

Year 2024

as of July 14, 2024

Peer Reviewed Journals (accepted or in press, with doi)

T. Thathsara, C.J. Harrison, D. Schönauer-Kamin, U. Mansfeld, R. Moos, F.M. Malherbe, R.K. Hocking, M. Shafiei:
Pd Nanoparticles Decorated Hollow TiO₂ Nanospheres for Highly Sensitive and Selective UV-Assisted Hydrogen Gas Sensors
ACS Applied Energy Materials, in press, <https://doi.org/10.1021/acsaem.4c01039>

Peer Reviewed Journals

D. Paulus, S. Bresch, R. Moos, D. Schönauer-Kamin:
Powder aerosol deposited calcium cobaltite as textured P-type thermoelectric material with power factors approaching single crystal values
Journal of the European Ceramic Society, **44**, 116717 (2024), doi: 10.1016/j.jeurceramsoc.2024.116717

C. Steiner, V. Malashchuk, D. Kubinski, G. Hagen, R. Moos:
Microwave-Based State Diagnosis of Three-Way Catalysts: Impact Factors and Application Recommendations
Sensors, **24**, 4091 (2024), doi: 10.3390/s24134091

S. Biberger, M. Spies, K. Schötz, F.-J. Kahle, N. Leupold, R. Moos, H. Grüninger, A. Köhler, F. Panzer:
Reactive spin coating based on real-time *in situ* feedback for improved control of perovskite thin film fabrication
Journal of Materials Chemistry C, **12**, 6415-6422 (2024), doi: 10.1039/D3TC04361D

S. Walter, J. Baumgärtner, G. Hagen, D. Schönauer-Kamin, J. Kita, R. Moos:
Dielectric Properties of Materials Used for Microwave-Based NO_x Gas Dosimeters
Sensors, **24**, 2951 (2024), doi: 10.3390/s24092951

S. Walter, P. Schwanzer, G. Hagen, H.-P. Rabl, M. Dietrich, R. Moos:
Combined Ash and Soot Monitoring for Gasoline Particulate Filters Using a Radio-Frequency-Based Sensor
Emission Control Science and Technology, **10**, 1-9 (2024), doi: 10.1007/s40825-023-00235-y

S. Bresch, P. Stargardt, R. Moos, B. Mieller:
Co-Fired Multilayer Thermoelectric Generators Based on Textured Calcium Cobaltite
Advanced Electronic Materials, **10**, 2300636 (2024), doi: 10.1002/aelm.202300636

M. Linz, F. Bühner, D. Paulus, L. Hennerici, Y. Guo, V. Mereacre, U. Mansfeld, M. Seipenbusch, J. Kita, R. Moos:
Revealing the Deposition Mechanism of the Powder Aerosol Deposition Method Using Ceramic Oxide Core-Shell Particles
Advanced Materials, **36**, 2308294 (2024), doi: 10.1002/adma.202308294

N. Donker, D. Schönauer-Kamin, R. Moos:
Mixed-Potential Ammonia Sensor Based on a Dense Yttria-Stabilized Zirconia Film Manufactured at Room Temperature by Powder Aerosol Deposition
Sensors, **24**, 811 (2024), doi: 10.3390/s24030811

Doctoral Theses

R. Werner:
Die Entwicklung eines Hochtemperatur-Kombimessgeräts zur simultanen Bestimmung der elektrischen Leitfähigkeit, der Hall-Konstante und des Seebeck-Koeffizienten
(Development of a high-temperature measuring device for the simultaneous determination of electrical conductivity, Hall constant and Seebeck coefficient)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 41, Shaker-Verlag, Düren (2024), ISBN: 978-3-8440-9552-4

N. Leupold:
Aerosolbasierte Kaltabscheidung von Halogenidperowskiten: vom Pulver zur Solarzelle
(Powder aerosol deposition of halide perovskites: from the powder to solar cells)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 22, Shaker-Verlag, Düren (2024), ISBN: 978-3-8440-9480-0

S. Walter:
Hochfrequenzgestützte Zustandsdiagnose für die Überwachung von Benzinpartikelfiltern
(Radio frequency-based state diagnosis of gasoline particulate filters)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 40, Shaker-Verlag, Düren (2024), ISBN: 978-3-8440-9427-5

Published Conference Contributions

G. Hagen, B. Streibl, A. Mittereder, J. Herrmann, A. Müller, I. Hartmann, D. Brüggemann, R. Moos:
On the emissions of wood-log fueled fireplaces: correlation of continuous gas sensor data with particle spectra analysis
27th ETH Nanoparticles Conference, Zurich, Switzerland, June 10-14, 2024.

T. Wöhrli, J. Kita, R. Moos, G. Hagen:
H-ZSM5-Zeolith für Ammoniak-Sensoren bei Reststoff-Feuerungen mit SCR-Abgasnachbehandlungssystemen
Sensoren und Messsysteme 2024, 11.6.-12.6.2024, Nürnberg, A3.3, Proceedings, p. 80-82, doi: 10.5162/sensoren2024/A3.3

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J. Herrmann, T. Wöhl, R. Moos, G. Hagen:

Optimierung von Hochtemperatur-Abgassensoren bei der Holzfeuerung: Korrektur der Sensorantwort durch ein internes Heizleistungssignal
Sensoren und Messsysteme 2024, 11.6.-12.6.2024, Nürnberg, A3.4, Proceedings, p. 83-86, doi: 10.5162/sensoren2024/A3.4

J. Baumgärtner, R. Moos, J. Kita:

Miniaturisierter resonanter Wägesensor für die Simultane Thermische Analyse (STA)
Sensoren und Messsysteme 2024, 11.6.-12.6.2024, Nürnberg, C3.3, Proceedings, p. 241-243, doi: 10.5162/sensoren2024/C3.3

O. Guillon, C. Roitzheim, M. Finsterbusch, F. Tietz, D. Fattakhova-Rohlfing, K. Wätzig, J.P. Beaupain, C. Baumgärtner, J. Schlaier, S. Yanev, N. Zapp, H. Auer, M. Vinnichenko, K. Nikolowski, M. Partsch, M. Kusnezoff, K. J. Kim, H. Gobena, S. Weinmann, J. L. M. Rupp, L. Hennerici, M. Schamel, J. Kita, M. A. Danzer, R. Moos:

Oxide-Based Solid-State Batteries
Advanced Automotive Battery Conference Europe, 13-16 May 2024, Strasbourg, France

M. Sozak, L. Hennerici, M. Schamel, M. Linz, S. Knies, J. Kita, M. Bianchini, M.A. Danzer, R. Moos:

Room temperature fabrication of battery components via Powder Aerosol Deposition
16th International Battery Conference, April 10-11, 2024, Münster, Germany

T. Siegert, F. Haddadi Barzoki, M. Griesbach, C. Greve, R. Moos, E. M. Herzig, A. Köhler, H. Grüninger:

Influence of Particle Size on the Formation of Solid Solutions Between MAPbI₃ and MAPbBr₃
DPG-Frühjahrstagung, 17.03.-22.03.2024, Berlin, CPP 28.31

S. Biberger, M. Spies, K. Schötz, F.-J. Kahle, N. Leupold, R. Moos, H. Grüninger, A. Köhler, F. Panzer:

Optical In-Situ spectroscopy and reactive spin coating for improved control of perovskite thin film fabrication
DPG-Frühjahrstagung, 17.03.-22.03.2024, Berlin, EW 203

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Peer Reviewed Journals

- C. Greve, P. Ramming, M. Griesbach, N. Leupold, R. Moos, A. Köhler, E. Herzig, F. Panzer, H. Grüninger:
To Stop or to Shuttle Halides? The Role of an Ionic Liquid in Thermal Halide Mixing of Hybrid Perovskites
ACS Energy Letters, **8**, 5041-5049 (2023), doi: 10.1021/acseenergylett.3c01878
- D. Paulus, J. Kita, R. Moos:
Relaxation behavior of intrinsic compressive stress in powder aerosol co-deposited films: Rethinking PAD films as nanomaterials
Ceramics International, **49**, 38375-38381 (2023), doi: 10.1016/j.ceramint.2023.09.065
- S. Walter, P. Schwanzler, G. Hagen, H.-P. Rabl, M. Dietrich, R. Moos:
Soot Monitoring of Gasoline Particulate Filters Using a Radio-Frequency-Based Sensor
Sensors, **23**, 7861 (2023), doi: 10.3390/s23187861
- S. Biberger, N. Leupold, C. Witt, C. Greve, P. Markus, P. Ramming, D. Lukas, K. Schötz, F.-J. Kahle, C. Zhu, G. Papastavrou, A. Köhler, E.M. Herzig, R. Moos, F. Panzer:
First of Their Kind: Solar Cells with a Dry-Processed Perovskite Absorber Layer via Powder Aerosol Deposition and Hot-Pressing
Solar RRL, **7**, 2300261 (2023), doi: 10.1002/solr.202300261
- S. Walter, G. Hagen, D. Koch, A. Geißelmann, R. Moos:
On the Suitability of NO_x-Storage-Catalysts for Hydrogen Internal Combustion Engines and a Radio Frequency-Based NO_x Loading Monitoring
Topics in Catalysis, **66**, 964-972 (2023), doi: 10.1007/s11244-022-01727-x
- V. Malashchuk, S. Walter, M. Engler, G. Hagen, G. Link, J. Jelonnek, F. Raß, R. Moos:
Reducing Cold-Start Emissions by Microwave-Based Catalyst Heating: Simulation Studies
Topics in Catalysis, **66**, 1031-1036 (2023), doi: 10.1007/s11244-023-01788-6
- T. Wöhr, J. Kita, R. Moos, G. Hagen:
Capacitive, Highly Selective Zeolite-Based Ammonia Sensor for Flue Gas Applications
Chemosensors, **11**, 413 (2023), doi: 10.3390/chemosensors11070413
- T. Nazarenius, J. Schneider, L. Hennerici, R. Moos, J. Kita:
Energy estimation of the post-treatment process for powder aerosol deposited solid electrolyte films
Functional Materials Letters, **16**, 2350014 (2023), doi: 10.1142/S1793604723500145
- T. Wöhr, J. Herrmann, J. Kita, R. Moos, G. Hagen:
Methods to investigate the temperature distribution of heated ceramic gas sensors for high-temperature applications
Journal of Sensors and Sensor Systems, **12**, 205-214 (2023), doi: 10.5194/jsss-12-205-2023
- M. Sozak, T. Nazarenius, J. Exner, J. Kita, R. Moos:
Room temperature manufacture of dense NaSICON solid electrolyte films for all-solid-state-sodium batteries
Journal of Materials Science, **58**, 10108-10119 (2023), doi: 10.1007/s10853-023-08642-w
- C. Steiner, T. Wöhr, M. Steiner, J. Kita, A. Müller, H. Eisazadeh, R. Moos, G. Hagen:
Resistive Multi-Gas Sensor for Simultaneously Measuring the Oxygen Stoichiometry (λ) and the NO_x Concentration in Exhausts: Engine Tests under Dynamic Conditions
Sensors, **23**, 5612 (2023), doi: 10.3390/s23125612
- C. Witt, K. Schötz, M. Kuhn, N. Leupold, S. Biberger, P. Ramming, F.-J. Kahle, A. Köhler, R. Moos, E.M. Herzig, F. Panzer:
Orientation and Grain Size in MAPbI₃ Thin Films: Influence on Phase Transition, Disorder, and Defects
The Journal of Physical Chemistry C, **127**, 10563-10573 (2023), doi: 10.1021/acs.jpcc.2c08968
- S. Müllner, T. Michlik, M. Reichel, T. Held, R. Moos, C. Roth:
Effect of Water-Soluble CMC/SBR Binder Ratios on Si-rGO Composites Using μ m- and nm-Sized Silicon as Anode Materials for Lithium-Ion Batteries
Batteries, **9**, 248 (2023), doi: 10.3390/batteries9050248
- C. Steiner, S. Püls, M. Bektas, A. Müller, G. Hagen, R. Moos:
Resistive, Temperature-Independent Metal Oxide Gas Sensor for Detecting the Oxygen Stoichiometry (Air-Fuel Ratio) of Lean Engine Exhaust Gases
Sensors, **23**, 3914 (2023), doi: 10.3390/s23083914
- H. Hoffmann, M.C. Paulisch-Rinke, M. Gernhard, Y. Jännsch, J. Timm, C. Brandmeir, S. Lechner, R. Marschall, R. Moos, I. Manke, C. Roth:
Multi-scale morphology characterization of hierarchically porous silver foam electrodes for electrochemical CO₂ reduction
Communications Chemistry, **6**, 50 (2023), doi: 10.1038/s42004-023-00847-z
- N. Leupold, P. Ramming, I. Bauer, C. Witt, J. Jungklaus, R. Moos, H. Grüninger, F. Panzer:
How Methylammonium Iodide Reactant Size Affects Morphology and Defect Properties of Mechanochemically Synthesized MAPbI₃ Powder
European Journal of Inorganic Chemistry, **26**, e202200736 (2023), doi: 10.1002/ejic.202200736
- G. Hagen, J. Herrmann, X. Zhang, H. Kohler, I. Hartmann, R. Moos:
Application of a Robust Thermoelectric Gas Sensor in Firewood Combustion Exhausts
Sensors, **23**, 2930 (2023), doi: 10.3390/s23062930

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C. Steiner, G. Hagen, I. Kogut, H. Fritze, R. Moos:

Analysis of defect mechanisms in nonstoichiometric ceria-zirconia by the microwave cavity perturbation method
Journal of the American Ceramic Society, **106**, 2875-2892 (2023), doi: 10.1111/jace.18938

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:

Gauge to simultaneously determine the electrical conductivity, the Hall constant, and the Seebeck coefficient up to 800 °C
Journal of Sensors and Sensor Systems, **12**, 69-84 (2023), doi: 10.5194/jsss-12-69-2023

K. Fykouras, J. Lahnsteiner, N. Leupold, P. Tinnemans, R. Moos, F. Panzer, G. de Wijs, M. Bokdam, H. Grüninger, A. Kentgens:

Disorder to order: how halide mixing in MAPb_{3-x}Br_x perovskites restricts MA dynamics
Journal of Materials Chemistry A, **11**, 4587-4597 (2023), doi: 10.1039/D2TA09069D

J. Distler, T. Wöhr, R. Werner, M. Gerlach, M. Gollner, F. Linseis, J. Kita, R. Moos:

Miniaturized differential scanning calorimeter with an integrated mass sensing system: first steps
Journal of Sensors and Sensor Systems, **12**, 9-19 (2023), doi: 10.5194/jsss-12-9-2023

V. Malashchuk, A. Jess, R. Moos:

Operando monitoring of gas drying by adsorption on supported ionic liquids: Determination of velocity of adsorption front by microwaves
Sensors and Actuators B: Chemical, **380**, 133291 (2023), doi: 10.1016/j.snb.2023.133291

D. Kohlmann, H. Wulfmeier, M. Schewe, I. Kogut, C. Steiner, R. Moos, C. Rembe, H. Fritze:

Chemical expansion of CeO_{2-δ} and Ce_{0.8}Zr_{0.2}O_{2-δ} thin films determined by laser Doppler vibrometry at high temperatures and different oxygen partial pressures
Journal of Materials Science, **58**, 1481-1504 (2023), doi: 10.1007/s10853-022-07830-4

Doctoral Theses

T. Nazareus:

Aerosolbasierte Kaltabscheidung zur industriellen Produktion von oxidkeramischen Festelektrolyten für metallische Lithiumakkumulatoren
(Powder aerosol deposition for the industrial production of oxide ceramic solid electrolytes for metallic lithium accumulators)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 21, Shaker-Verlag, Düren (2023), ISBN: 978-3-8440-9142-7

T. Michlik:

Zink-Glas-Kompositelektroden für wiederaufladbare Zink-Luft-Batterien
(Zinc-glass composite electrodes for rechargeable zinc-air batteries)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 20, Shaker-Verlag, Düren (2023), ISBN: 978-3-8440-9059-8

A. Ruchets:

Application of solid electrolyte gas sensors based on YSZ for dynamic electrochemical measurements
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 39, Shaker-Verlag, Düren (2023), ISBN: 978-3-8440-8889-2

Invited Talks

The 19th International Meeting on Chemical Sensors, IMCS 19, Changchun, China, 4th - 8th August 2023

G. Hagen: *Sensors for Biomass Use in Energy Technology*

98. DKG-Jahrestagung, 27.03.-30.03.2023, Jena

R. Moos, L. Hennerici, E. Kita, N. Leupold, M. Linz, D. Paulus, J. Schneider, D. Schönauer-Kamin, M. Sozak, R. Werner, J. Kita:
Powder aerosol deposition (PAD): a promising coating tool (not only) for functional ceramics

“Friday Talk”, Micro and Nanosystems Seminar, Zürich, Switzerland, 22.3.2023

R. Moos:

Resistive gas dosimetry: A novel measurement method to measure small gas concentrations and quantities both accumulative and timely resolved

Workshop on the stability of CO₂R/COR systems, Toronto, March 9-10, 2023, online presentation

