

PROGRAMME

16 – 19 March 2021 · Online Event

54. Jahrestreffen Deutscher Katalytiker

www.processnet.org/katalytiker2021

#GeCatSGoesWeb



Tuesday, 16 March 2021

	Virtual Room 1
10:00 – 11:00	Virtual Poster Show 1
11:45 – 12:45	NFDI ₄ Cat
13:00 – 14:00	Virtual Poster Show 2

Wednesday, 17 March 2021

	Virtual Room 1	
9:00	Welcome	
Chair:	Beller	
9:15	PLENARY LECTURE Skrydstrup	
9:45	Otto Roelen Medal 2020 Glorius	
10:15	Break	
	Virtual Room 1	Virtual Room 2
	Preparation	Electrocatalysis
Chair:	Fischer	Lercher
10:45	Reichenberger	Sachse
11:05	Ingale	Antonyshyn
11:25	Mohamed	Cychy
11:45	Q&A	Q&A
12:15	Lunch	
	Virtual Room 1	
13:15	NFDI ₄ Cat	
	Virtual Room 1	Virtual Room 2
	Digitalisation	Electrocatalysis
Chair:	Beller	Muhler
13:30	Trunschke	Zerdoumi
13:50	Mazheika	Ledendecker
14:10	Exner	Dionigi
14:30	Q&A	Q&A
15:00	Break	
	Virtual Room 1	
15:15	Virtual Poster Show	
16:15	End of first day Y	
18:00	YounGeCatS evening	

Thursday, 18 March 2021

	Virtual Room 1		
9:00	Welcome		
Chair:	Palkovits		
9:15	PLENARY LECTURE Brückner		
9:45	PLENARY LECTURE Hensen		
10:15	Break		
	Virtual Room 1	Virtual Room 2	Virtual Room 3
	Engineering	Porous Materials	
Chair:	Schödel	Palkovits	
10:45	Amsler	Zhao	YounGeCatS Career forum
11:05	Schörner	Rose	
11:25	Seidensticker	Tao	
11:45	Q&A	Q&A	Q&A
12:15	Lunch		
	Molecular Catalysis	Oxidation	
Chair:	Mecking	Wolf	
13:15	Buchmeiser	Machado	Exhibitor Presentations
13:35	de Vries	Büker	
13:55	Munz	Rabe	
14:15	Q&A	Q&A	
14:35	Break		
	Virtual Room 1		
15:05	Virtual Poster Show 4		
16:05	End of second day		
18:00	Beer tasting		

Friday, 19 March 2021

	Virtual Room 1	
9:00	Welcome	
Chair:	Kragl	
9:15	Alwin Mittasch Prize 2021 Lercher	
9:45	Jochen Block Prize 2020 von Langermann	
10:05	Jochen Block Prize 2021 Hintermair	
10:25	Break	
	Virtual Room 1	Virtual Room 2
	Hydrogenation Dehydrogenation	Characterisation
Chair:	Rosowski	Behrens
10:55	Raman	Schlesiger
11:15	Sebastian	Zobel
11:35	Herold	Lunkenbein
11:55	Q&A	Q&A
12:25	Lunch	
	Hydrogenation Dehydrogenation	Characterisation
Chair:	Wasserscheid	Muhler
13:30	Asmelash	Maurer
13:50	Pazdera	Roger
14:10	Cramer	Wollak
14:30	Q&A	Q&A
15:00	Break	
	Virtual Room 1	
15:30	Virtual Poster Show 5	
16:30	Closing remarks	

Wednesday, 17 March 2021

Virtual Room 1

Chair: M. Beller, Leibniz Institut für Katalyse e.V., Rostock/D

09:15	PLENARY LECTURE Recent Developments in Low Pressure Carbonylations T. Skrydstrup ¹ ; ¹ Aarhus University, Aarhus/DK
09:45	OTTO ROELEN MEDAL 2020 F. Glorius ¹ ; ¹ Westfälische Wilhelms-Universität Münster/D
10:15	BREAK

