.15.19 **Insights in the mechanism of $CO_2$-methanation**
P. Völs[1]; S. Hilbert[1]; B. Störr[1]; N. Bette[1]; A. Lißner[1]; J. Seidel[1]; F. Mertens[1]; [1] TU Bergakademie Freiberg/D

B.15.20 **Advancing the Selective Hydrogenation of Acetylene**
S. Barth[1]; O. Matselko[2]; R. Zimmermann[1]; A. Ormeci[3]; U. Burkhardt[3]; R. Gladyshevskii[2]; Y. Grin[3]; M. Armbrüster[1]; [1] Chemnitz University of Technology, Chemnitz/D; [2] Ivan Franko National University of Lviv/UA; [3] Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden/D

B.15.21 **Alkylamine promoted low-temperature carbon dioxide hydrogenation to methanol**
V. Korkmaz[1]; S. Frölich[1]; B. Störr[1]; A. Lißner[1]; F. Mertens[1]; [1] TU Bergakademie Freiberg/D

B.15.22 **$TiO_2$ Morphology-dependent Catalytic Performance of $Ru/TiO_2$ Catalysts for $CO_2$ Methanation**
S. Chen[1]; A. Wrabel[1]; A. Abdel-Mageed[1]; S. Evaristo[1]; D. Li[2]; W. Huang[2]; R. Behm[1]; [1] Ulm University, Ulm/D; [2] University of Science and Technology of China, Hefei/CN

B.15.23 **A Special Kind of Metal-Support Interactions: Boasting the Activity of $Ru/\gamma\text{-}Al_2O_3$ Catalysts for the Selective CO Methanation**
S. Chen[1]; A. Abdel-Mageed[1]; R. Behm[1]; [1] Ulm University, Ulm/D

B.15.24 **$CO_2$ Hydrogenation to Methanol on $Au/CeO_2$ Catalysts: Catalyst De-Activation and Identification of Active Intermediates**
A. Rezvani[1]; A. Abdel-Mageed[1]; R. Behm[1]; [1] Ulm University, Ulm/D

B.15.25 **High-surface-area $TiO_2$ Catalysts for Selective CO Methanation: Moderating Strong Metal - Support Interactions by Si Doping**
S. Cisneros[1]; S. Chen[1]; A. Abdel-Mageed[1]; S. Olesen[2]; C. Ib[2]; B. Jürgen[1]; [1] Ulm University, Ulm/D; [2] Technical University of Denmark, Lyngby/DK

B.15.26 **Effect of Additives on the Selectivity in the Semi-Hydrogenation of 1-Octyne Catalyzed by Colloidal Palladium Nanoparticles**
L. Staiger[1]; M. Cokoja[1]; R. Fischer[1]; R. Fischer[2]; [1] TU München, Garching bei München/D; [2] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

## SELECTIVE OXIDATION/REDUCTION

B.16.01 **Synthesis of Mn/Cu-based Perovskites adressed to Oxidation Catalysis**
G. Bellini[1]; F. Girgsdies[1]; R. Schlögl[1]; A. Trunschke[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D

B.16.02 **On the low-temperature activity in selective 2-propanol oxidation over unsupported cobalt ferrite spinel nanoparticles**
S. Anke[1]; T. Falk[1]; M. Muhler[1]; G. Bendt[2]; S. Schulz[2]; [1] Ruhr-Universität Bochum/D; [2] Universität Duisburg-Essen, Essen/D

B.16.03 **Effects of thermal pretreatment on structural and functional properties of copper catalysts in selective oxidation of propene**
M. Diekmann[1]; T. Ressler[1]; [1] Technische Universität Berlin/D

B.16.04 **Chemical behaviour of $CaAg_2$ and CaAg compounds under ethylene epoxidation conditions**
I. Antonyshyn[1]; U. Burkhardt[1]; A. Ormeci[1]; K. Rasim[1]; S. Titlbach[2]; S. Schunk[2]; M. Armbrüster[3]; Y. Grin[1]; [1] Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden/D; [2] hte GmbH, Heidelberg/D; [3] Technische Universität Chemnitz/D