M. Hämmerle, R. Moos:

CO₂R: pulsed potential electrolysis for enhanced stability

Published Conference Contributions

P. Ramming, T. Siegert, S. Biberger, C. Witt, N. Leupold, R. Moos, H. Grüninger, F. Panzer, A. Köhler:

Perovskite Research Highlights
12th SolTech Conference 2023, October 3-5, 2023, Würzburg, Germany, Book of Abstracts p. 12

S. Biberger, M. Spies, K. Schötz, F.-J. Kahle, N. Leupold, R. Moos, H. Grüninger, A. Köhler, F. Panzer:

Improved Control of Perovskite Thin Film Formation by Reactive Spin Coating and Real Time In-Situ Feedback
12th SolTech Conference 2023, October 3-5, 2023, Würzburg, Germany, Book of Abstracts p. 22

T. Siegert, M. Griesbach, C. Greve, R. Moos, E. M. Herzig, F. Panzer, A. Köhler, H. Grüninger:

Influence of Particle Size on Halide Mixing Between MAPbI₃ and MAPbBr₃
12th SolTech Conference 2023, October 3-5, 2023, Würzburg, Germany, Book of Abstracts p. 42

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T. Wöhrl, M. König, T. Ritter, A. Sauter, H. Eisazadeh, G. Hagen, R. Moos:

Konzepte zur Optimierung der Selektiven Katalytischen Reduktion (SCR) von Stickoxiden bei der Verbrennung biogener Rest- und Abfallstoffe
11. Statuskonferenz Bioenergie, 20.-22.9.2023, Leipzig, p. 24-25

G. Hagen, J. Herrmann, T. Kern, T. Wöhrl, R. Moos:

Sensor Protection Caps: Development Aspects and Verification
Eurosensors XXXV, September 10 - 13, 2023, Lecce, Italy
also:

G. Hagen, J. Herrmann, T. Kern, T. Wöhrl, R. Moos:

Sensor Protection Caps: Development Aspects and Verification
Proceedings, **97**, 161 (2024), doi: 10.3390/proceedings2024097161

R. Moos, A. Groß, D. Schönauer-Kamin:

Resistive Gas Dosimeters as a Novel Method to Measure Small Gas Concentrations and Quantities, Both Accumulative and Timely Resolved
Eurosensors XXXV, September 10 - 13, 2023, Lecce, Italy
also:

R. Moos, A. Groß, D. Schönauer-Kamin:

Resistive Gas Dosimeters as a Novel Method to Measure Small Gas Concentrations and Quantities, Both Accumulative and Timely Resolved
Proceedings, **97**, 147 (2024), doi: 10.3390/proceedings2024097147

L. Hennerici, M. Linz, M. Schamel, T. Nazarenus, J. Kita, M.A. Danzer, R. Moos:

Powder Aerosol Deposition, a Novel Way for Processing Garnet Solid Electrolytes to fabricate All-Solid-State Batteries
The 4th World Conference on Solid Electrolytes for Advanced Applications: Garnets and Competitors, 4-7 September 2023, Tromsø, Norway, P19, p.62.

S. Lang, L. Hennerici, M. Linz, D. Avadanii, J. Kita, D. Kramer, R. Moos, R. Mönig:

Characterisation of Electrodes, Electrolyte and Electrode/Electrolyte Stacks Obtained by Powder Aerosol Deposition
The 4th World Conference on Solid Electrolytes for Advanced Applications: Garnets and Competitors, 4-7 September 2023, Tromsø, Norway, P22, p.65.

M. Hämmerle, K. Hilgert, R. Moos:

Simultaneous determination of laccase activity in a cuvette assay: photometric assay versus oxygen dipping probe
EBS 2023, 4th European Biosensor Symposium 2023, August 27 - 30, 2023, Aachen, Germany, p.177

G. Hagen, T. Wöhrl, A. Müller, J. Herrmann, I. Hartmann, R. Moos:

Flue gas analysis of wood combustion
SMSI 2023 Sensor and Measurement Science International, 08-11 May 2023, Nuremberg, Germany, doi: 10.5162/SMSI2023/D3.4

S. Walter, J. Kita, D. Schönauer-Kamin, G. Hagen, R. Moos:

Dielectric Properties of Materials used for a Radio-Frequency based NO_x Dosimeter
SMSI 2023 Sensor and Measurement Science International, 08-11 May 2023, Nuremberg, Germany, doi: 10.5162/SMSI2023/B4.4

J. Distler, R. Werner, M. Gerlach, M. Gollner, F. Linseis, J. Kita, R. Moos:

Development of a Miniaturized Combined DSC and TGA Sensor
SMSI 2023 Sensor and Measurement Science International, 08-11 May 2023, Nuremberg, Germany, doi: 10.5162/SMSI2023/P07

T. Wöhrl, T. Ritter, G. Hagen, R. Moos:

Detection of the ammonia storage of vanadia-based SCR-catalysts by a radio-frequency method
SMSI 2023 Sensor and Measurement Science International, 08-11 May 2023, Nuremberg, Germany, doi: 10.5162/SMSI2023/P08

D. Schönauer-Kamin, M. Linz, M. Herzing, R. Moos:

Zinc Oxide Dosimeter-type NO₂ Sensor Prepared by Discontinuous Powder Aerosol Deposition
SMSI 2023 Sensor and Measurement Science International, 08-11 May 2023, Nuremberg, Germany, doi: 10.5162/SMSI2023/P29

C. Witt, K. Schötz, S. Biberger, N. Leupold, M. Kuhn, P. Ramming, E. M. Herzig, R. Moos, A. Köhler, F. Panzer:

Fully Dry-Processed and Powder-Based Halide Perovskite Solar Cells by Powder-Aerosol-Deposition and Hot-Pressing
2023 MRS Spring Meeting & Exhibit, San Francisco, California, USA, April 10-14, 2023, Poster EL02.14.35

C. Witt, K. Schötz, M. Kuhn, N. Leupold, S. Biberger, P. Ramming, A. Köhler, R. Moos, E. M. Herzig, F. Panzer:

Understanding Structural Differences in Completely Dry-Processed MAPbI₃ Thin Films by Detailed Analyses of Temperature-Dependent Optical Spectroscopy
2023 MRS Spring Meeting & Exhibit, San Francisco, California, USA, April 10-14, 2023, Poster EL02.09.28

S. Biberger, K. Schötz, N. Leupold, P. Ramming, M. Spies, R. Moos, A. Köhler, H. Grueninger, F. Panzer:

Using Multimodal In Situ Spectroscopy to Understand the Influence of the Ionic Liquid BMIMBF₄ on the Film Formation and Optoelectronic Properties of MAPbI₃ Thin Films
2023 MRS Spring Meeting & Exhibit, San Francisco, California, USA, April 10-14, 2023, Oral Contribution EL02.13.03

R. Moos, L. Hennerici, E. Kita, N. Leupold, M. Linz, D. Paulus, J. Schneider, D. Schönauer-Kamin, M. Sozak, R. Werner, J. Kita:

Powder aerosol deposition (PAD): a promising coating tool (not only) for functional ceramics
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D. Paulus, J. Kita, R. Moos:

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Intrinsic compressive stress relaxation in ceramic films manufactured by powder aerosol deposition (PAD)

98. *DKG-Jahrestagung*, 27.03.-30.03.2023, Jena, p. 115

J. Schneider, J. Kita, R. Moos:

Rapid posttreatment of powder aerosol deposited garnet-type lithium ion conductor films using LED radiation

98. *DKG-Jahrestagung*, 27.03.-30.03.2023, Jena, p. 131

D. Schönauer-Kamin, S. Bresch, D. Paulus, R. Moos:

Powder-Aerosol deposited (PAD) calcium cobaltite as textured p-type thermoelectric material

98. *DKG-Jahrestagung*, 27.03.-30.03.2023, Jena, p. 132

M. Sozak, L. Hennerici, D. Paulus, J. Kita, R. Moos:

The effects of calcination parameters of garnet-type ALLZTO solid electrolyte powders on the deposition of thick films via powder aerosol deposition (PAD) method

98. *DKG-Jahrestagung*, 27.03.-30.03.2023, Jena, p. 140

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Peer Reviewed Journals

U. Eckstein, J. Exner, A. Bencan Golob, K. Ziberna, G. Drazic, H. Ursic, H. Wittkämper, C. Papp, J. Kita, R. Moos, K.G. Webber, N.H. Khansur:
Temperature-dependent dielectric anomalies in powder aerosol deposited ferroelectric ceramic films
Journal of Materiomics, **8**, 1239-1250 (2022), doi: 10.1016/j.jmat.2022.05.001

C. Witt, N. Leupold, P. Ramming, K. Schötz, R. Moos, F. Panzer:
How the Microstructure of MAPbI₃ Powder Impacts Pressure-Induced Compaction and Optoelectronic Thick-Film Properties
The Journal of Physical Chemistry C, **126**, 15424-15435 (2022), doi: 10.1021/acs.jpcc.2c03329

S. Biberger, K. Schötz, P. Ramming, N. Leupold, R. Moos, A. Köhler, H. Grüninger, F. Panzer:
How the ionic liquid BMIMBF₄ influences the formation and optoelectronic properties of MAPbI₃ thin films
Journal of Materials Chemistry A, **10**, 18038-18049 (2022), doi: 10.1039/d2ta04448j

S. Bresch, B. Mieller, R. Moos, T. Rabe:
Lowering the sintering temperature of calcium manganate for thermoelectric applications
AIP Advances, **12**, 085116 (2022), doi: 10.1063/5.0098015

Y. Jännsch, M. Hämmerle, E. Simon, M. Fleischer, R. Moos:
Contributions of Pulsed Operation Along with Proper Choice of the Substrate for Stabilizing the Catalyst Performance in Electrochemical Reduction of CO₂ Toward Ethylene in Gas Diffusion Electrode Based Flow Cell Reactors
Energy Technology, **10**, 2200046 (2022), doi: 10.1002/ente.202200046

H. Wulfmeier, D. Kohlmann, T. Defferriere, C. Steiner, R. Moos, H.L. Tuller, H. Fritze:
Thin-film chemical expansion of ceria based solid solutions: laser vibrometry study
Zeitschrift für Physikalische Chemie, **236**, 1013-1053 (2022), doi: 10.1515/zpch-2021-3125

T. Nazarenus, K. Schlesier, F. Lebeda, M. Retsch, R. Moos:
Microstrain release decouples electronic and thermal conductivity in powder aerosol deposited films
Materials Letters, **322**, 132461 (2022), doi: 10.1016/j.matlet.2022.132461

R. Werner, J.S. Matejka, D. Schönauer-Kamin, R. Moos:
From Thermoelectric Powder Directly to Thermoelectric Generators: Flexible Bi₂Te₃ Films on Polymer Sheets Prepared by the Powder Aerosol Deposition Method at Room Temperature
Energy Technology, **10**, 2101091 (2022), doi: 10.1002/ente.202101091

S. Walter, P. Schwanzer, C. Steiner, G. Hagen, H.-P. Rabl, M. Dietrich, R. Moos:
Mixing Rules for an Exact Determination of the Dielectric Properties of Engine Soot Using the Microwave Cavity Perturbation Method and Its Application in Gasoline Particulate Filters
Sensors, **22**, 3311 (2022), doi: 10.3390/s22093311

M. Linz, J. Exner, T. Nazarenus, J. Kita, R. Moos:
Mobile sealing and repairing of damaged ceramic coatings by powder aerosol deposition at room temperature
Open Ceramics, **10**, 100253 (2022), doi: 10.1016/j.oceram.2022.100253

T. Nazarenus, K. Schlesier, S. Biberger, J. Exner, J. Kita, A. Köhler, R. Moos:
Posttreatment of powder aerosol deposited oxide ceramic films by high power LED
International Journal of Applied Ceramic Technology, **19**, 1540-1553 (2022), doi: 10.1111/ijac.13977

S. Bresch, B. Mieller, P. Mrkwitschka, R. Moos, T. Rabe:
Glass-ceramic composites as insulation material for thermoelectric oxide multilayer generators
Journal of the American Ceramic Society, **105**, 2140-2149 (2022), doi: 10.1111/jace.18235

C. Steiner, G. Hagen, I. Kogut, H. Fritze, R. Moos:
Analysis of defect chemistry and microstructural effects of non-stoichiometric ceria by the high-temperature microwave cavity perturbation method
Journal of the European Ceramic Society, **42**, 499-511 (2022), doi: 10.1016/j.jeurceramsoc.2021.08.053

Doctoral Theses

S. Chalupczok:
Untersuchung einer voltammetrischen Methode zur pH-Wert-Messung mit protonenleitenden Funktionsschichten
(Investigations on a voltammetric method for pH measurements with proton-conducting functional layers)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 38, Shaker-Verlag, Düren (2022), ISBN: 978-3-8440-8865-6

S. Bresch:
Oxidkeramische Werkstoffe und Folien für thermoelektrische Multilayergeneratoren
(Oxide ceramic materials and tapes for thermoelectric multilayer generators)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 19, Shaker-Verlag, Düren (2022), ISBN: 978-3-8440-8802-1

Year 2022

Y. Jännsch:

Elektrochemische CO₂-Reduktion durch gepulste Elektrolyse: Entwicklung und Optimierung eines Ethen-selektiven, langzeitstabilen und skalierbaren Prozesses

(Electrochemical CO₂ reduction by pulsed electrolysis: Development and optimization of an ethene-selective, long-term stable and scalable process)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 18, Shaker-Verlag, Düren (2022), ISBN: 978-3-8440-8770-3

Invited Talks

CICMT 2022 - Ceramic Interconnect and Ceramic Microsystems Technologies, Vienna, July 13-15, 2022, oral presentation

J. Kita, T. Nazarenus, L. Hennerici, N. Leupold, M. Linz, D. Paulus, M. Sozak, R. Moos:

The Powder Aerosol Deposition Method as Supplementary Process for Additive Manufacturing

Deutsche Keramische Gesellschaft e.V. (DKG), Fachausschuss Funktionskeramik, Jena, 2.6.2022 (online)

R. Moos: *Die Pulveraerosol-Depositionsmethode: Überblick über ein Verfahren zur Herstellung dichter Funktionskeramiksichten bei Raumtemperatur*

PCC - Resolving challenges and new breakthroughs?, 29.03.2022, online

T. Nazarenus, J. Kita, R. Moos: *Fabrication of Thin Ceramic Electrolytes at Room Temperature via Powder Aerosol Deposition Method*

97. DKG-Jahrestagung, 07.03.-09.03.2022, online

J. Kita: *Ceramic sensors for materials characterization*

Published Conference Contributions

J. Herrmann, T. Kern, T. Wöhrl, R. Moos, G. Hagen:

Simulationsgestützte Entwicklung individueller Gassensor-Schutzkappen

16. *Dresdner Sensor-Symposium*, 5.-7. Dezember 2022, Dresden, p. 207-208, doi: 10.5162/16dss2022/P42

T. Wöhrl, G. Hagen, R. Moos:

Impedanzbasierter Ammoniaksensor für SCR-Anwendungen

16. *Dresdner Sensor-Symposium*, 5.-7. Dezember 2022, Dresden, p. 205-206, doi: 10.5162/16dss2022/P41

N. Donker, D. Schönauer-Kamin, R. Moos:

Selektiver NH₃-Mischpotentialsensor mit einer mittels der Pulveraerosoldepositionsmethode hergestellten Festelektrolytschicht

16. *Dresdner Sensor-Symposium*, 5.-7. Dezember 2022, Dresden, p. 10-11, doi: 10.5162/16dss2022/1.2

N. Warnecke, H. Wulfmeier, C. Steiner, R. Moos, H. Fritze:

Sauerstoffsensor- und -pumpsystem auf der Basis von Yttriumoxid-stabilisierten Zirkoniumdioxid-Schichten

16. *Dresdner Sensor-Symposium*, 5.-7. Dezember 2022, Dresden

L. Hennerici, M. Sozak, M. Linz, M. Schamel J. Kita, M.A. Danzer, R. Moos, S. Lang, D. Kramer, R. Mönig:

Powder Aerosol Deposition, a Novel Way to Manufacture All-Solid-State Batteries

Solid-State Batteries V, an International Bunsen Discussion Meeting, Nov 22-24, 2022, Frankfurt a. Main, Germany

T. Wöhrl, G. Hagen, R. Moos:

Concept of an impedance-based ammonia sensor for SCR applications

Eurosensors XXXIV, Sep. 19-23, 2022, Leuven, Belgium

R. Moos, R. Werner, J. Distler, M. Gerlach, M. Gollner, F. Linseis, J. Kita:

Miniaturized differential scanning calorimeter (DSC) with high resolution and high heating rates

Eurosensors XXXIV, Sep. 19-23, 2022, Leuven, Belgium

J. Distler, T. Wöhrl, R. Werner, M. Gerlach, M. Gollner, V. Linseis, F. Linseis, J. Kita, R. Moos:

Miniaturized DSC device with integrated weighing system: First steps

ESTAC13 - The 13th European Symposium on Thermal Analysis and Calorimetry, 19.-22.9.2022, Palermo, Italy, p. 76

