

DGMK

International Conference

**Selective Oxidation and
Functionalization:
Classical and Alternative
Routes and Sources**

October 13 – 15, 2014
Berlin, Germany



Società Chimica Italiana



Österreichische Gesellschaft
für Erdölwissenschaften



German Society for Petroleum and Coal
Science and Technology

Petrochemistry Division

This international conference provides a forum for chemists and engineers from refinery, petrochemistry and the chemical industry as well as from academia to discuss Selective Oxidation and Functionalization.

Nine Keynote Lectures, 16 Lectures and 19 Posters will be presented at the conference. Additional "last minute posters" are welcome. Authors who intend to present a "last minute poster" are kindly requested to contact the Scientific Chairmen at or before the conference.

The best poster of the conference will be selected by the attendees for the "Best Poster Award".

This international conference is organised by the DGMK *German Society for Petroleum and Coal Science and Technology* in association with the *Società Chimica Italiana* (SCI) and the Austrian ÖGEW *Österreichische Gesellschaft für Erdölwissenschaften*.

Please note, that the participants of the conference will have the opportunity to visit the UniCat / BasCat Laboratory at the Technical University Berlin after the conference on Wednesday afternoon.

Scientific Chairmen:

Prof. Dr. Stefan Ernst, Technische Universität
Kaiserslautern

Prof. Dr. Arno Behr, Technische Universität Dortmund

Dr. Michael Bender, BASF SE, Ludwigshafen

Prof. Dr. Andreas Jess, Universität Bayreuth

Dr. Mario Marchionna, Saipem S.p.A.,
San Donato Milanese

Programme

Monday, October 13, 2014

13.30 **Registration at the Conference Desk**

14.00 **Opening and Welcome Address**
Stefan Ernst

Session Chairman: Mario Marchionna

14.15 *Keynote Lecture:* H. Wiederhold*, D. Wolf*,
H. Zanthoff**

*Evonik Industries, Hanau, Germany,

**Evonik Industries, Marl, Germany

Development of Oxidation Processes in Industrial Environment – Challenges, Proceedings and Advancements

15.00 *Keynote Lecture:* A. Schmid, M. Schrewe, N. Ladkau,
M. K. Julsing, B. Bühler

Laboratory of Chemical Biotechnology,

TU Dortmund University, Germany

Biocatalytic C-H Functionalization

15.45 **Coffee Break**

16.15 A. Behr, N. Tenhumberg, A. Wintzer
Technical Chemistry, Technische Universität Dortmund,
Germany

Selective Oxidation and Functionalisation of Renewables

16.45 M. Bäumer
Institute of Applied and Physical Chemistry and Center for
Environmental Research and Sustainable Technology,
University Bremen, Germany

Porous Metals and Porous Oxides: New Perspectives for Selective Oxidation Reactions

17.15 M. Sanchez-Sanchez*, P. Xu*, D. Hartmann**,
N. D. Browning***, J. A. Lercher*/****

*Technische Universität München, Germany

**University of California, Davis, USA,

***Pacific Northwest National Laboratory, Richland, USA

Ethane Oxidative Dehydrogenation on MoVTenbOx catalysts: Atomic Resolution STEM shows the Impact of Morphology on Activity

17.45 R. Turco, R. Tesser, M. Di Serio
Dipartimento di Scienze Chimiche, Università di Napoli
Federico II, Napoli, Italy

Optimization of Selective Oxidation of Renewable Raw Materials in Presence of Alumina as Heterogeneous Catalyst