Virtual Room 1

PREPARATION

Chair: R. Fischer; Clariant Produkte (Deutschland) GmbH, Bruckmühl/D

10:45	Active metal- and alloy-based oxidation catalysts from scalable laser synthesis of surfactant-free colloidal nanoparticles in liquid. S. Reichenberger ¹ ; S. Dittrich ¹ ; A. Ziefuss ¹ ; C. Hengst ² ; B. Peng ³ ; I. Chakraborty ⁴ ; M. Muhler ³ ; W. Parak ⁴ ; B. Stephan ¹ ; ¹ University of Duisburg-Essen, Essen/D; ² Umicore AG & Co. KG, Hanau/D; ³ Ruhr-Universität Bochum/D; ⁴ University of Hamburg/D
11:05	Precise tailoring of the functional interface between metals and oxides via atomic layer deposition P. Ingale ¹ ; K. Knemeyer ¹ ; R. Baumgarten ¹ ; R. Kraehnert ¹ ; M. Geske ¹ ; R. Naumann d'Alnoncourt ¹ ; A. Thomas ² ; F. Rosowski ¹ ; ¹ BasCat - UniCat BASF JointLab, TU Berlin/D; ² TU Berlin/D
11:25	Enhanced electrocatalytic activity toward oxygen reduction and evolution reactions on heterostructured organic-inorganic electrodes M. Mohamed ¹ ; U. Apfel ¹ ; ¹ Ruhr Universität Bochum/D
11:45	Q&A
12:15	LUNCH

Virtual Room 1

NFDI4Cat

Virtual Room 1

DIGITALISATION

Chair: M. Beller; Leibniz Institut für Katalyse e.V., Rostock/D

13:30	Towards Digital Catalysis: Implementation of Firmly Agreed Experimental Workflows A. Trunschke ¹ ; R. Schlögl ¹ ; L. Foppa ² ; L. Ghiringhelli ² ; M. Scheffler ² ; F. Rosowski ³ ; ¹ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; ² Novel-Materials Discovery Laboratory, Berlin/D; ³ BASF SE, Ludwigshafen/D
13:50	Data-driven strategy for prediction of new oxide catalysts based on combined theoretical-experimental approach A. Mazheika ¹ ; F. Rosowski ² ; R. Kraehnert ¹ ; ¹ BasCat (UniCat BASF JointLab), TU Berlin/D; ² BASF SE, Process Research and Chemical Engineering, Ludwigshafen/D
14:10	Material Discovery by Heuristic Screening Techniques: Beyond the Thermodynamic Overpotential K. Exner ¹ ; ¹ Duisburg-Essen University, Essen/D
14:30	Q&A
15:00	BREAK

Virtual Room 1

15:15 Virtual Poster Show 3 (15:15 – 16:15)

Wednesday, 17 March 2021

Virtual Room 2

ELECTROCATALYSIS

Chair: J. Lercher; TU München/D

10:45	Operando electrochemical spectroscopic ellipsometry: Material properties of highly active mesoporous IrOx films revealed under realistic OER conditions R. Sachse ¹ ; M. Pflüger ² ; J. Velasco-Vélez ³ ; M. Sahre ¹ ; J. Radnik ¹ ; M. Bernicke ⁴ ; D. Bernsmeier ⁴ ; V. Hodoroaba ¹ ; M. Krumrey ² ; P. Strasser ⁴ ; A. Hertwig ¹ ; R. Kraehnert ⁴ ; ¹ Federal Institute for Materials Research and Testing (BAM), Berlin/D; ² Physikalisch-Technische Bundesanstalt (PTB), Berlin/D; ³ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D; ⁴ TU Berlin/D
11:05	Hf₂B₂Ir₅₆: a „parent“ structure for OER-active composite material I. Antonyshyn ¹ ; A. Barrios Jimenez ¹ ; U. Burkhardt ¹ ; S. Altendorf ¹ ; R. Schlögl ² ; Y. Grin ¹ ; ¹ Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden/D; ² Fritz-Haber Institut der Max-Planck Gesellschaft, Berlin/D
11:25	Influence of the Ni₃B layer thickness in a spectroelectrochemical ATR-FTIR flow cell on the selectivity of anodic glycerol oxidation S. Cychy ¹ ; S. Lechler ¹ ; Z. Huang ¹ ; M. Braun ² ; A. Brix ¹ ; P. Blümler ³ ; C. Andronescu ² ; F. Schmid ³ ; W. Schuhmann ¹ ; M. Muhler ¹ ; ¹ Ruhr-Universität Bochum/D; ² Universität Duisburg-Essen, Duisburg/D; ³ Johannes Gutenberg-Universität, Mainz/D
11:45	Q&A