M. Gerlach, R. Werner:

Chip-based Calorimeter in combination with several sensor layouts inclusive related investigations

ESTAC13 - The 13th European Symposium on Thermal Analysis and Calorimetry, 19.-22.9.2022, Palermo, Italy, p. 26

R. Werner, J. S. Matejka, D. Schönauer-Kamin, R. Moos:

Flexible Bi₂Te₃ Films on Polymer Sheets Prepared by the Powder Aerosol Deposition Method at Room Temperature

18th European Conference on Thermoelectrics, Barcelona, Spain, September 14 - 16, 2022, Poster-ID 05075

S. Bresch, R. Moos, P. Stargardt, B. Mieller:

Comparison of design concepts for ceramic oxide thermoelectric multilayer generators

18th European Conference on Thermoelectrics, Barcelona, Spain, September 14 - 16, 2022, Poster-ID 05076

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:

Measurement device for measuring the electrical conductivity, the Hall constant and the Seebeck coefficient up to 800 °C

18th European Conference on Thermoelectrics, Barcelona, Spain, September 14 - 16, 2022, Poster-ID 05077

Year 2022

D. Schönauer-Kamin, K. Hetzel, S. Bresch, R. Moos:

Powder-Aerosol deposited (PAD) calcium manganate as n-type thermoelectric material

18th European Conference on Thermoelectrics, Barcelona, Spain, September 14 - 16, 2022, Poster-ID 05138

S. Walter, G. Hagen, D.T. Koch, A. Geißelmann, R. Moos:

On the Suitability of NO_x-Storage-Catalysts for Hydrogen Internal Combustion Engines and a Radio Frequency-Based NO_x Loading Monitoring

CAPoC12 - 12th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Aug. 29 - 31, 2022, p. 154-167

V. Malashchuk, S. Walter, G. Hagen, M. Engler, G. Link, J. Jelonnek, F. Raß, R. Moos:

Reducing Cold-Start-Emissions by Microwave-Based Catalyst Heating: Simulative Studies

CAPoC12 - 12th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Aug. 29 - 31, 2022, p. 208-217

H. Wulfmeier, D. Kohlmann, T. Defferriere, C. Steiner, M. Schewe, C. Rembe, R. Moos, H.L. Tuller, H. Fritze:

Chemical expansion of cerium oxide based thin films

Solid State Ionics 23, July 17-22, 2022, Boston, USA, DT24.02

C. Berger, R. Merkle, J. Exner, R. Moos, J. Maier:

Proton Conductivity and Mobility in Triple-Conducting Perovskites Ba_{0.95}La_{0.05}Fe_{1-x}(Y,Zn)_xO_{3-δ}

Solid State Ionics 23, July 17-22, 2022, Boston, USA, DT16.01

J. Kita, T. Nazarenius, L. Hennerici, N. Leupold, M. Linz, D. Paulus, M. Sozak, R. Moos:

The Powder Aerosol Deposition Method as Supplementary Process for Additive Manufacturing

CICMT 2022 - Ceramic Interconnect and Ceramic Microsystems Technologies, Vienna, July 13-15, 2022

J. Kita, T. Nazarenius, D. Paulus, N. Leupold, M. Linz, M. Sozak, L. Hennerici, R. Moos:

The Powder Aerosol Deposition Method – Possibilities and Actual Limitations

Ceramics in Europe, July 10-14, 2022, Cracow, Poland, book of abstracts, p. 103

M. Linz, J. Kita, R. Moos:

Discontinuous Powder Aerosol Deposition Method: Formation of ceramic films at room temperature using small powder quantities

Ceramics in Europe, July 10-14, 2022, Cracow, Poland, book of abstracts, p. 112

D. Paulus, J. Kita, R. Moos:

Influence of powder composition on the internal stresses and thermal annealing behavior of ceramic films formed by Powder Aerosol Co-Deposition

Ceramics in Europe, July 10-14, 2022, Cracow, Poland, book of abstracts, p. 241

S. Bresch, P. Stargardt, J. Töpfer, R. Moos, B. Mieller:

Thermoelectric multilayer generators: development from oxide powder to demonstrator

Ceramics in Europe, July 10-14, 2022, Cracow, Poland, book of abstracts, p. 277

T. Wöhr, G. Hagen, R. Moos, F. Noack, D. Bleicker, I. Hartmann, M. König:

Neue Sensorik für die Prozessoptimierung von SCR-Verfahren

DBFZ Jahrestagung 2022, Thema „Green Deal & beyond - Der Beitrag biomassebasierter Forschung und Innovation“, 21.-23. Juni 2022, Leipzig

Y. Jännsch, M. Hämmerle, E. Simon, M. Fleischer, R. Moos:

Optimizing a Gas Diffusion Electrode for Stable CO₂RR to Ethylene

32nd Topical Meeting of the International Society of Electrochemistry, June 19-22, 2022, Stockholm, Sweden, Poster s3-013

H. Hoffmann, M. C. Paulisch, Y. Jännsch, R. Moos, I. Manke, C. Roth:

Development of a Modular Operando Cell for Radiography Analysis of Gas Diffusion Electrodes in Gas-consuming Reactions

Electrochemical Cell Concepts Colloquium – E3C, 19.5.2022, virtual conference, oral presentation

D. Schönauer-Kamin, R. Wagner, W. Bäther, R. Moos:

Dosimeterartige Sensoren zur Detektion krebserzeugender Stoffe

Sensoren und Messsysteme 2022, 10.5.-11.5.2022, Nürnberg, Keynote Talk, A 3.1

ITG-Fachbericht 303, Beiträge der 21. ITG/GMA-Fachtagung, VDE-Verlag, Berlin, ISBN 978-3-8007-5835-7, S. 50-52

T. Wöhr, M. Steiner, J. Herrmann, G. Hagen, J. Kita, R. Moos, F. Noack, D. Bleicker:

Kombinierter Stickoxid- und Sauerstoffsensoren in Planartechnik

Sensoren und Messsysteme 2022, 10.5.-11.5.2022, Nürnberg, Talk, A 3.3

ITG-Fachbericht 303, Beiträge der 21. ITG/GMA-Fachtagung, VDE-Verlag, Berlin, ISBN 978-3-8007-5835-7, S. 55-56

J. Distler, T. Wöhr, R. Werner, R. Moos, J. Kita, M. Gerlach, M. Gollner, V. Linseis, F. Linseis:

Miniaturisiertes DSC-Gerät mit integrierter Wägeeinrichtung: Erste Schritte

Sensoren und Messsysteme 2022, 10.5.-11.5.2022, Nürnberg, Keynote Talk, C 2.1

ITG-Fachbericht 303, Beiträge der 21. ITG/GMA-Fachtagung, VDE-Verlag, Berlin, ISBN 978-3-8007-5835-7, S. 333-335

V. Malashchuk, A. Jess, R. Moos:

Berührungslose Prozesszustandsdiagnose von Gasreinigungsprozessen mittels immobilisierter ionischer Flüssigkeitsphase unter Verwendung der Resonanzstörkörpermethode

Sensoren und Messsysteme 2022, 10.5.-11.5.2022, Nürnberg, Talk, C 4.4

ITG-Fachbericht 303, Beiträge der 21. ITG/GMA-Fachtagung, VDE-Verlag, Berlin, ISBN 978-3-8007-5835-7, S. 387-389

Year 2022

S. Walter, P. Schwanzer, G. Hagen, H.-P. Rabl, M. Dietrich, R. Moos:

Combined Ash and Soot Monitoring in Gasoline Particulate Filters with a Radio-Frequency-Based Sensor
2022 SAE World Congress Experience, April 5-7, 2022, Detroit, Michigan, USA

T. Nazarenius, J. Kita, R. Moos:

Fabrication of Thin Ceramic Electrolytes at Room Temperature via Powder Aerosol Deposition Method
PCC - Resolving challenges and new breakthroughs?, 29.03.2022, online, oral presentation

J. Kita:

Ceramic sensors for materials characterization

97. DKG-Jahrestagung, 07.03.-09.03.2022, online, oral presentation, Book of Abstracts, p. 74

N. Leupold, D. Nägele, D. Lukas, S. Biberger, F. Panzer, R. Moos:

Powder aerosol deposition of lead halide perovskites for optoelectronic applications

97. DKG-Jahrestagung, 07.03.-09.03.2022, online, oral presentation, Book of Abstracts, p. 86

M. Sozak, T. Nazarenius, J. Exner, J. Kita, R. Moos:

Fabrication of dense NaSICON solid electrolyte films via aerosol deposition method

97. DKG-Jahrestagung, 07.03.-09.03.2022, online, oral presentation, Book of Abstracts, p. 132

Year 2021

Peer Reviewed Journals

- A. Ruchets, N. Donker, J. Zosel, D. Schönauer-Kamin, R. Moos, U. Guth, M. Mertig:
CO Gas Detection on Pt|YSZ|Pt Solid Electrolyte Sensors by Methods Based on Dynamic Voltage Variations
Journal of The Electrochemical Society, **168**, 117506 (2021), doi: 10.1149/1945-7111/ac2fc5
- J. Exner, M. Linz, J. Kita, R. Moos:
Making powder aerosol deposition accessible for small amounts: A novel and modular approach to produce dense ceramic films
International Journal of Applied Ceramic Technology, **18**, 2178-2196 (2021), doi: 10.1111/ijac.13841
- P. Ramming, N. Leupold, K. Schötz, A. Köhler, R. Moos, H. Grüniger, F. Panzer:
Suppressed ion migration in powder-based perovskite thick films using an ionic liquid
Journal of Materials Chemistry C, **9**, 11827-11837 (2021), doi: 10.1039/D1TC01554K
- I. Kogut, C. Steiner, H. Wulfmeier, A. Wollbrink, G. Hagen, R. Moos, H. Fritze:
Comparison of the electrical conductivity of bulk and film $Ce_{1-x}Zr_xO_{2-\delta}$ in oxygen-depleted atmospheres at high temperatures
Journal of Materials Science, **56**, 17191-17204 (2021), doi: 10.1007/s10853-021-06348-5
- Y. Jännsch, M. Hämmerle, J. Leung, E. Simon, M. Fleischer, R. Moos:
Gas evolution in electrochemical flow cell reactors induces resistance gradients with consequences for the positioning of the reference electrode
RSC Advances, **11**, 28189-28197 (2021), doi: 10.1039/D1RA05345K
- R. Wagner, D. Schönauer-Kamin, W. Bätther, R. Moos:
Concept study with experimental proof for a new type of detector for gas chromatography
Sensors and Actuators B: Chemical, **346**, 130490 (2021), doi: 10.1016/j.snb.2021.130490
- N. Leupold, A.L. Seibel, R. Moos, F. Panzer:
Electrical Conductivity of Halide Perovskites Follows Expectations from Classical Defect Chemistry
European Journal of Inorganic Chemistry, **2021**, 2882-2889 (2021), doi: 10.1002/ejic.202100381
- M. Linz, J. Exner, J. Kita, F. Bühner, M. Seipenbusch, R. Moos:
Discontinuous Powder Aerosol Deposition: An Approach to Prepare Films Using Smallest Powder Quantities
Coatings, **11**, 844 (2021), doi: 10.3390/coatings11070844
- T. Nazareus, Y. Sun, J. Exner, J. Kita, R. Moos:
Powder Aerosol Deposition as a Method to Produce Garnet-Type Solid Ceramic Electrolytes: A Study on Electrochemical Film Properties and Industrial Application
Energy Technology, **9**, 2100211 (2021), doi: 10.1002/ente.202100211
- P. Schwanzer, M. Schillinger, J. Mieslinger, S. Walter, G. Hagen, S. Märkl, G. Haft, M. Dietrich, R. Moos, M. Gaderer, H.-P. Rabl:
A Synthetic Ash-Loading Method for Gasoline Particulate Filters with Active Oil Injection
SAE International Journal of Engines, **14**, 493-505 (2021), doi: 10.4271/03-14-04-0029
- P. Glosse, S. Denneler, O. Stier, R. Moos:
Investigation of the Powder Aerosol Deposition Method Using Shadowgraph Imaging
Materials, **14**, 2502 (2021), doi: 10.3390/ma14102502
- N. Leupold, S. Denneler, G. Rieger, R. Moos:
Powder Treatment for Increased Thickness of Iron Coatings Produced by the Powder Aerosol Deposition Method and Formation of Iron-Alumina Multilayer Structures
Journal of Thermal Spray Technology, **30**, 480-487 (2021), doi: 10.1007/s11666-020-01098-3
- N. Leupold, F. Panzer:
Recent Advances and Perspectives on Powder-Based Halide Perovskite Film Processing
Advanced Functional Materials, **31**, 2007350 (2021), doi: 10.1002/adfm.202007350
- R. Wang, R. Moos:
Electrical conductivity determination of semiconductors by utilizing photography, finite element simulation and resistance measurement
Journal of Materials Science, **56**, 10449-10457 (2021), doi: 10.1007/s10853-021-05949-4
- R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:
Novel, low-cost device to simultaneously measure the electrical conductivity and the Hall coefficient from room temperature up to 600 °C
Journal of Sensors and Sensor Systems, **10**, 71-81 (2021), doi: 10.5194/jsss-10-71-2021
- V. Malashchuk, A. Jess, R. Moos:
Determination of water loading of supported ionic liquids by microwave analysis - A contribution for operando monitoring of gas drying by adsorption
Sensors and Actuators B: Chemical, **335**, 129646 (2021), doi: 10.1016/j.snb.2021.129646
- I. Kogut, A. Wollbrink, C. Steiner, F.-E. El Azzouzi, R. Moos, H. Fritze:
Linking the Electrical Conductivity and Non-Stoichiometry of Thin Film $Ce_{1-x}Zr_xO_{2-\delta}$ by a Resonant Nanobalance Approach
Materials, **14**, 748 (2021), doi: 10.3390/ma14040748

Year 2021

H. Grüniger, M. Bokdam, N. Leupold, P. Tinnemans, R. Moos, G.A. De Wijs, F. Panzer, A.P.M. Kentgens:
Microscopic (Dis)order and Dynamics of Cations in Mixed FA/MA Lead Halide Perovskites
The Journal of Physical Chemistry C, **125**, 1742-1753 (2021), doi: 10.1021/acs.jpcc.0c10042

S. Bresch, B. Mieller, D. Schönauer-Kamin, R. Moos, T. Reimann, F. Giovannelli, T. Rabe:
Influence of pressure and dwell time on pressure-assisted sintering of calcium cobaltite
Journal of the American Ceramic Society, **104**, 917-927 (2021), doi: 10.1111/jace.17541

Doctoral Theses

N. Müller:
Untersuchungen zur Teilentladungsresistenz von Polymeren
(Investigations on the partial discharge resistance of polymers)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 17, Shaker-Verlag, Düren (2021), ISBN: 978-3-8440-8168-8

R. Wagner:
Zinkoxid als Material zur resistiven Detektion von NO₂ bei Raumtemperatur
(Zinc oxide as a material to detect resistively NO₂ at room temperature)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 35, Shaker-Verlag, Düren (2021), ISBN: 978-3-8440-8039-1

Invited Talks

Eurosensors 2021 Virtual Meeting, online, 7.9.2021
R. Moos: *Powder Aerosol Deposition: A novel technique to manufacture sensors and functional devices*

Solid State Proton Conductors (SSPC-20), September 27 - October 1, 2021, online conference
T. Nazarenius, J. Kita, R. Moos, J. Exner: *Making Thin and Dense Ceramic Membranes at Room Temperature using Powder Aerosol Deposition*

Published Conference Contributions

R. Moos, J. Kita, R. Werner, M. Gerlach, M. Gollner, F. Linseis:
A novel fully LTCC-based differential scanning calorimeter with high resolution and high heating rates
PACRIM 14, The 14th Pacific Rim Conference of Ceramic Societies, Vancouver (virtual), USA, 13.12.-16.12.2021, p. 117, PACRIM-449-2021

C. Steiner, I. Kogut, G. Hagen, H. Fritze, R. Moos:
Investigation of the Defect-Chemistry of Ceria-Zirconia Mixed Oxides (CZO) Using Microwaves
PACRIM 14, The 14th Pacific Rim Conference of Ceramic Societies, Vancouver (virtual), USA, 13.12.-16.12.2021, p. 113, PACRIM-434-2021

J. Exner, M. Linz, J. Kita, R. Moos:
μPAD makes Powder Aerosol Deposition accessible: A modular and inexpensive approach to produce dense ceramic films at room temperature
PACRIM 14, The 14th Pacific Rim Conference of Ceramic Societies, Vancouver (virtual), USA, 13.12.-16.12.2021, p. 101, PACRIM-378-2021

D. Paulus, J. Exner, J. Kita, R. Moos:
Influence of filler materials on the internal stresses and thermal annealing behavior of ceramic films formed by Powder Aerosol Deposition
PACRIM 14, The 14th Pacific Rim Conference of Ceramic Societies, Vancouver (virtual), USA, 13.12.-16.12.2021, p. 86, PACRIM-310-2021