Tuesday, October 14, 2014

Session Chairman: Arno Behr

- 8.30 *Keynote Lecture:* M. Beller
Leibniz-Institut für Katalyse an der Universität Rostock e.V.
(LIKAT), Germany
**Redox-Catalysis with Biorelevant Metal Catalysts:
Replacing Noble Metals with Nano-Rust**
- 9.15 J. Engeldinger*, U. Bentrup*, A. Fischer**,
H.-W. Zanthoff**
*Leibniz-Institut für Katalyse (LIKAT), Rostock, Germany
**Evonik Industries AG, Hanau, Germany
**Operando Raman Spectroscopic Study of Model
Molybdate Catalysts under Mild Propene
Oxidation Conditions**
- 9.45 M. Heenemann*, F. Rosowski**, R. Schlögl*,
M. Eichelbaum*/**
*Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin,
Germany,
**BasCat, UniCat-BASF JointLab, Berlin, Germany
**Contact-free and in-situ: Electrical Conductivity of
Oxidation Catalysts studied by Microwave Cavity
Perturbation**
- 10.15 **Coffee Break**
- 10.45 *Keynote Lecture:* R. Paciello
BASF SE, Ludwigshafen, Germany
High Pressure Hydroformylation
- 11.30 A. J. Vorholt, T. Seidensticker, K. A. Ostrowski,
A. Behr
Lehrstuhl für Technische Chemie, Technische Universität
Dortmund, Germany
**Hydroformylation - Door Opener to Highly
Efficient Tandem Reactions to Bifunctional
Molecules**
- 12.00 S. Reining, E.V. Kondratenko, V.N. Kalevaru,
A. Martin
Leibniz Institute for Catalysis (LIKAT), Rostock, Germany
**Reaction Pathways in the Palladium-Catalyzed
Acetoxylation of Toluene**
- 12.30 **Lunch Break**

Tuesday, October 14, 2014

Session Chairman: Michael Bender

- 13.30 *Keynote Lecture:* A. Scarso, F. Menegazzo, G. Strukul
Dipartimento di Scienze Molecolari e Nanosistemi,
Università Ca`Foscari, Venezia, Italy
Hydrogen Peroxide: Its Use in Selective Homogeneous Oxidations in Water and some Recent Advances for its Direct Synthesis from H₂ and O₂
- 14.15 *Keynote Lecture:* A.-N. Parvulescu
BASF SE, Ludwigshafen, Germany
High Selective Oxo-functionalization of Important Basic Chemicals with Zeolyte Catalysts
- 15.00 C. K. Prasad Neeli*, R. K. Marella*, S. R. R. Kamaraju*, V. N. Kalevaru**, A. Martin** .
D. R. Burri*
*Indian Inst. of Chemical Technology, Hyderabad, India,
**Leibniz-Institut für Katalyse (LIKAT) Rostock, Germany
Au Nanoparticles anchored SBA-15 as a Promising Catalyst for the Selective Oxidation of Cinnamyl Alcohol to Cinnamaldehyde with O₂ without Radical Initiator and Base

15.30 **Poster Session**

Survey of Posters on Display: Andreas Jess

The Posters are on display during the whole conference.

O.L. Eliseev, T.N. Bondarenko, A.L. Lapidus
N.D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, Russia

Styrene Hydrocarboxylation: Towards High Regioselectivity

A.L. Lapidus, F.G. Zhagfarov, A.B. Elkin
Gubkin Russian State University of Oil and Gas, Moscow, Russia

Carbon Dioxide Catalytic Reforming of Methane

B. Kneißel
Stratley AG, Köln, Germany

Commercial Strategies for the Chemical Utilization of Methane

Luu Cam Loc*, Nguyen Tri*, Hoang Tien Cuong*,
N.A. Gaidai**, Yu.A. Agafonov**, N.V. Nekrasov**,
Ho Si Thoang*, A.L. Lapidus**

*Institute of Chemical Technology, Vietnam Acad. Sci. Techn., Ho Chi Minh City, Vietnam,

**N.D. Zelinsky Institute of Organic Chemistry, Russian Acad. Sci., Moscow, Russia

Mechanism of Carbon Monoxide Oxidation over Supported CuO Catalysts Modified by Ce and Pt

Tuesday, October 14, 2014

K. A. Ostrowski, T. A. Faßbach, A. Behr, A. J. Vorholt
Lehrstuhl für Technische Chemie, TU Dortmund, Germany
Direct synthesis of Acyloins from Olefins - A Selective and Atom Efficient Tandem Catalysis under Hydroformylation Conditions