B.16.05 **Influence of structural and solid-state kinetic properties on catalytic performance of FexOy/SBA-15 selective oxidation catalysts**
N. Genz[1]; T. Ressler[1]; [1] Technical University of Berlin/D

B.16.06 **Light-driven Oxygen Insertions in Late Transition Metal Alkyl Complexes**
S. Ho[1]; G. Britovsek[1]; [1] Imperial College London/UK

B.16.07 **Selective and efficient formation of Cu-oxo sites for methane oxidation to methanol in different zeolite frameworks**
I. Lee[1]; T. Ikuno[1]; L. Tao[1]; M. Sanchez-Sanchez[1]; J. Lercher[1]; [1] TU München/D

B.16.08 **Supported Liquid Phase Catalysts for Oxidative Dehydrogenation of Propane**
E. Erdem[1]; P. Kube[1]; A. Tarasov[1]; F. Rosowski[2]; R. Schloegl[1]; A. Trunschke[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

B.16.09 **The Role of Phosphorus on Vanadia Catalyst for the Selective Oxidation of n-Butane to Maleic Anhydride**
J. Xie[1]; F. Pohl[1]; C. Schulz[1]; K. Knemeyer[1]; R. Naumann d›Alnoncourt[1]; B. Frank[1]; R. Kraehnert[1]; F. Rosowski[2]; [1] BasCat - UniCat BASF JointLab, Technische Universität Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

B.16.10 **The reaction network of propane oxidation on $V_2O_5$**
P. Kube[1]; R. Schlögl[1]; A. Trunschke[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D





B.16.11 **Role of M1-MoVTeNb metal oxide composition on the activity and selectivity in ethane oxidative dehydrogenation**
D. Melzer[1]; G. Mestl[2]; K. Wanninger[2]; M. Sanchez-Sanchez[1]; J. Lercher[1]; [1] Technische Universität München, Garching/D; [2] Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

B.16.12 **TDS analysis of supported nano-Ag catalysts: A contribution to the Ag-O chemistry**
M. Lamoth[1]; P. Milivoj[1]; F. Rosowski[2]; R. Schlögl[1]; E. Frei[1]; [1] Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; [2] BasCat - UniCat BASF Joint Lab, Berlin/D

B.16.13 **Structured Silver Foam in the Partial Oxidation of Methanol to Formaldehyde**
S. Eckstein[1]; L. Schmalhorst[1]; A. Gerstle[1]; D. Beton[1]; A. Tillmann[1]; L. Torkuhl[1]; [1] Alantum Europe GmbH, München/D

B.16.14 **Oxidation of olefins using surface-active imidazolium tungstates**
F. Schmidt[1]; B. Zehner[2]; A. Jess[2]; M. Cokoja[1]; [1] Technische Universität München, Garching b. München/D; [2] Universität Bayreuth/D

B.16.15 **Description of $(La,Sm)(Mn,Co)O_3$ Perovskite Surfaces using XPS, XAS, STEM and EELS and the Effect on Oxidative Dehydrogenation of Propane**
G. Koch[1]; M. Hävecker[2]; W. Hetaba[2]; P. Kube[3]; F. Rosowski[4]; R. Schlögl[2]; A. Trunschke[2]; [1] BasCat, Fritz Haber Institute, Berlin/D; [2] Fritz Haber Institute of the Max Planck Society, Department of Inorganic Chemistry, Berlin/D; [3] Fritz Haber Institute of the Max Planck Society, Berline/D; [4] BasCat - UniCat BASF Joint Lab, Berlin/D

B.16.16 **Monitoring the structural evolution of multicomponent catalysts for selective propylene oxidation**
M. Stehle[1]; P. Sprenger[1]; T. Sheppard[1]; J. Suuronen[2]; A. Gaur[1]; F. Benzi[1]; J. Grunwaldt[3]; [1] Karlsruhe Institute of Technology, Karlsruhe/D; [2] European Synchrotron Radiation Facility (ESRF), Grenoble/F; [3] Karlsruhe Institute of Technology; Institute of Catalysis Research and Technology (IKFT), Karlsruhe Institute of Technology, Karlsruhe/D