T. Nazarenius, J. Exner, Y. Sun, J. Kita, R. Moos:
Powder Aerosol Deposition Method: A pathway for the large-scale production of solid oxide electrolyte films for lithium metal batteries?
PACRIM 14, The 14th Pacific Rim Conference of Ceramic Societies, Vancouver (virtual), USA, 13.12.-16.12.2021, p. 50, PACRIM-151-2021

T. Wöhrl, J. Herrmann, G. Hagen, J. Kita, R. Moos:
Temperaturverteilung beheizter keramischer Sensorelemente innerhalb eines Gehäuses – Experimentelle Untersuchungen
15. Dresdner Sensor-Symposium, 6.-8. Dezember 2021, Dresden (virtuell), p. 321-322, doi: 10.5162/15dss2021/P10.1

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:
Entwicklung eines Hochtemperaturmessgerätes für die elektrische Leitfähigkeit, die Hall-Konstante und den Seebeck-Koeffizienten
15. Dresdner Sensor-Symposium, 6.-8. Dezember 2021, Dresden (virtuell), p. 303-304, doi: 10.5162/15dss2021/P9.3

R. Moos:
Die Pulveraerosoldepositions-methode - ein neues Verfahren zur Herstellung dichter Sensorschichten bei Raumtemperatur
15. Dresdner Sensor-Symposium, 6.-8. Dezember 2021, Dresden (virtuell), p. 72-74, doi: 10.5162/15dss2021/4.5

N. Leupold, A. Seibel, R. Moos, F. Panzer:
Iodine Partial Pressure Dependent Electrical Conductivity of Halide Perovskites in the Framework of Defect Chemistry
nanoGe Fall Meeting 2021, 18.10.-22.10.2021, online, oral presentation

T. Nazarenius, J. Kita, R. Moos, J. Exner:
Making Thin and Dense Ceramic Membranes at Room Temperature using Powder Aerosol Deposition

Year 2021

SSPC-20 Bad Aibling, September 27 - October 1, 2021, online conference, Book of Abstracts p. 60

D. Schönauer-Kamin, R. Wagner, W. Bätther, R. Moos:

Gas Dosimeters As Detector for Gas Chromatography

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1440

See also: *ECS Meeting Abstracts*, MA2021-01, 1440 (2021), doi: 10.1149/MA2021-01561440mtgabs

T. Ritter, G. Hagen, R. Moos:

Dynamic Catalyst Conversion Measurement Using One Single Sensor

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1487

See also: *ECS Meeting Abstracts*, MA2021-01, 1487 (2021), doi: 10.1149/MA2021-01561487mtgabs

N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

NO_x Detection By Pulse Polarization: Influence of Gold Electrodes

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1501

See also: *ECS Meeting Abstracts*, MA2021-01, 1501 (2021), doi: 10.1149/MA2021-01561501mtgabs

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Explanation of the Non-Linear Electrical Behavior of a Resistive NO_x Dosimeter By Operando DRIFT Spectroscopy

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C. Steiner, V. Malashchuk, G. Hagen, D. Kubinski, R. Moos:

Microwave-Based State Diagnosis for Three-Way Catalysts – A Promising Technology for Future Gasoline Exhaust Gas Aftertreatment

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J. Herrmann, T. Wöhrl, R. Werner, G. Hagen, J. Kita, R. Moos:

Experimental Verification of the Temperature Homogeneity of Heated Gas Sensor Transducers Inside a Protection Cap

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A. Ruchets, N. Donker, D. Schönauer-Kamin, R. Moos, U. Guth, M. Mertig:

Convection Influence on Redox Potential Measurements at Hot Platinum Electrodes

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How to Make Ceramic Gas Sensor Films at Room Temperature - the Powder Aerosol Deposition

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Adding Seebeck coefficient measurements to an existing high temperature device for Hall constant and electrical conductivity measurements

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N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

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S. Walter, C. Steiner, G. Hagen, R. Moos:

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V. Malashchuk, A. Jess, R. Moos:

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SMSI Sensor and Measurement Science International, Virtual Conference, 03-06 May 2021, Nuremberg, Germany, doi: 10.5162/SMSI2021/C6.2

J. Herrmann, T. Kern, G. Hagen, R. Moos:

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J. Herrmann, G. Hagen, J. Kita, R. Moos, D. Bleicker, F. Noack:

Konzept eines Multigasensors zur Erfüllung strengster Emissionsanforderungen an Verbrennungsmotoren

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Concept of a Multi-Gas Sensor to Meet the Strictest Emission Requirements for Combustion Engines
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Electrochemical CO₂ Reduction to Ethylene via a CuO Nanocatalyst with Focus on Long-term Stability and Scalability
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M. Streibl:

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In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 16, Shaker-Verlag, Düren (2020), ISBN: 978-3-8440-7564-9

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BaFe_{(1-x)0.01Al_{0.01}Ta_xO_{3-δ}: A material for temperature independent resistive and thermoelectric oxygen sensors}

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U. Schadeck:

Entwicklung glasbasierter Separatoren für Lithium-Ionen-Batterien

(Development of glass-based separators for lithium-ion batteries)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 15, Shaker-Verlag, Düren (2020), ISBN: 978-3-8440-7225-9

J. Metzner:

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Hochfrequenzsensorik zur direkten Beladungserkennung von Benzinpartikelfiltern

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Sensoren im Automobil, München, 17.9.-18.9.2020

S. Walter, P. Schwanzer, G. Hagen, G. Haft, M. Dietrich, H.-P. Rabl, R. Moos: *Hochfrequenzsensorik zur direkten Beladungserkennung von Benzinpartikelfiltern*

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R. Moos, J. Exner: *Dichte keramische Schichten bei Raumtemperatur spritzen – die Pulveraerosoldepositionsmethode macht Unmögliches möglich*

Published Conference Contributions

J. Exner, M. Linz, T. Nazarenus, D. Hanft, N. Leupold, P. Glosse, J. Kita, R. Moos:

Powder aerosol deposition - dense ceramic thick films without any heat treatment

young Ceramists Additive Manufacturing Forum (yCAM) 2020, Toulouse - Online, France, 28.10.-30.10.2020,

Oral presentation, Session: Hybrid and Emerging Technologies

J. Exner, M. Linz, T. Nazarenus, N. Leupold, J. Kita, R. Moos:

Powder Aerosol Deposition - How to Spray Dense Functional Ceramic Films at Room Temperature without any Sintering

Electroceramics XVII, Virtual Darmstadt, 24.-28. August 2020

S. Bresch, B. Mieller, R. Moos, T. Rabe:

Improved thermoelectric properties of calcium manganate and calcium cobaltite by increasing the driving force for sintering

Electroceramics XVII, Virtual Darmstadt, 24.-28. August 2020

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:

Development of a New Low-Cost Measurement System for Electrical Conductivity, Hall Constant and Seebeck Coefficient at Temperatures up to 800°C

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S. Bresch, B. Mieller, R. Moos, T. Rabe:

Reaction sintering and sintering additives for cost-effective production of thermoelectric oxides

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N. Donker, M. Müller, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

NO detection by pulsed polarization with Pt interdigital electrodes on yttria stabilized zirconia

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R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:

Development of a new Measurement System for Electrical Conductivity and Hall Constant

SMSI Sensor and Measurement Science International, cancelled conference, 22-25 June 2020, Nuremberg, Germany, doi: 10.5162/SMSI2020/A5.4

J. Wohlrab, T. Kern, G. Hagen, R. Moos:

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Influence of Gas Flow on the Temperature Homogeneity of Sensor Transducers

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Available at: *ECS Meeting Abstracts*, MA2020-01, 2293, doi: 10.1149/MA2020-01302293mtgabs

R. Moos, M. Bektas, G. Hagen, J. Kita, D. Schönauer-Kamin, D. Hanft, J. Exner:

The Powder Aerosol Deposition Method - Making Ceramic Gas Sensor Films at Room Temperature

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T. Ritter, G. Hagen, R. Moos:

Dynamic Catalyst Conversion Measurement Using One Single Sensor Device

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NO_x Detection By Pulse Polarization: Influence of Gold Electrodes

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Available at: *ECS Meeting Abstracts*, MA2020-01, 2060, doi: 10.1149/MA2020-01282060mtgabs

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NO Detection By Cyclic Voltammetry with Platinum Electrodes on YSZ

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Monitoring eines Partikelfilters für direkteinspritzende Benzinmotoren mit einer Hochfrequenzantenne

Monitoring of a Particulate Filter for Gasoline Direct Injection Engines with a Radio-Frequency-Sensor

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D. Hanft, T. Nazareus, J. Kita, R. Moos:

Aerosol-Deposition Lithium-Ionen leitender Festelektrolytmembranen für Festkörperbatterien

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Natriumborosilikatglas-Separatoren als Elektrolyt-Additiv Donator zur Verbesserung der elektrochemischen Leistungsfähigkeit von Lithium-Ionen-Batterien

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Topics in Catalysis, **62**, 227-236 (2019), doi: 10.1007/s11244-018-1110-3

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Modelling Both the NH₃ Storage on Automotive SCR Catalysts and the Radio-Frequency-Based Response
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How to treat powders for the room temperature aerosol deposition method to avoid porous, low strength ceramic films
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M. Schubert:

Aerosolbasierte Kaltabscheidung für die Herstellung von schichtbasierten NTC-Thermistorbauteilen
(Powder aerosol deposition for the production of film-type NTC thermistor devices)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 29, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-7041-5

D. Hanft:

Aerosolbasierte Kaltabscheidung Lithium-Ionen leitender Festelektrolytschichten mit Granatstruktur
(Powder aerosol-based deposition of lithium ion conducting solid electrolyte layers with garnet structure)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 14, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-7044-6

A. Engelbrecht:

Ausgewählte Materialien und Methoden für die elektrochemische Reduktion von CO₂
(Materials and methods for the electrochemical reduction of CO₂)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 13, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-7081-1

M. Feulner:

Methoden der Rußdetektion im Dieselaabgas
(Methods for soot detection in diesel exhausts)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 28, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6926-6

T. Ritter:

Untersuchung und Modellierung der elektrochemischen Vorgänge von Elektroden für Mischpotential-Sensoren
(Investigation and modelling of electrochemical processes of electrodes for mixed potential sensors)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 27, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6906-8

Y. Zheng:

Untersuchung von Sauerstoffreaktionen an Pt-basierten Modellelektroden auf Yttriumoxid-stabilisiertem Zirkoniumdioxid
(Investigation of oxygen reactions at Pt-based model electrodes on yttria-stabilized zirconium dioxide)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 12, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6800-9

M. Schubert:

Die aerosolbasierte Kaltabscheidung von Aluminiumoxid: Verfahren, Hintergründe, Anwendungen

Year 2019

(Aerosol deposition of aluminum oxide: process, background, and applications)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 11, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6725-5

T.N.H. Hanus:

Herstellung und Charakterisierung von Aluminiumoxidschichten nach dem Verfahren der aerosolbasierten Kaltabscheidung

(Production and characterization of aluminum oxide layers by the aerosol deposition method)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 10, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6663-0

T. Stöcker:

Delafossite für die thermoelektrische Energiewandlung bei hohen Temperaturen

(Delafossites for thermoelectric energy conversion at high temperatures)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 9, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6496-4

M.L. Anke:

Bestimmung der thermischen Stabilität von ionischen Fluiden auf porösen Trägern und festen Katalysatoren mittels elektrischer Sensoren

(Determination of the thermal stability of ionic fluids on porous supports and on solid catalysts by electrical sensors)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 26, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6508-4

J. Exner:

Aerosolbasierte Kaltabscheidung von Funktionskeramiken für neuartige Anwendungen im Bereich der Sensorik und Energiewandlung

(Aerosol deposition of functional ceramics for novel applications in the field of sensor technology and energy conversion)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 8, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-6399-8

Invited Talks

PACRIM 13, The 13th Pacific Rim Conference of Ceramic Societies, Okinawa, Japan, 27.10.-1.11.2019

R. Moos, M. Schubert, P. Nieke, N. Leupold, J. Kita, D. Hanft, T. Nazarenus, P. Glosse, J. Exner, M. Schubert: *The Aerosol Deposition Method: Novel Ideas for Functional Films*

Institutskolloquium, Fraunhofer-Institut für Schicht- und Oberflächentechnik (IST), Braunschweig, 30.04.2019

J. Exner, Ralf Moos: *Aerosol-Deposition - Abscheidung von dichten keramischen Schichten bei Raumtemperatur*

DGM Fortbildungsseminar Hochtemperatursensorik, Goslar, 14.2.-15.2.2019

C. Steiner: *Gas- und Zustandssensoren für den Automobilbereich*

Meeting of the ProcessNet/AMA-Section „Mess- und Sensortechnik“, Frankfurt am Main, DECHEMA-Haus, 24.1.2019

R. Moos: *Is it possible to operate exhaust aftertreatment systems without exhaust gas sensors? About the possibilities of high-frequency-based catalyst state recognition*

Published Conference Contributions

N. Donker, J. Zander, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

Einfluss der Elektrodenmorphologie auf die NO-Detektion mittels Pulspolarisation

14. *Dresdner Sensor-Symposium*, 2.-4. Dezember 2019, Dresden, p. 107-109, doi: 10.5162/14dss2019/P2.09

R. Wagner, D. Schönauer-Kamin, R. Moos:

Einfluss der Partikelmorphologie auf das Raumtemperaturdosimeterverhalten von ZnO zur NO₂-Detektion

14. *Dresdner Sensor-Symposium*, 2.-4. Dezember 2019, Dresden, p. 101-103, doi: 10.5162/14dss2019/P2.07

J. Wohlrab, G. Hagen, F. Noack, D. Bleicker, R. Moos:

Multigassensor zur simultanen Detektion von Stickoxiden und Sauerstoff

14. *Dresdner Sensor-Symposium*, 2.-4. Dezember 2019, Dresden, p. 47-48, doi: 10.5162/14dss2019/3.3

A. Ruchets, N. Donker, J. Zosel, D. Schönauer-Kamin, R. Moos, U. Guth, M. Mertig:

Selektive Gasmessung mit cyclovoltammetrisch betriebenen Festelektrolytsensoren

14. *Dresdner Sensor-Symposium*, 2.-4. Dezember 2019, Dresden, p. 30-33, doi: 10.5162/14dss2019/2.2

R. Moos, M. Schubert, P. Nieke, N. Leupold, J. Kita, D. Hanft, T. Nazarenus, P. Glosse, J. Exner, M. Schubert:

The Aerosol Deposition Method: Novel Ideas for Functional Films

PACRIM 13, The 13th Pacific Rim Conference of Ceramic Societies, Okinawa, Japan, 27.10.-1.11.2019, 29-B1B-S33-25

N. Leupold, D. Lukas, T. Herrmannsdörfer, F. Panzer, R. Moos:

Fabrication of lead halide perovskite films via aerosol deposition method for optoelectronic applications

PACRIM 13, The 13th Pacific Rim Conference of Ceramic Societies, Okinawa, Japan, 27.10.-1.11.2019, 29-B1B-S33-27

T. Nazarenus, D. Hanft, R. Moos:

Aerosol Deposition Method: A new way to fabricate conductive solid electrolytes for next generation Li ion batteries

PACRIM 13, The 13th Pacific Rim Conference of Ceramic Societies, Okinawa, Japan, 27.10.-1.11.2019, 28-B6-S16-14

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V. Malashchuk, C. Steiner, G. Hagen, R. Moos:

Simulation model for the radio frequency based state diagnosis of three-way catalytic converters
International Symposium on Modeling of Exhaust-Gas After-Treatment (MODEGAT VI), September 8-10, 2019, Bad Herrenalb/Karlsruhe, p. 54-55

T. Nazarenius, J. Exner, P. Glosse, D. Hanft, N. Leupold, P. Nieke, M. Schubert, M. Schubert, J. Kita, R. Moos:
Aerosolbasierte Kaltabscheidung - Herstellung dichter keramischer Funktionsschichten bei Raumtemperatur
Werkstoffwoche 2019, 18.09.-20.09.2019, Dresden, Vortrag 06.01

T. Nazarenius, P. Glosse, M. Schubert, J. Kita, R. Moos:
Prozessierung dichter keramischer Funktionsschichten mittels Aerosolbasierter Kaltabscheidung
Werkstoffwoche 2019, 18.09.-20.09.2019, Dresden, Poster 06-208

P. Glosse, S. Denneker, O. Stier, D. Hanft, R. Moos:
Shadow-optical visualization of the gas jet formation in the Aerosol Deposition Method
2nd Global Forum on Advanced Materials and Technologies for Sustainable Development (GFMAT-2), 21.-26.7.2019, Toronto, Canada, GFMAT-246-2019

D. Schönauer-Kamin, S. Ewinger, J. Exner, R. Moos:
Planar Thermoelectric Generator Transducer for the High-Temperature Characterization of Materials Performance
38th International Conference on Thermoelectrics, June 30 - July 4, 2019, Gyeongju, Korea