T. Seidensticker, J. J. von Dincklage, A. Behr, A. J. Vorholt
Lehrstuhl für Technische Chemie, TU Dortmund, Germany
Diester Synthesis via Selective, Rhodium Catalyzed bis-hydroaminomethylation of Unsaturated Fatty Compounds with Diamines

Ji Ni, Su Liu, Jia-wei Teng, Wei-ming Yang
Sinopec Shanghai Res. Inst. of Petrochem. Technology, China
Nano-engineered Gold Catalysts for Direct Hydroxylation of Benzene with CO, O₂ and H₂O Under Mild Condition

L. R. Sassykova, A. T. Massenova, Sh. A. Gilmundinov, V. N. Bunin, K. S. Rakhmetova
D.V. Sokolski Inst. of Organic Catalysis, Almaty, Kazakhstan
The Effective Catalytic Systems on the Base of Colloid Platinum Metals for Oxidation of CO, Methane and Decomposition of Nitrogen Oxides

E.M. Movsumzade*, O.Yu. Poletaeva*, G.Yu. Kolchina**
*Ufa State Petroleum Technological University, Ufa, Russia,
**Bashkir State University, Sterlitamak, Russia
Mechanism of Action of Antioxidant Additives for Hydrocarbons

P. Wallis, N. Kalevaru, A. Martin
Leibniz-Institute for Catalysis (LIKAT), Rostock, Germany
Impact of Biogas Components on Selective Oxidation of Methane to Formaldehyde

S. Solmi, E. Rozhko, A. Malmusi, F. Cavani
Dip. di Chimica, "Toso Montanari", Università di Bologna, Italy
A New Process for Adipic Acid Synthesis by Means of the two-step Oxidation of Cyclohexene

I. Prymak, V.N. Kalevaru, S. Wohlrab, A. Martin
Leibniz-Institut für Katalyse (LIKAT) Rostock, Germany
Impact of Calcination Temperature on the Catalytic Properties of Ce-Zr-O Solids in the Direct Synthesis of Diethyl Carbonate from Ethanol and CO₂

F. Carniato*, C. Bisio*/**, R. Psaro**, L. Marchese*, A. Katsev***, N. F. Starodub****, M. Guidotti**
*Univ. Piemonte Orientale, Alessandria, Italy,
**CNR-Istituto di Scienze e Tecnologie Molecolari, Milano, Italy,
***Crimean State Medical University, Simferopol, Crimea,
****Nat. Univ. Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
Nb(V)-Containing Saponite Clay: a Catalyst for the Oxidative Abatement of Blistering Chemical Warfare Agents

M. Albrecht, U. Rodemerck, E.V. Kondratenko
Leibniz-Institut für Katalyse (LIKAT), Rostock, Germany
Improving Production of Higher Hydrocarbons from Methane Through its Oxidative Coupling Combined with Hydrogenation of Carbon Oxides

Tuesday, October 14, 2014

U. Karimova*, A.A. Kasimov*, U. Rodemerck**,
V.A. Kondratenko**, S. Sokolov**, D. Linke**,
E.V. Kondratenko**

*Azerbaijan National Academy of Sciences, Baku, Azerbaijan
Republic, **Leibniz-Institut für Katalyse (LIKAT), Rostock, Germany

**Effect of Size and Support on Activity, Selectivity and on-
Stream Stability of Pt, Rh, and Ru Nanoparticles in Partial
Oxidation of Methane to Synthesis Gas**

F. Schmidt, M. Bernhard, H. Morell, M. Pascaly
Evonik Industries AG, Hanau-Wolfgang, Germany

The HPPO Process - A novel Route to Propylene Oxide

V.N. Kalevaru, N. Dhachapally, A. Martin
Leibniz-Institut für Katalyse (LIKAT), Rostock, Germany