## MISCELLANEOUS

A.17.01 **Hydrochloric acid treatment of transition metal sulfides and its catalytic consequences for hydrotreating reactions**
H. Shi[1]; S. Albersberger[1]; M. Wagenhofer[1]; W. Luo[1]; F. Vogelgsang[1]; O. Gutiérrez[1]; J. Lercher[1]; [1] Technische Universität München, Garching bei München/D

A.17.02 **N-Heterocyclic Carbenes as Novel Surface Modifiers in Organic Field-Effect Transistors: Improved Stability and Contact at the Interface**
M. Freitag[1]; A. Lv[1]; K. Chepiga[1]; A. Schäfer[2]; L. Chi[1]; F. Glorius[1]; [1] Westfälische Wilhelms-Universität Münster/D; [2] nanoAnalytics GmbH, Münster/D

A.17.03 **Insights into the Activity of Ga/Ni Intermetallic Compounds as $CO_2$ Hydrogenation Catalysts Derived from Layered Double Hydroxides**
F. Özcan[1]; F. Özcan[2]; B. Mockenhaupt[3]; K. Friedel Ortega[3]; M. Behrens[3]; [1] Universität Duisburg-Essen, Fakultät für Chemie, Essen/D; [2] Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D; [3] University of Duisburg-Essen, Essen/D

A.17.04 **Is there an Alternative to the Haber-Bosch process? An ab-initio Analysis of the Catalytic Oxidation of Nitrogen**
U. Hintermair[1]; V. Krewald[2]; F. Sedeqi[1]; J. Glancy[1]; [1] University of Bath/UK; [2] TU Darmstadt/D

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- Hiden Analytical
- IBU-tec advanced materials AG
- Magritek GmbH
- Mettler-Toledo GmbH
- Micromeritics GmbH
- MKS Instruments Deutschland GmbH
- Parr Instrument (Deutschland) GmbH
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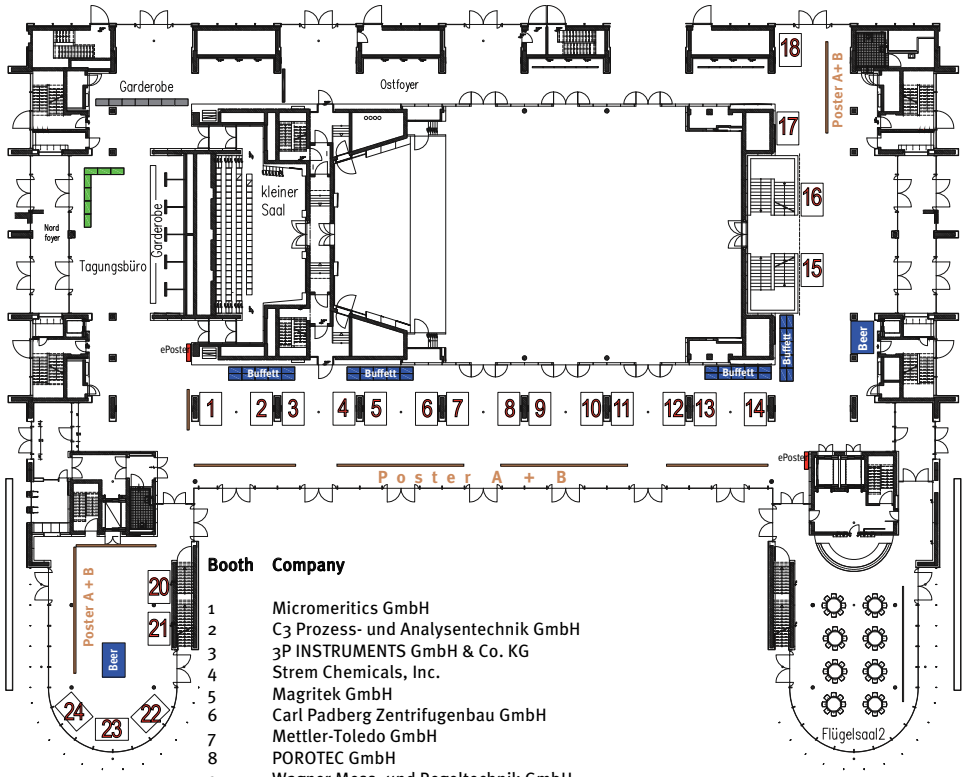
Detailed information about the exhibitors: **https://dechema.de/en/exhibition**