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:
Current State on the Development of a New Low Cost Measurement System for Conductivity, Hall Constant and Seebeck Coefficient at Temperatures up to 800 °C
38th International Conference on Thermoelectrics, June 30 - July 4, 2019, Gyeongju, Korea, P057

J. Wohlrab, G. Hagen, H. Kohler, R. Moos:
CH₄-Sensitivity of Thermoelectric Gas Sensors
Sensoren und Messsysteme 2019, 25.6.-26.6.2019, Nürnberg, P.1.23, Proceedings, p. 654-655, doi: 10.5162/sensoren2019/P1.23

D. Schönauer-Kamin, N. Donker, A. Ruchets, J. Zosel, U. Guth, R. Moos:
Dynamic measurement methods for solid electrolyte gas sensors
Sensoren und Messsysteme 2019, 25.6.-26.6.2019, Nürnberg, P.1.22, Proceedings, p. 651-653, doi: 10.5162/sensoren2019/P1.22

M. Schubert, C. Reichl, C. Münch, J. Kita, R. Moos:
Mittels aerosolbasierter Kaltabscheidung bei Raumtemperatur hergestellte schichtförmige NTC-Thermistorbauelemente
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N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:
Puls polarisation: Einfluss der Polarisationsspannung auf die NO_x-Detektion mit dem System Pt|YSZ
Sensoren und Messsysteme 2019, 25.6.-26.6.2019, Nürnberg, P1.12, Proceedings, p. 601-605, doi: 10.5162/sensoren2019/P1.12

A. Ruchets, N. Donker, D. Schönauer-Kamin, R. Moos, J. Zosel, U. Guth, M. Mertig:
Einsatz der Cyclovoltmetrie zur Steigerung der Selektivität von Festelektrolytsensoren
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G. Hagen, A. Müller, J. Lattus, J. Kita, R. Moos, F. Noack, D. Bleicker:
Impedanz-basierter NO_x-Sensor für Abgasanwendungen
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A. Wollbrink, H. Fritze, C. Steiner, R. Moos:
Investigation for direct sensing the state of three-way-catalysts in the exhaust gas aftertreatment
Sensoren und Messsysteme 2019, 25.6.-26.6.2019, Nürnberg, 2.4.1

R. Moos, M. Bektas, S. Püls, G. Hagen, J. Kita, J. Exner:
Aerosol deposition method - a promising novel method to produce ceramic gas sensor films at room temperature
Eurosensors XXXIII, June 23 - 27, 2019, Berlin, Germany, M3P.031,
20th International Conference on Solid-State Sensors, Actuators and Microsystems & Eurosensors XXXIII, p. 1150-1152,
doi: 10.1109/TRANSDUCERS.2019.8808270

R. Wagner, D. Schönauer-Kamin, R. Moos:
Novel concept for room temperature NO₂ detection: Using metal oxides as resistive gas dosimeters
Eurosensors XXXIII, June 23 - 27, 2019, Berlin, Germany, W3P.044,
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doi: 10.1109/TRANSDUCERS.2019.8808409

S. Walter, M. Dietrich, G. Hagen, R. Moos:
Simulative Modelling of the Location Dependent Soot Distribution in Gasoline Particle Filters and their Influence to the Soot Mass Determination by Radio Frequency and Differential Pressure Sensors
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J. Exner, M. Schubert, D. Hanft, T. Nazarenius, P. Nieke, P. Glosse, N. Leupold, M. Schubert, J. Kita, R. Moos:
Aerosol Deposition – Dry spray coating of functional ceramic films directly at room temperature

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P. Glosse, S. Denneler, O. Stier, D. Hanft, R. Moos:

Shadow optical investigation of the gas jet used for ceramic film formation by the Aerosol Deposition Method
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N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

Pulse polarization measurements on the system Pt|YSZ by varying the polarization voltage
7th Regional Symposium on Electrochemistry of South-East Europe (RSE-SEE 7), May 27-30, Split, Croatia, KSS-O-8

A. Ruchets, N. Donker, D. Schönauer-Kamin, R. Moos, J. Zosel, U. Guth, M. Mertig:

Selective multi-gas measurements with solid electrolyte cells operated by cyclovoltammetry
7th Regional Symposium on Electrochemistry of South-East Europe (RSE-SEE 7), May 27-30, Split, Croatia, KSS-O-9

N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:

Effects of voltage variations in pulsed polarization measurements
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N. Leupold, M. Schulz, K. Schötz, R. Moos, F. Panzer:

A completely solvent free route for hybrid perovskite film processing based on pressure treatment of perovskite powders - decoupling material synthesis and film formation
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M. Schultz, N. Leupold, K. Schötz, R. Moos, F. Panzer:

Impact of microstructure of hybrid perovskite powders on the mechanical properties of completely dry processed perovskite layers via pressing
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U. Schadeck, T. Gerdes, W. Krenkel, R. Moos:

Electrochemically active glass separators for lithium-ion batteries
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U. Schadeck, K. Kyrgyzbaev, H. Zettl, T. Gerdes, R. Moos:

Flexible, heat-resistant and flame-retardant glass fiber nonwoven/glass platelet-composite separator for lithium-ion batteries
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A completely Solvent free Route for Hybrid Perovskite Film Processing Based on Pressure Treatment of Perovskite Powders – Decoupling Material Synthesis and Film Formation
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M. Hämmerle, K. Hilgert, R. Moos:

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M. Streibl, R. Karmazin, R. Moos:

Materials and Applications of Polymer Films for Power Capacitors with Special Respect to Nanocomposites
IEEE Transactions on Dielectrics and Electrical Insulation, **25**, 2429-2442 (2018), doi: 10.1109/TDEI.2018.007392

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M. Schubert, C. Münch, S. Schuurman, V. Poulain, J. Kita, R. Moos:

Thermal Treatment of Aerosol Deposited NiMn₂O₄ NTC Thermistors for Improved Aging Stability
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J. Exner, H. Pöpke, F.-M. Fuchs, J. Kita, R. Moos:

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Materials, **11**, 2072 (2018), doi: 10.3390/ma11112072

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J. Zimmermann-Ptacek, M. Muggli, S. Wildhack, K. Hintzer, T. Gerdes, M. Willert-Porada, R. Moos:

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Influence of Reaction-Sintering and Calcination Conditions on Thermoelectric Properties of Sm-doped Calcium Manganate CaMnO₃
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Influence of the calcination procedure on the thermoelectric properties of calcium cobaltite Ca₃Co₄O₉
Journal of Electroceramics, **40**, 225-234 (2018), doi: 10.1007/s10832-018-0124-3

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O. Isakin, S. Hiltl, O. Struck, M. Willert-Porada, R. Moos:

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Journal of Sensors and Sensor Systems, **7**, 289-297 (2018), doi: 10.5194/jsss-7-289-2018

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Ultrasound-assisted one-pot syntheses of ZnO nanoparticles that are homogeneously adsorbed on exfoliated graphite and a simplified method to determine the graphite layer thickness in such composites
Journal of Materials Science, **53**, 6586-6601 (2018), doi: 10.1007/s10853-018-2023-z

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Journal of the European Ceramic Society, **38**, 613-619 (2018), doi: 10.1016/j.jeurceramsoc.2017.09.005

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ZnO-Graphit-Komposite als Anodenmaterialien für Lithium-Ionen-Batterien
(ZnO graphite composites as anode materials for lithium ion batteries)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Materialien und Prozessen, Bd. 7, Shaker-Verlag, Aachen (2018), ISBN: 978-3-8440-6279-3, doi: 10.2370/9783844062793

F. Schubert:

Tian-Calvet-Kalorimeter mit Wärmestromsensoren in keramischer Mehrlagentechnik
(Tian-Calvet calorimeter with heat flow sensors in ceramic multilayer technology)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 24, Shaker-Verlag, Aachen (2018), ISBN: 978-3-8440-6127-7

M. Dietrich:

Anwendung der hochfrequenzgestützten Zustandsdiagnose zur Überwachung und Regelung von SCR-Katalysatoren
(Application of radio frequency-based techniques for monitoring and control of SCR catalysis)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 23, Shaker-Verlag, Aachen (2018), ISBN: 978-3-8440-5782-9

Year 2018

Book Contributions

R. Moos, M. Dietrich:
Beladungsregelung eines NH₃-SCR-Katalysator-Systems auf minimale NO_x-Emissionen mittels Hochfrequenzsensorik
In: T. Tille (Hrsg.), *Automobil-Sensorik 2 - Systeme, Technologien und Applikationen*, Springer-Verlag, Heidelberg (2018), p. 225-244, ISBN 978-3-662-56309-0 (gedruckt), ISBN 978-3-662-56310-6 (online), doi: 10.1007/978-3-662-56310-6_10

R. Moos:
Kap. 2.5 Elektrische Eigenschaften.
In W. Kollenberg (Hrsg.): *Technische Keramik*, Vulkan-Verlag GmbH, Essen (2018), 133-147, 3. Auflage, ISBN 978-3-8027-2986-7

R. Moos:
Kap. 4.9.5 Aerosol-Depositionsschichten.
In W. Kollenberg (Hrsg.): *Technische Keramik*, Vulkan-Verlag GmbH, Essen (2018), 588-591, 3. Auflage, ISBN 978-3-8027-2986-7

R. Moos:
Kap. 5.4 Anwendungen keramischer Werkstoffe in der Technik: Elektronik.
In W. Kollenberg (Hrsg.): *Technische Keramik*, Vulkan-Verlag GmbH, Essen (2018), 627-630, 3. Auflage, ISBN 978-3-8027-2986-7

Invited Talks

54th International Conference on Microelectronics, Devices and Materials with the Workshop on Sensors and Transducers, 3.-5.10.2018, Ljubljana, Slovenia.

J. Kita: *Multilayer Technologies and New Deposition Techniques in Sensors and Transducers Applications*

Materials Science and Engineering Congress (MSE), 26.-28.9.2018, Darmstadt, Germany
R. Moos, J. Kita, M. Bektas, J. Exner, P. Glosse, D. Hanft, N. Leupold, T. Nazarenus, P. Nieke, M. Schubert, M. Schubert:
Dense films prepared at room temperature directly from the ceramic powder: An overview on the Aerosol Deposition Method (ADM)

Eurosensors XXXII, September 9 - 12, 2018, Graz, Austria
R. Moos, S. Walter, C. Steiner, G. Hagen: *Sensing catalytic converters and filters at work using radio frequencies*

5. Internationale Fachkonferenz Emissionsreduktion und Emissionssensoren, Stuttgart, 11.-12.7.2018
R. Moos: *Radio frequency sensors for catalyst control – an overview / RF-Sensoren zur Katalysator-Kontrolle – ein Überblick*

Sensoren im Automobil, München, 19.4.-20.4.2018
R. Moos, M. Dietrich: *Beladungsregelung eines NH₃-SCR-Katalysator-Systems auf minimale NO_x-Emissionen mittels Hochfrequenzsensorik*

Published Conference Contributions

J. Exner, J. Kita, R. Moos:
Influence of the Powder Crystallite Size on the Successful Film Formation Using Room Temperature Aerosol Deposition
8th Tsukuba International Coating Symposium (TICS8), Tsukuba, Japan, 12.12.-13.12.2018, p. 57

T. Nazarenus, D. Hanft, J. Kita, R. Moos:
Fabrication of Lithium Ion Conductive Solid-Electrolytes by Aerosol Deposition
Third Bunsen Colloquium on Solid-State Batteries, 14.11.2018 - 16.11.2018, Frankfurt/Main, P052

U. Schadeck, K. Kyrgyzbaev, H. Zettl, T. Gerdes, R. Moos:
Flexible, Heat-Resistant and Flame-Retardant Glass Fiber Nonwoven/Glass Platelet Composite-Separator for Lithium-Ion Batteries
The Energy & Materials Research Conference (EMR 2018), November 8-9, 2018, Torremolinos, Spain

U. Schadeck, T. Gerdes, W. Krenkel, R. Moos:
Electrochemically Active Glass Separators for Lithium-Ion Batteries
The Energy & Materials Research Conference (EMR 2018), November 8-9, 2018, Torremolinos, Spain

M. Dietrich, G. Hagen, R. Moos:
Modelling both the NH₃ Storage on Automotive SCR Catalysts and the Radio-Frequency-Based Response
CAPOC11 - 11th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 29 - 31, 2018, Vol. 1, p. 111-120

T. Ritter, M. Seibel, F. Hofmann, M. Weibel, R. Moos:
Simulation of a NO_x sensor for model-based control of exhaust aftertreatment systems
CAPOC11 - 11th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 29 - 31, 2018, Vol. 1, p. 377-386

S. Walter, L. Ruwisch, U. Göbel, G. Hagen, R. Moos:
Radio-frequency-based determination of the oxygen and the NO_x storage level of NO_x storage catalysts
CAPOC11 - 11th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 29 - 31, 2018, Vol. 1, p. 387-390

C. Steiner, A. Gänzler, G. Hagen, M. Casapu, J.-D. Grunwaldt, R. Moos:

Year 2018

Oxidation state and dielectric properties of ceria-based catalysts by complementary microwave cavity perturbation and X-ray absorption spectroscopy measurements

CAPOC11 - 11th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 29 - 31, 2018, Vol. 2, p. 81-94

J. Kita:

Multilayer Technologies and New Deposition Techniques in Sensors and Transducers Applications

54th International Conference on Microelectronics, Devices and Materials with the Workshop on Sensors and Transducers, 3.-5.10.2018, Ljubljana, Slovenia.

N. Leupold, K. Schötz, M. Daubinger, A. Dürrmann, I. Bauer, A. Köhler, R. Moos, F. Panzer:

Large batch mechanochemically synthesized powders of hybrid perovskites for optoelectronic applications

4th International Conference on Perovskite Solar Cells and Optoelectronics, 30.09. - 02.10. 2018, Lausanne, Switzerland

R. Moos, J. Kita, M. Bektas, J. Exner, P. Glosse, D. Hanft, N. Leupold, T. Nazarenius, P. Nieke, M. Schubert, M. Schubert:

Dense films prepared at room temperature directly from the ceramic powder: An overview on the Aerosol Deposition Method (ADM)

Materials Science and Engineering Congress (MSE), 26.-28.9.2018, Darmstadt, Germany

A. Wollbrink, C. Steiner, R. Moos, H. Fritze:

Non-stoichiometry and electrical impedance of thin-film ceria-zirconia solid solutions at elevated temperatures

Materials Science and Engineering Congress (MSE), 26.-28.9.2018, Darmstadt, Germany, F01

A. Engelbrecht, C. Uhlig, O. Stark, M. Hämmerle, G. Schmid, E. Magori, K. Wiesner-Fleischer, M. Fleischer, R. Moos:

Electrochemical CO₂ reduction at copper electrodes with enhanced long-term stability by pulsed electrolysis

Electrochemistry, 24.-26. September 2018, Ulm, Germany, H011

R. Moos, S. Walter, C. Steiner, G. Hagen:

Sensing catalytic converters and filters at work using radio frequencies

EuroSensors XXXII, September 9 - 12, 2018, Graz, Austria, ID 7580

also:

R. Moos, S. Walter, C. Steiner, G. Hagen:

Sensing Catalytic Converters and Filters at Work Using Radio Frequencies

Proceedings, 13, 1101 (2018), doi: 10.3390/proceedings2131101

Y. Zheng, U. Sauter, R. Moos:

Low temperature characteristics of the Pt|YSZ electrode system

The 69th Annual Meeting of the International Society of Electrochemistry, 2.-7.9.2018, Bologna, Italy, S21-054

T. Ritter, G. Hagen, R. Moos:

Mixed-potential based direct catalyst conversion sensor: Independency of the sensor response from oxygen, electrode material, and from the type of analyte

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 132-133, doi: 10.5162/IMCS2018/GS3.4

V. Rizzotto, P. Chen, G. Hagen, R. Moos, U. Simon:

A Gas Sensing Approach to Gain Insight into the Mechanism of DeNO_x-SCR over Fe-ZSM-5 Catalysts

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 134-135, doi: 10.5162/IMCS2018/GS3.5

J. Lattus, G. Hagen, J. Kita, D. Bleicker, F. Noack, R. Moos:

NO_x sensor for exhaust applications

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 438-439, doi: 10.5162/IMCS2018/P1AP.2

R. Wagner, L. Vogel, S. Schneider, D. Schönauer-Kamin, R. Moos:

Room Temperature UV-Enhanced NO₂-Gas Sensing of Doped and Undoped Sol-Gel-Synthesized ZnO

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 521-522, doi: 10.5162/IMCS2018/P1GS.1

D. Schönauer-Kamin, M. Schubert, Y. Jännsch, H. Kurz, I. Marr, R. Moos:

Dosimeter for Low-Level NO_x Detection – Influence of the Deposition Method of the NO_x Storage Film

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 558-559, doi: 10.5162/IMCS2018/P1GS.21

G. Hagen, C. Spannbauer, R. Moos:

Electrophoretic and thermophoretic effects on conductometric soot sensing: special challenges when using synthetic soot

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 639-640, doi: 10.5162/IMCS2018/P1SM.1