Virtual Room 2

ELECTROCATALYSIS

Chair: M. Muhler; Ruhr University Bochum/D

13:30	Intermetallic Compounds as Platform Materials to Discriminate Electronic and Geometric Effects in Electrocatalysis R. Zerdoumi ¹ ; S. Barth ¹ ; M. Armbrüster ¹ ; ¹ Materials for Innovative Energy Concepts, Chemnitz University of Technology, Chemnitz/D
13:50	Design Strategies for Support and Electrocatalyst Materials in Polymer Electrolyte Fuel Cells M. Ledendecker ¹ ; D. Göhl ¹ ; P. Paciok ² ; Y. Shao-Horn ⁴ ; J. Knossalla ⁵ ; M. Heggen ³ ; F. Schüth ⁵ ; Y. Román-Leshkov ⁴ ; K. Mayrhofer ⁶ ; ¹ TU Darmstadt/D; ² Ernst-Ruska Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Jülich/D; ⁴ Massachusetts Institute of Technology, Boston/USA; ⁵ Max-Planck-Institut für Kohlenforschung, Mülheim/D; ⁶ Forschungszentrum Jülich GmbH, Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Erlangen/D
14:10	Ternary Pt Alloy Catalysts and Carbon Modified Supports for Low Pt Loaded Fuel Cell Cathodes F. Dionigi ¹ ; C. Weber ¹ ; L. Pan ¹ ; A. Parnière ² ; P. Blanchard ² ; S. Cavaliere ² ; D. Jones ² ; P. Strasser ¹ ; ¹ TU Berlin/D; ² Université de Montpellier/F
14:30	Q&A

Thursday, 18 March 2021

Virtual Room 1

Chair: R. Palkovits; RWTH Aachen University, Aachen/D

09:15 **PLENARY LECTURE**
Active sites and mechanisms in catalysis: Searching the needle in a haystack by in situ and operando spectroscopy
 A. Brückner¹; ¹ Leibniz Institut für Katalyse e.V., Rostock/D

09:45 **PLENARY LECTURE**
Heterogeneous Catalysis for Sustainable Chemical Conversion: On metal nanoparticles, clusters, and single atoms at interfaces and in confined spaces
 E. Hensen¹; ¹ TU Eindhoven, Eindhoven/NL

10:15 BREAK

Virtual Room 1

ENGINEERING

Chair: N. Schödel, Linde AG, Pullach/D

10:45 **Single Atom Catalysis: Computational Investigation of Heterogeneous Hydroformylation**
 J. Amsler¹; P. Plessow¹; F. Studt¹; G. Agostini²; B. Sarma³; G. Prieto³; ¹ Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen/D; ² Alba Synchrotron Light Source, Barcelona/E; ³ Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/D

11:05 **Hydroformylation of but-1-ene using SLP-catalysis in a continuously operated membrane reactor**
 M. Schörner¹; M. Logemann²; J. Marinkovic³; C. Hecht⁴; R. Franke⁵; M. Wessling²; A. Riisager³; R. Fehrmann³; M. Haumann¹;
¹ Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; ² RWTH Aachen University, Aachen/D; ³ Technical University of Denmark (DTU), Lyngby/DK; ⁴ Evonik Performance Materials GmbH, Marl/D; ⁵ Ruhr-Universität Bochum/D

11:25 **“Solutions” for the Recycling of Homogeneous Catalysts enabling the Separation of Pure Products**
 T. Seidensticker¹; ¹ TU Dortmund/D

11:45 Q&A

12:15 LUNCH

Virtual Room 1

MOLECULAR CATALYSIS

Chair: S. Mecking; University of Konstanz/D

13:15 **Macrocyclization Under Confined and Continuous Conditions**
 F. Ziegler¹; U. Tallarek²; M. Buchmeiser¹; ¹ University of Stuttgart/D; ² Phillips-Universität Marburg/D

13:35 **Catalytic conversion of methyl levulinate, a biorefinery side stream, into bulk and fine chemicals**
 F. El Ouahabi¹; M. Polyakov¹; N. Kalevaru¹; S. Wohlrab¹; P. Kamer¹; S. Tin¹; G. van Klink³; J. de Vries¹; ¹ Leibniz Institut für Katalyse e. V., Rostock/D; ² Avantium Chemicals B.V., Amsterdam/NL

13:55 **Oxidative Addition of Water, Alcohols, and Amines in Palladium Catalysis**
 D. Munz¹; A. Grünwald¹; F. Heinemann²; ¹ Universität des Saarlandes, Saarbrücken/D; ² FAU Erlangen-Nürnberg, Erlangen/D