Congress Centrum Neue Weimarhalle




| Booth | Company |
|---|---|
| 1 | Micromeritics GmbH |
| 2 | C3 Prozess- und Analysentechnik GmbH |
| 3 | 3P INSTRUMENTS GmbH & Co. KG |
| 4 | Strem Chemicals, Inc. |
| 5 | Magritek GmbH |
| 6 | Carl Padberg Zentrifugenbau GmbH |
| 7 | Mettler-Toledo GmbH |
| 8 | POROTEC GmbH |
| 9 | Wagner Mess- und Regeltechnik GmbH |
| 10 | Parr Instrument (Deutschland) GmbH |
| 11 | premex reactor GmbH |
| 12 | IBU-tec advanced materials AG |
| 13 | Fink Chem+Tec GmbH & Co. KG |
| 14 | Hiden Analytical vertr. d. Vacua GmbH |
| 15 | Advanced Machinery & Technology |
| 16 | Glatt Ingenieurtechnik GmbH |
| 17 | TA Instruments ein Unternehmensbereich der Waters GmbH |
| 18 | Advion |
| 20 | BERGHOF Products + Instruments GmbH |
| 21 | Anton Paar Germany GmbH |
| 22 | Clariant Produkte (Deutschland) GmbH |
| 23 | ChemPUR Feinchemikalien und Forschungsbedarf GmbH |
| 24 | MKS Instruments Deutschland GmbH |

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VDI

27 – 29 May 2019 · Festung Marienberg Wuerzburg · Germany

# Jahrestreffen Reaktionstechnik 2019

## Annual Meeting on Reaction Engineering in Cooperation with the Subject Division Multiphase Flows

www.processnet.org/REAKT2019


**The conference covers the topics:**

- Processes
- In-situ Monitoring
- New Reactor Concepts
- Modelling and Simulation
- Kinetics
- Heterogeneous Catalysis

**Additionally this year's event features the focus topics:**

- Multiphase Reaction Systems
- Electrochemical Reaction Engineering

PROCESSNET
EINE INITIATIVE VON DECHEMA UND VDI-GVC

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## NOTES

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## SAVE THE DATE

10 – 13 March 2020
congress centrum neue weimarhalle

# 53. Jahrestreffen Deutscher Katalytiker

www.processnet.org/katalytiker2020

**Deadline for Paper Submission**
**11 November 2020**


GECATS GERMAN CATALYSIS SOCIETY

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# EuropaCat 2019

AACHEN · GERMANY · 18 – 23 AUGUST

## 14th EuropaCat – European Congress on Catalysis

"Catalysis without Borders"

**A joint event of the catalysis communities from Germany, the Netherlands and Belgium**

### PLENARY SPEAKERS

**I. Chorkendorff**
Technical University of Denmark/D

**C. Copéret**
ETH Zürich/CH

**K.I. Goldberg**
Vagelos Institute for Energy Science and Technology/USA

**G.B. Marin**
Ghent University/B

**V. Parmon**
Boreskov Institute of Catalysis, Novosibirsk/RUS

**S.S. Stahl**
University of Wisconsin-Madison/USA

### HIGHLIGHTS

- The **major European Conference** in the field of catalysis
- **More than 1500 papers has been submitted**
- **Young Scientists** meet experienced experts to discuss future challenges in catalysis
- Attractive social programme with **excursions, EuropaCat party and dinner**

200+ Speaker | 50+ Exhibitors | 1500+ Participants | 50+ Countries

**Registration opens at 2 May 2019**

### ORGANISER

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### VENUE

The conference will take place at **Aachen**, the "triple point of Europe".

**Eurogress Aachen**
Monheimsallee 48
52062 Aachen
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