A. Ruchets, N. Donker, D. Schönauer-Kamin, R. Moos, J. Zosel, M. Mertig:

Dynamic methods for solid electrolyte sensors

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 707-708, doi: 10.5162/IMCS2018/P2EC.3

N. Donker, A. Ruchets, J. Zosel, D. Schönauer-Kamin, R. Moos:

Investigation of the pulsed-polarization sensor mechanism in YSZ-based gas sensors

The 17th International Meeting on Chemical Sensors, IMCS 17, Vienna, Austria, 15th - 19th July 2018, p. 826-827, doi: 10.5162/IMCS2018/P2MM.1

R. Werner, J. Kita, M. Gollner, F. Linseis, R. Moos:

On the development of a new measurement system for conductivity, Hall constant and Seebeck coefficient

37th International and 16th European Conference on Thermoelectrics, 1.7.-5.7.2018, Caen, France, P.25

Year 2018

S. Walter, A. Bogner, R. Moos, G. Hagen:

Beheizbarer planarer Hochfrequenz-Sensor

Sensoren und Messsysteme 2018, 26.6.-27.6.2018, Nürnberg, p. 69-72, ISBN 978-3-8007-4683-5

M. Bektas, S. Püls, G. Hagen, R. Moos:

Resistiver Sauerstoffsensoren mit temperaturunabhängiger Kennlinie

Sensoren und Messsysteme 2018, 26.6.-27.6.2018, Nürnberg, p. 77-79, ISBN 978-3-8007-4683-5

M. Schubert, C. Münch, J. Kita, R. Moos:

Untersuchung der Langzeitstabilität von NTCR-Dickschicht-Sensoren hergestellt mittels aerosolbasierter Kaltabscheidung

Sensoren und Messsysteme 2018, 26.6.-27.6.2018, Nürnberg, p. 269-272, ISBN 978-3-8007-4683-5

F. Weis, D. Hanft, P. Glosse, S. Denneler, T. Berthold, M. Oomen, S. Kauffmann-Weiss, E. Günther, M. Weiss, W. Häßler, B. Holzapfel, R. Moos:

Synthesis of superconducting MgB₂-Films by aerosol deposition method (ADM)

Aerosol Technology 2018, 18.-20.06.2018, Bilbao, Spain

R. Wagner, J. Bauer, B. Plochmann, S. Lang, D. Schönauer-Kamin, R. Moos:

Effect of ambient conditions on the resistance of metal oxides as a novel material for outer corona protection systems

36th Electrical Insulation Conference (EIC), San Antonio, TX, USA, 17.-20.6.2018, p. 73-76, ISBN 978-1-5386-4178-1, doi: 10.1109/EIC.2018.8481102

M. Anke, M. Hämmerle, R. Moos, A. Jess:

Microwave-based in operando measurements of the thermal stability and the catalytic activity of supported ionic liquid catalysts during the selective hydrogenation of 1,3-butadiene

ProcessNet Jahrestreffen Reaktionstechnik 2018, Würzburg, Deutschland, 7.-9.5.2018, P01

S. Bresch, B. Mieller, R. Moos, T. Rabe:

Lowering the sintering temperature of calcium manganate for thermoelectric applications

93. DKG Jahrestagung / Symposium Hochleistungskeramik 2018, München, 10.4.-13.4.2018, p. 27

J. Exner, M. Schubert, D. Hanft, J. Kita, R. Moos:

Annealing of conductive films formed at room temperature by powder Aerosol Deposition to improve their electrical properties

42nd International Conference and Expo on Advanced Ceramics and Composites, ICACC18, 21.-26.1.2018, Daytona Beach, USA, p. 72, ICACC-S2-024-2018

M. Schubert, R. Wang, J. Kita, R. Moos:

Influence of Carrier Gas Species on the Room Temperature Powder Aerosol Deposition Process

42nd International Conference and Expo on Advanced Ceramics and Composites, ICACC18, 21.-26.1.2018, Daytona Beach, p. 72, USA, ICACC-S2-023-2018

J. Exner, T. Nazareus, H. Pöpke, F. Fuchs, J. Kita, R. Moos:

Aerosol Deposition of barium-based perovskites as solid electrolyte film for fuel cells

42nd International Conference and Expo on Advanced Ceramics and Composites, ICACC18, 21.-26.1.2018, Daytona Beach, USA, p. 97, ICACC-S3-P014-2018

M. Schubert, N. Leupold, J. Kita, R. Moos:

High Temperature Insulating Properties of Aerosol Deposited Alumina Films

42nd International Conference and Expo on Advanced Ceramics and Composites, ICACC18, 21.-26.1.2018, Daytona Beach, USA, p. 95, ICACC-S2-P003-2018

Year 2017

Peer Reviewed Journals

- M. Schubert, J. Kita, C. Münch, R. Moos:
Analysis of the characteristics of thick-film NTC thermistor devices manufactured by screen-printing and firing technique and by room temperature aerosol deposition method (ADM)
Functional Materials Letters, **10**, 1750073 (2017), doi: 10.1142/S1793604717500734
- T. Ritter, S. Wiegärtner, G. Hagen, R. Moos:
Simulation of a thermoelectric gas sensor that determines hydrocarbon concentrations in exhausts and the light-off temperature of catalyst materials
Journal of Sensors and Sensor Systems, **6**, 395-405 (2017), doi: 10.5194/jsss-6-395-2017
- M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:
Radio-Frequency-Controlled Urea Dosing for NH₃-SCR Catalysts: NH₃ Storage Influence to Catalyst Performance under Transient Conditions
Sensors, **17**, 2746 (2017), doi: 10.3390/s17122746
- A. Bogner, C. Steiner, S. Walter, J. Kita, G. Hagen, R. Moos:
Planar Microstrip Ring Resonators for Microwave-Based Gas Sensing: Design Aspects and Initial Transducers for Humidity and Ammonia Sensing
Sensors, **17**, 2422 (2017), doi: 10.3390/s17102422
- M. Dietrich, C. Steiner, G. Hagen, R. Moos:
Radio-Frequency-Based Urea Dosing Control for Diesel Engines with Ammonia SCR Catalysts
SAE International Journal of Engines, **10**, 1638-1645 (2017), doi: 10.4271/2017-01-0945
- M. Daab, P. Loch, W. Milius, D. Schönauer-Kamin, M. Schubert, A. Wunder, R. Moos, F.E Wagner, J. Breu:
Single-Crystal Structure and Electronic Conductivity of Melt Synthesized Fe-rich, near End-Member Ferro-Kinoshitalite
Zeitschrift für anorganische und allgemeine Chemie, **643**, 1661-1667, (2017) doi: 10.1002/zaac.201700265
- M.-L. Anke, M. Hämmerle, J. Gerchau, R. Moos, A. Jess:
Radio Frequency-Based In Situ Determination of the Mass Loss of Supported Ionic Liquids
Chemical Engineering and Technology, **40**, 1660-1665 (2017), doi: 10.1002/ceat.201700190
- M. Schubert, M. Hahn, J. Exner, J. Kita, R. Moos:
Effect of substrate hardness and surface roughness on the film formation of aerosol-deposited ceramic films
Functional Materials Letters, **10**, 1750045 (2017), doi: 10.1142/S179360471750045X
- J. Exner, G. Albrecht, D. Schönauer-Kamin, J. Kita, R. Moos:
Pulsed Polarization-Based NO_x Sensors of YSZ Films Produced by the Aerosol Deposition Method and by Screen-Printing
Sensors, **17**, 1715 (2017), doi: 10.3390/s17081715
- M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:
Radio-Frequency-Based NH₃-Selective Catalytic Reduction Catalyst Control: Studies on Temperature Dependency and Humidity Influences
Sensors, **17**, 1615 (2017), doi: 10.3390/s17071615
- O. Isakin, R. Schneider, M. Ringl, O. Struck, T. Gerdes, M. Willert-Porada, R. Moos:
High-yield synthesis of ZnO nanoparticles homogeneously coated on exfoliated graphite and simplified method to determine the surface coverage
Surface and Coatings Technology, **325**, 445-453 (2017), doi: 10.1016/j.surfcoat.2017.07.002
- D. Hanft, J. Exner, R. Moos:
Thick-films of garnet-type lithium ion conductor prepared by the Aerosol Deposition Method: The role of morphology and annealing treatment on the ionic conductivity
Journal of Power Sources, **361**, 61-69 (2017), doi: 10.1016/j.jpowsour.2017.06.061
- T. Ritter, G. Hagen, J. Kita, S. Wiegärtner, F. Schubert, R. Moos:
Self-Heated HTCC-based Ceramic Disc for Mixed Potential Sensors and for Direct Conversion Sensors for Automotive Catalysts
Sensors and Actuators B: Chemical, **248**, 793-802 (2017), doi: 10.1016/j.snb.2016.11.079
- I. Marr, R. Moos:
Resistive NO_x dosimeter to detect very low NO_x concentrations – Proof-of-principle and comparison with classical sensing devices
Sensors and Actuators B: Chemical, **248**, 848-855 (2017), doi: 10.1016/j.snb.2016.12.112
- M. Schütt, M. Gallinger, R. Moos:
Particulate Filter Substrates with SCR-Functionality Manufactured by Co-extrusion of Ceramic Substrate and SCR Active Material
Topics in Catalysis, **60**, 204-208 (2017), doi: 10.1007/s11244-016-0598-7
- D. Rauch, M. Dietrich, T. Simons, U. Simon, A. Porch, R. Moos:
Microwave Cavity Perturbation Studies on H-form and Cu Ion-Exchanged SCR Catalyst Materials: Correlation of Ammonia Storage and Dielectric Properties
Topics in Catalysis, **60**, 243-249 (2017), doi: 10.1007/s11244-016-0605-z
- G. Hagen, N. Leupold, S. Wiegärtner, R. Moos:
Sensor Tool for Fast Catalyst Material Characterization
Topics in Catalysis, **60**, 312-317 (2017), doi: 10.1007/s11244-016-0617-8

Year 2017

M. Feulner, F. Seufert, A. Müller, G. Hagen R. Moos:

Influencing Parameters on the Microwave-Based Soot Load Determination of Diesel Particulate Filters
Topics in Catalysis, **60**, 374-380 (2017), doi: 10.1007/s11244-016-0626-7

S. Kauffmann-Weiss, W. Hässler, E. Guenther, J. Scheiter, S. Danneler, P. Glosse, T. Berthold, M. Oomen, T. Arndt, T. Stöcker, D. Hanft, R. Moos, M. Weiss, F. Weis, B. Holzapfel:

Superconducting properties of thick films on Hastelloy prepared by the Aerosol Deposition Method with ex-situ MgB₂ powder
IEEE Transactions on Applied Superconductivity, **27**, 6200904 (2017), doi: 10.1109/TASC.2017.2669479

M. Feulner, G. Hagen, K. Hottner, S. Redel, A. Müller, R. Moos:

Comparative Study of Different Methods for Soot Sensing and Filter Monitoring in Diesel Exhausts
Sensors, **17**, 400 (2017), doi: 10.3390/s17020400

A. Engelbrecht, M. Hämmerle, R. Moos, M. Fleischer, G. Schmid:

Improvement of the selectivity of the electrochemical conversion of CO₂ to hydrocarbons using cupreous electrodes with in-situ oxidation by oxygen
Electrochimica Acta, **224**, 642-648 (2017), doi: 10.1016/j.electacta.2016.12.059

Doctoral Theses

D. Rauch:

Mikrowellengestützte Untersuchung des NH₃-Speicherverhaltens von SCR-Katalysatormaterialien
(Microwave-based Characterization of the Ammonia Loading of SCR Catalysts Materials)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 20, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-5081-3

I. Marr:

Materialien für dosimeterartige Gassensoren zur Detektion im ppm- und Sub-ppm-Bereich
(Materials for dosimeter-type gas sensors for ppm- and sub-ppm-detection)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 19, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-5022-6

G. Beulertz:

Anwendung der hochfrequenzgestützten Zustandsdiagnose für Dreiwegekatalysatoren
(Application of the microwave-based state diagnosis for three way catalysts)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 18, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-4988-6

Invited Talks

15. FAD-Konferenz: Herausforderung - Abgasnachbehandlung für Dieselmotoren, Radebeul bei Dresden, 8.-9.11.2017

R. Moos: *Regelung von Diesel-Abgasnachbehandlungssystemen mittels Hochfrequenztechnik - ein Überblick über den Stand der Entwicklung beim SCR-Katalysator und beim Diesel-Partikelfilter*

7. Sitzung des Arbeitskreises „Funktionskeramik“ des Gemeinschaftsausschusses Hochleistungskeramik von DGM und DKG, 19.10.2017

R. Moos: *Der keramische Abgassensor - vom einfachen Keramikteil zum komplexen Sensor mit hoher Funktionalität*

Workshop Sensorik trifft Feuerungstechnik 2017: Neue Sensorik- und Regelungskonzepte für Holzfeuerungsanlagen – Aktuelle Ergebnisse und weiterer Forschungsbedarf, Karlsruhe, 20.10.2017

G. Hagen, H. Kohler: *Thermoelektrische Sensoren zur Detektion reduzierender Gase: Potenzial der Anwendung in Kleinfeuerungsanlagen*

41th International Microelectronics and Packaging IMAPS Conference, Warsaw, Poland, 11. - 13.09.2017

M. Bruckner, J. Kita, C. Münch, R. Moos: *Aerosol Deposition Method vs. Screen-Printing Technique – Novel Manufacturing Process for NTCR Thermistor Devices*

Emissions 2017, Am Buesing Palais Frankfurt, Germany, 12.9.-13.9.2017

R. Moos: *Overview on Recent Developments on Engine Control by Radio Frequency-Based Catalyst and Filter Monitoring*

4. Internationale Fachkonferenz Sensoren zur Abgasreinigung und CO₂-Reduktion, Augsburg, 28.-29.6.2017

R. Moos: *SCR Control using Radio Frequency Sensors / Regelung eines SCR-Systems mit Mikrowellensensoren*

8th International Conference on Electroceramics (ICE2017), Nagoya, Japan, 28.5.-31.5.2017

R. Moos: *Ceramic Exhaust Gas Sensors: Recent Developments*

Institutskolloquium, National Institute of Advanced Industrial Science and Technology (AIST), Advanced Coating Technology Research Center, Tsukuba Japan, Mai 19th, 2017

R. Moos: *Overview on Aerosol Deposition Method at the Department of Functional Materials*

Published Conference Contributions

G. Hagen, B. Ojha, J. Wohlrab, H. Kohler, R. Moos:

Anwendung eines thermoelektrischen Gassensors zur Erfassung reduzierender Komponenten in Verbrennungsabgasen von Kleinfeuerungsanlagen

Year 2017

13. *Dresdner Sensor-Symposium*, 4.-6. Dezember 2017, Dresden, p. 111-113, doi: 10.5162/13dss2017/3.5

R. Wagner, D. Schönauer-Kamin, R. Moos:

Sol-Gel-Synthese von aluminiumdotiertem Zinkoxid für UV-unterstützte resistive Raumtemperatur-Stickoxidsensoren

13. *Dresdner Sensor-Symposium*, 4.-6. Dezember 2017, Dresden, p. 269-271, doi: 10.5162/13dss2017/P4.01

R. Moos:

Regelung von Diesel-Abgasnachbehandlungssystemen mittels Hochfrequenztechnik - ein Überblick über den Stand der Entwicklung beim SCR-Katalysator und beim Diesel-Partikelfilter

15. *FAD-Konferenz: Herausforderung - Abgasnachbehandlung für Dieselmotoren*, Radebeul bei Dresden, 8.-9.11.2017, p. 39-48

S. Bresch, B. Mieller, R. Moos, T. Rabe:

Pressure-assisted sintering of tape casted calcium cobaltite $\text{Ca}_3\text{Co}_4\text{O}_9$ with varied powder compositions

15th *European Conference on Thermoelectrics*, Padova, Italy, September 25-27, 2017

M. Bruckner, J. Kita, C. Münch, R. Moos:

Aerosol Deposition Method vs. Screen-Printing Technique – Novel Manufacturing Process for NTCR Thermistor Devices

41th *International Microelectronics and Packaging IMAPS Conference*, Warsaw, Poland, 11. - 13.09.2017

J. Kita, G. Hagen, C. Schmitt, R. Moos:

Sensitivity Improvement of Thermoelectric Hydrocarbon Sensors: Combination of Glass-Ceramic Tapes and Alumina Substrates

Eurosensors XXXI, September 3 - 6, 2017, Paris, France

Proceedings, 1, 403 (2017), doi: 10.3390/proceedings1040403

A. Bogner, C. Steiner, S. Walter, J. Kita, G. Hagen, R. Moos:

Planar Microstrip Ring Resonator Structure for Gas Sensing and Humidity Sensing Purposes

Eurosensors XXXI, September 3 - 6, 2017, Paris, France

Proceedings, 1, 414 (2017), doi: 10.3390/proceedings1040414

T. Ritter, G. Hagen, R. Moos:

Direct Catalyst Conversion Sensor in Form of a Single Self-Heated Mixed-Potential Device

Eurosensors XXXI, September 3 - 6, 2017, Paris, France

Proceedings, 1, 424 (2017), doi: 10.3390/proceedings1040424

D. Schönauer-Kamin, Y. Li, W. Wlodarski, S. Ippolito, R. Moos:

2D SnS_2 – A Material for Impedance-Based Low Temperature NO_x Sensing?