14:15 Q&A

14:35 BREAK

Virtual Room 1

15:05 Virtual Poster Show 4 (15:05 – 16:05)

18:00 Beer tasting

Virtual Room 2

POROUS MATERIALS

Chair: R. Palkovits; RWTH Aachen University, Aachen/D

10:45 **Impact of extra-framework clusters in zeolites on alkane cracking**
 R. Zhao¹; Y. Zhang¹; M. Sanchez-Sanchez¹; R. Bermejo de Val¹; Y. Liu¹; J. Lercher¹; ¹ TU München/D

11:05 **Beyond Tin-Containing Zeolites – New Opportunities in Catalytic Carbohydrate Conversion by Tin-Organic Frameworks**
 A. Gantarev¹; I. Delidovich²; M. Rose¹; ¹ TU Darmstadt/D; ² RWTH Aachen University, Aachen/D

11:25 **Cu-oxo clusters in FER framework for the selective oxidation of methane to methanol**
 L. Tao¹; I. Lee¹; M. Sanchez-Sanchez¹; J. Lercher¹; ¹ TU München/D

11:45 Q&A

Virtual Room 2

OXIDATION

Chair: D. Wolf; Evonik Resource Efficiency GmbH, Hanau/D

13:15 **Platinum Group Metal Phosphates as Catalysts for the Selective Oxidation of Lower Alkanes**
 P. Löser¹; R. Machado²; J. Xie³; M. Weber⁴; K. Wittich¹; A. Karbstein⁴; M. Dimitrakopoulou⁵; F. Girgsdies⁵; K. Skorupska⁵;
 S. Titlbach⁶; R. Schlögl⁵; F. Rosowski⁶; R. Glaum⁴; S. Schunk¹; ¹ hte GmbH – The high throughput experimentation company, Heidelberg/D; ² TU Berlin/D; ³ University of Groningen/NL; ⁴ Rheinische Friedrich-Wilhelms-Universität, Bonn/D; ⁵ Fritz Haber Institute of the Max Planck Society, Berlin/D; ⁶ BASF SE, Ludwigshafen/D

13:35 **Liquid-Phase Cyclohexene Oxidation with O₂ over Single Cu Atoms Supported on Mesoporous Graphitic Carbon Nitride**
 J. Büker¹; X. Huang²; J. Bitzer¹; T. Falk¹; D. Waffel¹; W. Kleist¹; M. Muhler¹; B. Peng¹; ¹ Ruhr-Universität Bochum/D; ² University of Science and Technology Beijing/CN

13:55 **The role of meso-scale morphology and composition of cobalt oxide catalysts in several oxidation reactions**
 A. Rabe¹; M. Dreyer¹; N. Cosanne¹; J. Büker²; K. Friedel Ortega³; M. Muhler²; M. Behrens³; ¹ University of Duisburg-Essen, Essen/D; ² Ruhr Universität Bochum/D; ³ Christian-Albrechts-Universität Kiel/D

14:15 Q&A

Friday, 19 March 2021

Virtual Room 1

Chair: U. Kragl; University of Rostock/D

09:15	ALWIN MITTASCH PRIZE 2021 J. Lercher, TU München/D
09:45	JOCHEN BLOCK PRIZE 2020 J. von Langermann, University of Rostock/D
10:05	JOCHEN BLOCK PRIZE 2021 U. Hintermair, University of Bath/UK
10:25	BREAK

Virtual Room 1

HYDROGENATION DEHYDROGENATION

Chair: Frank Rosowski, BasCat - UniCat BASF JointLab, TU Berlin; Process Research and Chemical Engineering, Process Catalysis Research, BASF SE

10:55	Gallium based Supported Catalytically Active Liquid Metal Solutions (SCALMS) catalysts: single atom catalysis for technical non-oxidative short alkane dehydrogenation N. Raman ¹ ; M. Wolf ¹ ; ¹ Friedrich-Alexander Universität Erlangen-Nürnberg, Erlangen/D
11:15	Stable and Selective Dehydrogenation of Methylcyclohexane using Pt-Ga Supported Catalytically Active Liquid Metal Solutions (SCALMS) O. Sebastian ¹ ; A. Søgaard ¹ ; M. Wolf ² ; N. Taccardi ¹ ; M. Haumann ¹ ; P. Wasserscheid ¹ ; ¹ Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D; ² Forschungszentrum Jülich GmbH, Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Erlangen/D
11:35	Next-Generation Carbon-Based Dehydrogenation Catalysts F. Herold ¹ ; S. Prosch ¹ ; A. Drochner ¹ ; W. Qi ² ; B. Etzold ¹ ; ¹ TU Darmstadt/D; ² Shenyang National Laboratory for Materials Science, Institute of Metal Research, Shenyang/CN