**Amoxidation of 2-Methylpyrazine using Metal Vanadate
Catalysts: Effect of Reaction Variables on the Catalytic
Performance**

X. Kostrov, D. Jung, Z. Zhou, M. Hartmann
Universität Erlangen-Nürnberg, Germany

Selective Oxidations with Immobilized Enzymes

C. Wilhelm, E. Kaigarula, S. Ernst
University of Kaiserslautern, Germany

**Hydrogenation of Carbon Dioxide over Supported Rh, Ni
on Mesoporous Alumina-Titania**

Session Chairman: Michael Bender

16.30 *Keynote Lecture:* F. Cavani

Dipartimento di Chimica Industriale "Toso Montanari",
Università di Bologna, Italy

**The Selectivity and the Sustainability Issues Meet
in Modern Oxidation Catalysis: The Synthesis of
Carboxylic Acids**

17.15 R. Bobka, P. Scheck, G. Mestl

Clariant Produkte GmbH, Bruckmühl, Germany

**Improved VAM Catalysts by high-End Coating
Technology**

17.45 C. Bandinelli*, A. Chiericato*/**, M. D. Soriano**,
F. Basile*, F. Puzzo*, S. Zamora**, P. Concepción**,
G. Puglia*, F. Cavani*, J. M. Lòpez Nieto**

* Università di Bologna, Bologna, Italy.

** Universidad Politécnica de Valencia, Spain.

**One-pot Glycerol Oxidehydration to Acrylic Acid
on Tungsten-Vanadium Mixed Oxides as
Multifunctional Catalysts**

20.00 Conference Dinner

Wednesday, October 15, 2014

Session Chairman: Andreas Jess

- 8.30 *Keynote Lecture:* E. Klemm
Institut für Technische Chemie, Universität Stuttgart,
Germany
**Heterogeneous Catalysis Meets Micro Reactors:
Partial Oxidations in the Explosion Regime**
- 9.15 C. Galeano, C. Walsdorff, M. Krämer, S. Altwasser,
H.-M. Allmann, G. Cox, B. Hinrichsen, J. Zühlke
BASF SE, Ludwigshafen, Germany
**Development of Industrial Phthalic Anhydride
Catalysts – Concepts, Challenges and Current
Approaches**
- 9.45 Zeng Wei, Gu Longqin, Yang Weimin
SINOPEC Shanghai Research Institute of Petrochemical
Technology, Shanghai, China
**Amoxidation of Methyl Aromatic Hydrocarbons
in Turbulent Fluidized Bed Reactor: Technology
and Application**
- 10.15 A. Datta
Central University of Jharkhand, Brambe, Jharkhand, India
**Exfoliated Vanadium Phosphates as Novel Liquid
Phase Selective Oxidation Catalysts**
- 10.45 **Coffee Break**

Session Chairman: Andreas Jess

- 11.15 *Keynote Lecture:* R. Schomäcker, V. Fleischer,
B. Beck, H. Godini, R. Horn, G. Wozny
Institut für Chemie, Technische Universität Berlin,
Germany
**How to Increase the Yield of the Oxidative
Coupling of Methane by Reaction Engineering?**
- 12.00 A. Dittmer, F. Yang, M. Muhler
Laboratory of Industrial Chemistry, Ruhr-University
Bochum, Germany
**Synthesis and Characterization of Bismuth
Tungstate-supported Molybdena Catalysts for the
Selective Oxidation of Propene and 1-Butene**
- 12.30 N. Wilde, M. Pelz, R. Gläser
Institute of Chemical Technology, Universität Leipzig,
Germany
**Biobased Epoxides by Conversion of Biodiesel
with H₂O₂ over Micro-/ Mesoporous TS-1**
- 13.00 **Concluding Remarks and Conference Summary**
Stefan Ernst

Lunch

Optional visit of the UniCat / BasCat Lab

General Information

Venue:

Berlin-Brandenburgische Akademie der Wissenschaften

Markgrafenstraße 38 / Gendarmenmarkt

D-10117 Berlin

Phone: +49 30 203 70 200, Fax: +49 30 203 70 666

Venue: Leibniz-Saal

Conference Secretary: Christa Jenke

DGMK

Phone: +49 40 639004 12

Überseering 40

Telefax: +49 40 639004 50

D-22297 Hamburg

email: jenke@dgmk.de

On-site Conference Secretariat at the

Berlin-Brandenburgische Akademie der Wissenschaften

Monday, October 13, 2014 12.00 – 18.00

Tuesday, October 14, 2014 8.00 – 18.00

Wednesday, October 15, 2014 8.00 – 15.30

Phone: 0176 51211298

Conference Language: English

Hotel Reservation:

Participants are requested to make their own hotel reservation.

There will be no hotel reservation by DGMK.

Winters Hotel Berlin Mitte am Gendarmenmarkt

Charlottenstr. 66, D-10117 Berlin

Phone: +49 30 20 60 50 0

Email: gendarmenmarkt@winters.de

Rate: Single room € 97,00/night incl. breakfast.

Credit card is required.

Hotel Albrechtshof

Albrechtstr. 8, D-10117 Berlin

Phone: +49 30 30886 512

Email: albrechtshof@albrechtshof-hotels.de

Rate: Single room € 99,00/night incl. breakfast

Hotel Allegra

Albrechtstr. 17, D-10117 Berlin

Phone: +49 30 30886 512

Email: allegra@albrechtshof-hotels.de

Rate: Single room € 79,00/night incl. breakfast

In every case please make your hotel reservation not later than

September 1, 2014 and use keyword **“DGMK”** for getting the special rate.

Registration:

Please fill in the enclosed registration form and return it to the Conference Secretary. One registration form is requested for each participant. Registration should be done by

September 1, 2014

Registration Fee:	<i>registration</i>	
	by 01.09.14	after 01.09.14
Individual Members of DGMK SCI or ÖGEW (Industry)	€ 450,00	€ 490,00
Individual Members of DGMK, SCI or ÖGEW(University)	€ 260,00	€ 300,00
Students - Individual Members of DGMK, SCI or ÖGEW (copy of student card requested)	free	€ 70,00
Non-Members (Industry)	€ 580,00	€ 620,00
Non-Members (University)	€ 390,00	€ 420,00
Students - Non-Members (copy of student card requested)	€ 180,00	€ 200,00

The registration fee includes:

- participation in the conference
- conference preprints (DGMK-Tagungsbericht)
- coffee/tea/cold drinks during the coffee breaks
Lunch on Tuesday, October 14
- Conference dinner on Tuesday, October 14, 2014
- Lunch on Wednesday, October 15, 2014

Payment:

Payment is requested after receipt of the invoice.

Refunds:

Refunds will be made for cancellation received in writing until September 1, 2014. Substitutions may be made at any time for registered participants unable to attend.

Conference Preprints:

Lectures and posters presented at the DGMK-Conference are published in full length in the DGMK-Tagungsbericht. These publications are registered under ISBN-Numbers and ISSN-Number and are sold on the book market after the conference. The book will be given to each conference participant upon registration at the conference desk to be the basis for efficient discussions.

Registration

Fax: +49 40 639004 50

for the DGMK / SCI / ÖGEW- Conference
“Selective Oxidation and Functionalization:
Classical and Alternative Routes and Sources”
Berlin, October 13 - 15, 2014

Title, First Name, Name

Company/Institution

Address

Telefon

email

I register for the conference

as a member of DGMK

SCI

ÖGEW

as a non-member

I am employed in the

Industry

Academia

I am a Student

Visit of UniCat / BasCat Lab

I shall pay after confirmation of the registration form and receipt
of an invoice

Date / Signature

Please return to:

DGMK
Deutsche Wissenschaftliche Gesellschaft
für Erdöl, Erdgas und Kohle e.V
Mrs. Christa Jenke
Überseering 40
D-22297 Hamburg