Eurosensors XXXI, September 3 - 6, 2017, Paris, France

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J. Kita, A. Brandenburg, F. Schubert, R. Moos: *Unkonventionelle Verarbeitung keramischer Folien für sensorische Anwendungen*

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G. Hagen, R. Moos (tandem presentation): *OBM-PEMS made of chemical sensors – illusion or probable perspective?*

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J. Kita: *Cold film deposition of ceramic functional materials using the Aerosol-Deposition-Method – an overview*

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R. Moos: *Chemical gas sensors with electrical readout: novel principles and novel materials*

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R. Moos: *Mikrowellengestützte Systeme zur Zustandserkennung von Abgaskatalysatoren und Abgasfiltern im Überblick*

91. DKG Jahrestagung / Symposium Hochleistungskeramik 2016, Freiberg, 7.3.-9.3.2016
R. Moos: *Automotive exhaust gas sensors from an electroceramics point of view / Stand der Abgassensorik aus keramischer Sicht*

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Influence of substrate hardness and surface roughness on the formation of aerosol deposited films

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6th International Congress on Ceramics, 21.-25.8.2016, Dresden, Germany, S. 335

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I. Marr, R. Moos:

Conductometric NO_x Dosimeter to Detect Very Low NO_x Concentrations - Comparison with Established Sensing Devices

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Characterization of the Sensitive Material for a Resistive NO_x Gas Dosimeter by DRIFT Spectroscopy

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Proton transport in Fe-ZSM-5 and Cu-ZSM-5 zeolites for NH₃-SCR: an in situ impedance-DRIFT spectroscopy study

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A. Engelbrecht, M. Hämmerle, R. Moos, M. Fleischer, G. Schmid:

Improvement of the selectivity of the electrochemical conversion of CO₂ to hydrocarbons using cupreous electrodes with in-situ oxidation by oxygen

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M. Hämmerle, K. Hilgert, R. Moos:

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Electrochemistry of laccase at multi-walled carbon nanotube modified electrodes: investigation of various immobilisation conditions and electrode configurations

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Molecular understanding of catalyst as sensor: an in situ impedance-DRIFT spectroscopy study of NH₃-SCR reaction on zeolites

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Sensor Stack for Tian-Calvet Calorimeter made in LTCC-Technology

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Evaluation of screen-printable type S (Pt-PtRh) thermocouples on different ceramic substrates

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M. Anke, R. Moos, A. Jess:

Determination of the mass loss through evaporation of supported ionic liquids by a contactless microwave-based method

49. Jahrestreffen Deutscher Katalytiker, 16. - 18. März 2016, Weimar

P. Chen, S. Schönebaum, D. Rauch, R. Moos, U. Simon:

Proton transport in Fe-ZSM-5 and Cu-ZSM-5 zeolites for NH₃-SCR: the role of NH₄NO₃ intermediate

49. Jahrestreffen Deutscher Katalytiker, 16. - 18. März 2016, Weimar

R. Moos:

Automotive exhaust gas sensors from an electroceramics point of view

91. DKG Jahrestagung / Symposium Hochleistungskeramik 2016, Freiberg, 7.3.-9.3.2016, p. 181

M. Schubert, J. Exner, T. Stöcker, D. Hanft, R. Moos:

Effect of annealing on the permittivity of ceramic films manufactured by the Aerosol Deposition Method

91. DKG Jahrestagung / Symposium Hochleistungskeramik 2016, Freiberg, 7.3.-9.3.2016, p. 144

J. Exner, M. Schubert, D. Hanft, T. Stöcker, P. Fuierer, R. Moos:

Tuning of the electrical conductivity of Sr(TiFe)O₃ oxygen sensing films by aerosol codeposition with Al₂O₃

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S. Schönebaum, P. Chen, J. Simböck, D. Rauch, T. Simons, R. Palkovits R. Moos, U. Simon:

Monitoring NH₃ storage and conversion in Cu-SAPO-34 catalyst for NH₃-SCR by simultaneous impedance and DRIFT spectroscopy

28. Deutsche Zeolith-Tagung, 2.3.- 4.3.2016, Gießen, P 021

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- S. Fischer, D. Schönauer-Kamin, R. Pohle, M. Fleischer, R. Moos:
Influence of operation temperature variations on NO measurements in low concentrations when applying the pulsed polarization technique to thimble-type lambda probes
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- P. Chen, S. Schönebaum, T. Simons, D. Rauch, M. Dietrich, R. Moos, U. Simon:
Correlating the Integral Sensing Properties of Zeolites with Molecular Processes by Combining Broadband Impedance and DRIFT Spectroscopy—A New Approach for Bridging the Scales
Sensors, **15**, 28915-28941 (2015), doi: 10.3390/s151128915
- M. Feulner, G. Hagen, A. Müller, A. Schott, C. Zöllner, D. Brüggemann, R. Moos:
Conductometric Sensor for Soot Mass Flow Detection in Exhausts of Internal Combustion Engines
Sensors, **15**, 28796-28806 (2015), doi: 10.3390/s151128796
- D. Hanft, J. Exner, M. Schubert, T. Stöcker, P. Fuierer, R. Moos:
An Overview of the Aerosol Deposition Method: Process Fundamentals and New Trends in Materials Applications
Journal of Ceramic Science and Technology, **6**, 147-182 (2015), doi: 10.4416/JCST2015-00018
- P. Fremerey, A. Jess, R. Moos:
Why does the Conductivity of a Nickel Catalyst Increase during Sulfidation? An Exemplary Study Using an *In Operando* Sensor Device
Sensors, **15**, 27021-27034 (2015), doi: 10.3390/s151027021
- M. Dietrich, D. Rauch, U. Simon, A. Porch, R. Moos:
Ammonia Storage Studies on H-ZSM-5 Zeolites by Microwave Cavity Perturbation: Correlation of Dielectric Properties with Ammonia Storage
Journal of Sensors and Sensor Systems, **4**, 263-269 (2015), doi: 10.5194/jsss-4-263-2015
- M. Dietrich, C. Jahn, P. Lanzerath, R. Moos:
Microwave-Based Oxidation State and Soot Loading Determination on Gasoline Particulate Filters with Three-Way Catalyst Coating for Homogeneously Operated Gasoline Engines
Sensors, **15**, 21971-21988 (2015), doi: 10.3390/s150921971
- G. Beulertz, M. Votsmeier, R. Moos:
In operando Detection of Three-Way Catalyst Aging by a Microwave-Based Method: Initial Studies
Applied Sciences, **5**, 174-186 (2015), doi: 10.3390/app5030174
- J. Exner, M. Hahn, M. Schubert, D. Hanft, P. Fuierer, R. Moos:
Powder requirements for aerosol deposition of alumina films
Advanced Powder Technology, **26**, 1143-1151 (2015), doi: 10.1016/j.apt.2015.05.016
- R. Moos:
Microwave-Based Catalyst State Diagnosis - State of the Art and Future Perspectives
SAE International Journal of Engines, **8**, 1240-1245 (2015), doi: 10.4271/2015-01-1042
- D. Rauch, D. Kubinski, G. Cavataio, D. Upadhyay, R. Moos:
Ammonia Loading Detection of Zeolite SCR Catalysts using a Radio Frequency based Method
SAE International Journal of Engines, **8**, 1126-1135 (2015), doi: 10.4271/2015-01-0986
- G. Hagen, K. Burger, S. Wiegärtner, D. Schönauer-Kamin, R. Moos:
A mixed potential based sensor that measures directly catalyst conversion - A novel approach for catalyst on-board diagnostics
Sensors and Actuators B: Chemical, **217**, 158-164 (2015), doi: 10.1016/j.snb.2014.10.004
- S. Wiegärtner, G. Hagen, J. Kita, W. Reitmeier, M. Hien, P. Grass, R. Moos:
Thermoelectric hydrocarbon sensor in thick-film technology for on-board-diagnostics of a diesel oxidation catalyst
Sensors and Actuators B: Chemical, **214**, 234-240 (2015), doi: 10.1016/j.snb.2015.02.083
- P. Fremerey, A. Jess, R. Moos:
Is it possible to detect in situ the sulfur loading of a fixed bed catalysts with a sensor?
Journal of Sensors and Sensor Systems, **4**, 143-149 (2015), doi: 10.5194/jsss-4-143-2015
- J. Kita, A. Engelbrecht, F. Schubert, A. Groß, F. Rettig, R. Moos:
Some practical points to consider with respect to thermal conductivity and electrical resistivity of ceramic substrates for high-temperature gas sensors
Sensors and Actuators B: Chemical, **213**, 541-546 (2015), doi: 10.1016/j.snb.2015.01.041
- I. Pricha, W. Rossner, R. Moos:
Pressureless sintering of luminescent CaAlSiN₃:Eu ceramics
Journal of Ceramic Science and Technology, **6**, 63-68 (2015), doi: 10.4416/JCST2014-00047
- J. Exner, P. Fuierer, R. Moos:
Aerosol Codeposition of Ceramics: Mixtures of Bi₂O₃-TiO₂ and Bi₂O₃-V₂O₅
Journal of the American Ceramic Society, **98**, 717-723 (2015), doi: 10.1111/jace.13364

Year 2015

R. Moos, G. Fischerauer:

Automotive Catalyst State Diagnosis Using Microwaves
Oil & Gas Science and Technology, **70**, 55-65 (2015), doi: 10.2516/ogst/2013203

G. Beulertz, M. Votsmeier, R. Moos:

Effect of propene, propane, and methane on conversion and oxidation state of three-way catalysts: A microwave cavity perturbation study
Applied Catalysis B: Environmental, **165**, 369-377 (2015), doi: 10.1016/j.apcatb.2014.09.068

D. Rauch, G. Albrecht, D. Kubinski, R. Moos:

A microwave-based method to monitor the ammonia loading of a vanadia-based SCR catalyst
Applied Catalysis B: Environmental, **165**, 36-42 (2015), doi: 10.1016/j.apcatb.2014.09.059

Invited Talks

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015

R. Moos, D. Rauch, M. Votsmeier, D. Kubinski: *Radio frequency based monitoring of SCR and three way catalysts - a novel tool to get insight into catalyst behavior: Update on recent advances*

PACRIM 11, The 11th Pacific Rim Conference of Ceramic Societies, Jeju, Korea, 30.8.-4.9.2015, p. 396, WeD2-2

R. Moos: *Applications for Aerosol Deposition in the field of gas sensing*

2. Internationale Fachkonferenz Sensoren zur Abgasreinigung und CO₂-Reduktion, Nürnberg, 24.-25.6.2015

R. Moos: *Status of the microwave-supported catalyst condition recognition / Stand der mikrowellengestützten Katalysatorzustandserkennung*

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015

R. Moos, J. Exner, D. Hanft, T. Stöcker, M. Bektas, M. Schubert: *Die Aerosol-Depositions-Methode (ADM): Ein neuartiges Verfahren zur Abscheidung dichter keramischer Schichten*

Workshop „Catalysis meets Sensing“, KIT, Karlsruhe, 6.2.2015

R. Moos: *Microwave-based determination of the oxidation state of ceria in three-way catalysts*

Doctoral Theses

D. Ortolino:

Hochstromdurchkontaktierungen für die Hybridtechnik
(Electrical high load vias in hybrid thick-film technology)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zu Materialien und Prozessen*, Bd. 6, Shaker-Verlag, Aachen (2015), ISBN: 978-3-8440-4089-0

P. Fremerey:

In-situ-Sensorik zur Bestimmung der Schwefel- und Koksbeladung auf Festbettkatalysatoren
(In situ sensor to determine sulfur and coke loading on fixed bed catalyst)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 14, Shaker-Verlag, Aachen (2015), ISBN: 978-3-8440-3473-8

I. Pricha:

Vollkeramische Leuchtstoffkomposite für weißemittierende Leuchtdioden
(Ceramic Composite Phosphors for White Light Emitting Diodes)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zu Materialien und Prozessen*, Bd. 5, Shaker-Verlag, Aachen (2015), ISBN: 978-3-8440-3409-7

D. Schönauer-Kamin:

Neuartiger Mischpotentialsensor zur Detektion von Ammoniak in Abgasen
(Novel Mixed Potential Sensor for the Detection of Ammonia in Exhaust Gases)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 13, Shaker-Verlag, Aachen (2015), ISBN: 978-3-8440-3346-5

Published Conference Contributions

F. Schubert, M. Gollner, J. Kita, F. Linseis, R. Moos:

Neuentwicklung eines Sensorkopfes für ein Tian-Calvet-Kalorimeter

G. Gerlach, A. Schütze (Hrsg.), *12. Dresdner Sensor-Symposium*, 7.-9. Dezember 2015, Dresden, p. 222-226, doi: 10.5162/12dss2015/P7.2

G. Hagen, N. Leupold, S. Wiegärtner, J. Kita, R. Moos:

Neuartige Sensoranwendung zur Katalysator-Materialcharakterisierung

G. Gerlach, A. Schütze (Hrsg.), *12. Dresdner Sensor-Symposium*, 7.-9. Dezember 2015, Dresden, p. 230-233, doi: 10.5162/12dss2015/P7.5

J. Exner, R. Moos:

Ermittlung spezifischer Materialkennwerte von Schichten mittels Interdigital-Elektroden

G. Gerlach, A. Schütze (Hrsg.), *12. Dresdner Sensor-Symposium*, 7.-9. Dezember 2015, Dresden, p. 256-259, doi: 10.5162/12dss2015/P7.10

R. Moos, D. Rauch, M. Votsmeier, D. Kubinski:

Radio frequency based monitoring of SCR and three way catalysts - a novel tool to get insight into catalyst behavior: Update on recent advances

Year 2015

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 1, p. 79-93

M. Schütt, M. Gallinger, R. Moos:

Particulate filter substrates with SCR-functionality manufactured by co-extrusion of ceramic substrate and SCR active material

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 1, p. 249-258

D. Rauch, D. Kubinski, R. Moos:

In operando monitoring of the ammonia storage behavior of Cu Chabazite SCR catalysts using a radio frequency based method

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 1, p. 259-262

D. Rauch, M. Dietrich, T. Simons, U. Simon, A. Porch, R. Moos:

Microwave cavity perturbation studies on ion-exchanged and H-form SCR catalyst materials: correlation of ammonia storage and dielectric properties

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 1, p. 407-418

G. Hagen, N. Leupold, S. Wiegärtner, R. Moos:

Sensor Tool for Fast Catalyst Material Light-off Characterization

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 2, p. 283-293

M. Feulner, F. Seufert, A. Müller, G. Hagen, R. Moos:

Influencing Parameters on the Microwave-Based Soot Load Determination of Diesel Particulate Filters

CAPOC10 - 10th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Oct. 28 - 30, 2015, Vol. 2, p. 417-429

A. Brandenburg, E. Wappler, J. Kita, R. Moos:

First approaches to integrate a strain gauge-based mass detection system into a miniaturized DSC-device

Eurosensors XXIX, September 6 - 9, 2015, Freiburg, Germany, BS02-3

Procedia Engineering, **120**, 116-119 (2015), doi: 10.1016/j.proeng.2015.08.579

G. Hagen, G. Rieß, M. Schubert, M. Feulner, A. Müller, D. Brüggemann, R. Moos:

Capacitive Soot Sensor

Eurosensors XXIX, September 6 - 9, 2015, Freiburg, Germany, BS08-3

Procedia Engineering, **120**, 241-244 (2015), doi: 10.1016/j.proeng.2015.08.590

P. Chen, S. Schönebaum, T. Simons, D. Rauch, R. Moos, U. Simon:

In situ monitoring of DeNO_x-SCR on zeolite catalysts by means of simultaneous impedance and DRIFT spectroscopy

Eurosensors XXIX, September 6 - 9, 2015, Freiburg, Germany, BS09-2

Procedia Engineering, **120**, 257-260 (2015), doi: 10.1016/j.proeng.2015.08.600

J. Kita, S. Wiegärtner, R. Moos, P. Weigand, A. Pliscott, M.H. LaBranche, H.D. Glicksman:

Screen-printable type S thermocouple for thick-film technology

Eurosensors XXIX, September 6 - 9, 2015, Freiburg, Germany, MP-K03

Procedia Engineering, **120**, 828-831 (2015), doi: 10.1016/j.proeng.2015.08.692

M. Schubert, J. Exner, T. Stöcker, R. Moos:

Effect of annealing on the permittivity of ceramic films prepared by the Aerosol Deposition Method

PACRIM 11, The 11th Pacific Rim Conference of Ceramic Societies, Jeju, Korea, 30.8.-4.9.2015, p. 966, WP1-54

D. Hanft, M. Bektas, M. Schubert, J. Exner, R. Moos:

Aerosol Deposition (AD) of doped and undoped SnO₂ films – Investigation of film formation and film properties