12:00 Q&A

12:30 LUNCH

Virtual Room 1

HYDROGENATION DEHYDROGENATION

Chair: P. Wasserscheid; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D

13:30	Nonoxidative dehydrogenation of methanol to dimethoxymethane over Cu/Hβ-zeolite bifunctional catalysts with tailored acidic sites C. Asmelash ¹ ; R. Sun ¹ ; C. Gierlich ¹ ; R. Palkovits ¹ ; ¹ RWTH Aachen University, Aachen/D
13:50	CO₂ capture and hydrogenation over bifunctional catalysts under dynamic reaction conditions J. Pazdera ¹ ; D. Issayeva ² ; S. Schardt ³ ; S. Angeli ³ ; O. Deutschmann ³ ; R. Gläser ² ; A. Jentys ¹ ; ¹ TU München/D; ² Universität Leipzig/D; ³ Karlsruher Institut für Technologie (KIT), Karlsruhe/D
14:10	Controlling the Product Platform of Carbon Dioxide Reduction: Adaptive Catalytic Hydrosilylation of CO₂ Using a Molecular Cobalt Triazine Complex H. Cramer ¹ ; C. Werlé ¹ ; W. Leitner ¹ ; ¹ Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr/D

14:30 Q&A

15:00 BREAK

Virtual Room 1

15:30 Virtual Poster Show 5

16:30 Closing remarks

Virtual Room 2

CHARACTERISATION

Chair: M. Behrens; Universität Duisburg Essen, Essen/D

10:55	Prospects of XAFS in the laboratory for catalysis C. Schlesiger ¹ ; S. Praetz ¹ ; R. Gnewkow ¹ ; W. Malzer ¹ ; B. Kanngießer ¹ ; ¹ TU Berlin/D
11:15	Difference-PDFs for structural insight into supported catalyst nanoparticles M. Zobel ¹ ; N. Prinz ¹ ; L. Schwensow ² ; S. Wendholt ³ ; S. Schlicher ³ ; W. Kleist ² ; M. Bauer ³ ; ¹ University of Bayreuth/D; ² Ruhr-Universität Bochum/D; ³ Paderborn University, Paderborn/D
11:35	Correlating Surface Structures with Performance of Ni Catalysts during Synthesis Gas Production by Environmental Scanning Electron Microscopy T. Lunkenbein ¹ ; L. Sandoval-Diaz ¹ ; M. Plodinec ¹ ; A. Hammud ¹ ; R. Schlögl ¹ ; ¹ Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin/D

12:00 Q&A

Virtual Room 2

CHARACTERISATION

Chair: M. Muhler; Ruhr University Bochum/D

13:30	Tracking the structure of Pt single sites on CeO₂ and their CO, C₃H₆ and CH₄ oxidation activity F. Maurer ¹ ; J. Jelic ¹ ; J. Wang ¹ ; A. Gänzler ¹ ; P. Dolcet ¹ ; C. Wöll ¹ ; Y. Wang ¹ ; F. Studt ¹ ; M. Casapu ¹ ; J. Grunwaldt ¹ ; ¹ Karlsruhe Institute of Technology (KIT), Karlsruhe/D
13:50	Suppression of water inhibition and thermal deactivation on Pd/Al₂O₃ during lean methane oxidation using oxygen dithering M. Roger ¹ ; T. Franken ² ; M. Agote-Arán ² ; O. Kroecher ¹ ; D. Ferri ² ; ¹ Paul Scherrer Institute (PSI) / École polytechnique fédérale de Lausanne (EPFL), Villigen/CH; ² Paul Scherrer Institute (PSI), Villigen/CH
14:10	Exploring Catalyst Dynamics in a Fixed Bed Reactor by Correlative Operando Spatially Resolved Structure Activity Profiling B. Wollak ¹ ; O. Korup ¹ ; R. Horn ¹ ; M. Schmidt ² ; ¹ TU Hamburg/D; ² REACNOSTICS GmbH, Hamburg/D

14:30 Q&A

ORGANIZER

DECHEMA
Gesellschaft für Chemische Technik
und Biotechnologie e.V.
Theodor-Heuss-Allee 25
60486 Frankfurt am Main
Germany
www.dechema.de