PACRIM 11, The 11th Pacific Rim Conference of Ceramic Societies, Jeju, Korea, 30.8.-4.9.2015, p. 968, WP1-56

R. Moos:

Applications for Aerosol Deposition in the field of gas sensing

PACRIM 11, The 11th Pacific Rim Conference of Ceramic Societies, Jeju, Korea, 30.8.-4.9.2015, p. 396, WeD2-2

T. Stöcker, J. Exner, D. Hanft, M. Schubert, R. Moos:

The Aerosol-Deposition - a novel method to process dense ceramic thermoelectrics

34th Annual Conference on Thermoelectrics (ICT 2015) and 13th European Conference on Thermoelectrics (ECT 2015), Dresden, 28.6.-2.7.2015, PA069

P.A. Fuieler, K. Ring, J. Exner, R. Moos:

BIMEVOX ceramics as an intermediate temperature SOFC electrolyte: Another look

11th International Conference on Ceramic Materials and Components for Energy and Environmental Applications, Vancouver, Canada, 14.6.-19.6.2015

J. Exner, G. Albrecht, P. Fuieler, R. Moos:

NO₂ Detection by Pulsed Polarization of Doped Bismuth Vanadate films prepared by the Aerosol Deposition Method

7th International Conference on Electroceramics (ICE2015), State College, PA, USA, 13.5.-16.5.2015, p. 3-O-02

J. Exner, P. Fuieler, R. Moos:

Aerosol Co-deposition of Ceramics: Composites of SrTi_{0.65}Fe_{0.35}O_{3-δ} and Al₂O₃

7th International Conference on Electroceramics (ICE2015), State College, PA, USA, 13.5.-16.5.2015, p. PS-10

F. Schubert, S. Wollenhaupt, J. Kita, G. Hagen, R. Moos:

Switching-Type Lambda Sensor Manufactured by Joining of Sintered Zirconia via Glass Solder Paste

Year 2015

Sensor 2015, Proceedings of the 17th International Conference on Sensors and Measurement Technology, 19.-21. May 2015, Nürnberg, p. 842 - 844
doi: 10.5162/sensor2015/E8.4

G. Hagen, N. Leupold, S. Wiegärtner, H. Wittmann, R. Moos:
Temperature Modulated Thermoelectric Gas Sensors

Sensor 2015, Proceedings of the 17th International Conference on Sensors and Measurement Technology, 19.-21. May 2015, Nürnberg, p. 704 - 707
doi: 10.5162/sensor2015/E7.2

M. Dietrich, D. Rauch, U. Simon, A. Porch, R. Moos:

Correlation of Ammonia Storage and Dielectric Properties of SCR Catalyst Materials by Microwave Cavity Perturbation

Sensor 2015, Proceedings of the 17th International Conference on Sensors and Measurement Technology, 19.-21. May 2015, Nürnberg, p. 683 - 687
doi: 10.5162/sensor2015/E6.2

R. Moos:

Microwave-based catalyst state diagnosis – state of the art and future perspective

2015 SAE World Congress, April 21-23, 2015, Detroit, Michigan, USA, SAE paper 2015-01-1042 (2015), doi: 10.4271/2015-01-1042

D. Rauch, D. Kubinski, G. Cavataio, D. Upadhyay, R. Moos:

Ammonia loading detection of zeolite SCR catalysts using a radio frequency based method

2015 SAE World Congress, April 21-23, 2015, Detroit, Michigan, USA, SAE paper 2015-01-0986 (2015), doi: 10.4271/2015-01-0986

J. Kita, A. Brandenburg, I. Sudina, R. Moos:

3D-Shaping of Ceramic Tapes to Manufacture a High-Temperature Miniaturized Furnace

IMAPS/ACerS 11th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2015), Dresden, Germany, April 20-23, 2015, p. 288-292, doi: 10.4071/CICMT-THA15

M. Bektas, D. Hanft, D. Schönauer-Kamin, T. Stöcker, G. Hagen, R. Moos:

Conductometric temperature independent oxygen and NO sensors of BaFe_{0.7}Ta_{0.3}O_{3-δ} produced by aerosol deposition method (ADM)

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 20

J. Exner, M. Hahn, M. Schubert, D. Hanft, R. Moos, P. Fuierer:

Powder requirements for Aerosol Deposition of alumina films

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 51

D. Hanft, M. Schubert, J. Exner, R. Moos:

Room temperature aerosol deposition (AD) for dense ceramic coatings – overview of a novel process

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 73

F. Schubert, S. Wollenhaupt, J. Kita, G. Hagen, R. Moos:

Lessons learned during the development of a manufacturing process for switching-type lambda sensors as a basis for new exhaust gas sensors

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 167

M. Schubert, J. Exner, R. Moos:

Influence of Carrier Gas Composition on the Stress of Alumina Coatings Prepared by the Aerosol Deposition Method

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 168

T. Stöcker, P. Dauner, R. Moos:

Thermoelectric properties of the different phases of CuFe₂O₄ prepared by aerosol deposition

90. DKG Jahrestagung / Symposium Hochleistungskeramik 2015, Bayreuth, 15.3.-19.3.2015, p. 176

P. Chen, T. Simons, R. Moos, U. Simon:

In situ monitoring of DeNO_x-SCR on zeolite catalysts by simultaneous DRIFT and impedance spectroscopy studies

48. Jahrestreffen Deutscher Katalytiker, 11. - 13. März 2015, Weimar

R. Fraas, M. Hämmerle, R. Moos:

Enzymatisches Fließinjektionsanalyse-System mit elektrochemischer NADH-Detektion: Glucosebestimmung in Fruchtsäften

9. Deutsches BioSensor Symposium, 11.-13. März 2015, München, p. 128-129

T. Simons, P. Chen, R. Moos, U. Simon:

Simultaneous DRIFT and impedance spectroscopy: a complementary approach for in situ monitoring of DeNO_x SCR on zeolite catalyst

27. Deutsche Zeolith-Tagung, 25. - 27. Februar 2015, Oldenburg, DZT12

Year 2014

Peer Reviewed Journals

- D. Ortolino, A. Engelbrecht, H. Lauterbach, M. Bräu, J. Kita, R. Moos:
Effect of Repeated Firing on the Resistance of Screen-Printed Thick Film Conductors
Journal of Ceramic Science and Technology, **5**, 317-326 (2014), doi: 10.4416/JCST2014-00029
- J. Exner, P. Fuierer, R. Moos:
Aerosol Deposition of (Cu,Ti) substituted Bismuth Vanadate Films
Thin Solid Films, **573**, 185-190 (2014), doi: 10.1016/j.tsf.2014.11.037
- S. Schödel, R. Moos, M. Votsmeier, G. Fischerauer:
SI-Engine Control with Microwave-Assisted Direct Observation of Oxygen Storage Level in Three-Way Catalysts
IEEE Transactions on Control Systems Technology, **22**, 2346-2353 (2014), doi: 10.1109/TCST.2014.2305576
- M. Bektas, D. Hanft, D. Schönauer-Kamin, T. Stöcker, G. Hagen, R. Moos:
Aerosol-deposited $\text{BaFe}_{0.7}\text{Ta}_{0.3}\text{O}_{3.6}$ for nitrogen monoxide and temperature-independent oxygen sensing
Journal of Sensors and Sensor Systems, **3**, 223-229 (2014), doi: 10.5194/jsss-3-223-2014
- I. Marr, K. Neumann, M. Thelakkat, R. Moos:
Undoped and Doped Poly(tetraphenylbenzidine) as Sensitive Material for an Impedimetric Nitrogen Dioxide Gas Dosimeter
Applied Physics Letters, **105**, 133301 (2014), doi: 10.1063/1.4896847
- M. Dietrich, D. Rauch, A. Porch, R. Moos:
A laboratory test setup for in situ measurements of the dielectric properties of catalyst powder samples under reaction conditions by microwave cavity perturbation: set up and initial tests
Sensors, **14**, 16856-16868 (2014), doi: 10.3390/s140916856
- D. Rauch, D. Kubinski, U. Simon, R. Moos:
Detection of the ammonia loading of a Cu Chabazite SCR catalyst by a radio frequency-based method
Sensors and Actuators B: Chemical, **205**, 88-93 (2014), doi: 10.1016/j.snb.2014.08.019
- M. Schubert, J. Exner, R. Moos:
Influence of Carrier Gas Composition on the Stress of Al_2O_3 Coatings Prepared by the Aerosol Deposition Method
Materials, **7**, 5633-5642 (2014), doi: 10.3390/ma7085633
- D. Schönauer-Kamin, M. Fleischer, R. Moos:
Influence of the V_2O_5 content of the catalyst layer of a non-Nernstian NH_3 sensor
Solid State Ionics, **262**, 270-273 (2014), doi: 10.1016/j.ssi.2013.08.035
- S. Fischer, R. Pohle, E. Magori, M. Fleischer, R. Moos:
Detection of NO by Pulsed Polarization of Pt | YSZ
Solid State Ionics, **262**, 288-291 (2014), doi: 10.1016/j.ssi.2014.01.022
- D. Chen, A. Groß, D.C. Bono, J. Kita, R. Moos, H.L. Tuller:
Electrical conductivity relaxation measurements: Application of low thermal mass heater stick
Solid State Ionics, **262**, 914-917 (2014), doi: 10.1016/j.ssi.2014.01.023
- J.C. Brendel, M.M. Schmidt, G. Hagen, R. Moos, M. Thelakkat:
Controlled Synthesis of Water-Soluble Conjugated Polyelectrolytes Leading to Excellent Hole Transport Mobility
Chemistry of Materials, **26**, 1992-1998 (2014), doi: 10.1021/cm500500t
- T. Tesfamichael, M. Ahsan, M. Notarianni, A. Groß, G. Hagen, R. Moos, M. Ionescu, J. Bell:
Gas Sensing of Ruthenium Implanted Tungsten Oxide Thin Films
Thin Solid Films, **558**, 416-422 (2014), doi: 10.1016/j.tsf.2014.02.084
- I. Marr, A. Groß, R. Moos:
Overview on Conductometric Solid-State Gas Dosimeters
Journal of Sensors and Sensor Systems, **3**, 29-46 (2014), doi: 10.5194/jsss-3-29-2014
- B. Plochmann, S. Lang, R. Rüger, R. Moos:
Optimization of thermoelectric properties of metal-oxide based polymer composites
Journal of Applied Polymer Science, **131**, 40038 (2014), doi: 10.1002/app.40038
- P. Fuierer, M. Maier, J. Exner, R. Moos:
Anisotropy and thermal stability of hot-forged BICUTIVOX oxygen ion conducting ceramics
Journal of the European Ceramic Society, **34**, 943-951 (2014), doi: 10.1016/j.jeurceramsoc.2013.10.016
- M. Bektas, D. Schönauer-Kamin, G. Hagen, A. Mergner, C. Bojer, S. Lippert, W. Milius, J. Breu, R. Moos:
 $\text{BaFe}_{1-x}\text{Ta}_x\text{O}_{3.6}$ - A material for temperature independent resistive oxygen sensors
Sensors and Actuators B: Chemical, **190**, 208-213 (2014), doi: 10.1016/j.snb.2013.07.106

Year 2014

Invited Talks

Deutsche Keramische Gesellschaft e.V. (DKG), Fachausschusses FA III Verfahrenstechnik, Erlangen, 26.11.2014

M. Schubert, J. Exner, D. Hanft, R. Moos: *Aerosol-Deposition: Kalte Abscheidung keramischer Schichten*

Offene Sitzung des AMA Wissenschaftsrats, Hannover, 30.9.2014

R. Moos: *Neue Sensorprinzipien für die Abgas- und Umweltsensorik*

8. Internationales Forum Abgas- und Partikelemissionen / 8th International Exhaust Gas and Particulate Emissions Forum, Ludwigsburg, 1.-2.4.2014

R. Moos: Mikrowellenbasierte Beladungserkennung von Abgasnachbehandlungssystemen – ein Überblick über den Stand der Entwicklung / *Microwave-based monitoring of exhaust gas aftertreatment systems – an overview* (with simultaneous translation)

DGM Fortbildungsseminar Hochtemperatursensorik, Goslar, 20.2.-21.2.2014

R. Moos: *Gas- und Zustandssensoren für den Automobilbereich*

Institutskolloquium, Lehrstuhl für Analytische Chemie der TU München, 19.2.2014

R. Moos: *Sensors for Automotive Emission Control*

Published Conference Contributions

M. Bektas, D. Hanft, D. Schönauer-Kamin, T. Stöcker, G. Hagen, R. Moos

Aerosol Deposited Thick Film BaFe_{0.7}Ta_{0.3}O_{3-δ} Ceramic for Nitrogen Monoxide Sensing

COST Action TD1105 EuNetAir, European Environment Agency (EEA), Istanbul, 3 - 5 December 2014

International Meeting on New Sensing Technologies and Methods for Air-Pollution Monitoring, Istanbul, Turkey

J. Exner, D. Hanft, P. Fuierer, R. Moos:

Room temperature aerosol deposition process for dense ceramic coatings - functional principle and applications

The 26th Rio Grande Symposium on Advanced Materials, Albuquerque, New Mexico, Oct. 6, 2014, P 24

A. Engelbrecht, M. Hämmerle, R. Moos, M. Fleischer, G. Schmid:

Electrochemical Carbon Dioxide Reduction at Copper Electrodes: Online Gas Chromatographic Analysis of Volatile Products

Electrochemistry 2014, Sep. 22-24, 2014, Mainz, Germany, p. 300

J. Kita, A. Brandenburg, I. Sudina, R. Moos:

High-Temperature Miniaturized Furnace manufactured in HTCC-Technology

38th International Microelectronics and Packaging IMAPS Conference, Rzeszów-Czarna, Poland, 21. - 24.09.2014

A. Brandenburg, E. Wappler, R. Moos, J. Kita:

Development and optimization of a novel miniaturized ceramic differential scanning calorimeter

Thermal Analysis and Calorimetry in Industry and Research - 40 Years of GEFTA, Berlin, Germany, September 16 - 19, 2014, p. E2

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Resistive temperature independent oxygen and NO sensors of BaFe_{1-x}TaxO_{3-δ} produced by aerosol deposition method
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Gasdosimeter zur NO_x-Detektion
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Can we monitor the catalytic properties of zeolite-based automotive catalysts by electrical measurements in situ?

26. Deutsche Zeolith-Tagung, March, 26.2.-28.2.2014, Paderborn, p. 17-18

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B. Plochmann:

Polymer-Oxid-Verbundwerkstoffe für neuartige thermoelektrische Generatoren mit großer Designfreiheit

(Polymer-Oxide-Composites for Novel Thermoelectric Generators with a Large Degree of Design Freedom)

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Investigation of Oxygen Reactions in a Screen-printed Pt/YSZ-Model Electrode System
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Conductometric Gas Dosimeter for NO₂ Detection
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Optimization of a miniaturized ceramic differential scanning calorimeter device
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Processing of luminescent multilayer converter ceramics for light emitting diodes
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Electrical conductivity relaxation measurements: Application of low thermal mass heater stick
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Influence of V₂O₅ content of the catalyst layer of a non-Nernstian NH₃ sensor
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Detection of NO by Pulsed Polarization of Pt | YSZ
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Aerosol Deposition of Bismuth Vanadates
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Direkte Bestimmung der Koksbeladung von Festbettkatalysatoren mit einem Mikrowellenmessverfahren
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Papierbasierter enzymatischer Gassensor
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Invited Talks

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Daniela Schönauer-Kamin: *Examples of applications of SCR-catalyst materials for exhaust gas monitoring in Germany*

E-COSM'12, IFAC Workshop on Engine and Powertrain Control, Simulation and Modeling, Rueil-Malmaison, France, October 23-25, 2012
R. Moos: *Overview of the status of the automotive catalyst state diagnosis using microwave-based techniques*

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R. Moos: *Katalysatoren als Sensoren - ein neuer Ansatz in der Autoabgasnachbehandlung*

10. Dresdner Sensor-Symposium, 5.-7. Dezember 2011, Dresden
R. Moos: *Hochtemperaturgassensoren: Neue Prinzipien, neue Materialien*

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R. Moos: *High Temperature Gas Sensors - Novel Approaches from the Bayreuth FM-Lab*

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R. Moos: *Sensors in the Automotive Exhaust - Status and Future Trends*

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Integrating NO_x Gas Sensor: Concept, Sensitivity to NO/NO₂ and Benefits of the Integrating Sensing Principle

Sensor 2011, Proceedings of the 15th International Conference on Sensors and Measurement Science, 7.-9. June 2011, Nürnberg, p. 578-582, doi: 10.5162/sensor11/d4.2

Year 2011

S. Wiegärtner, G. Hagen, D. Biskupski, J. Kita, R. Moos, M. Seufert, T. Carlson, N. Jörns, A. Bolz, C. Schmaus, A. Kießig:

Solid-state potentiometric CO₂-Sensor in thick-film technology

Sensor 2011, Proceedings of the 15th International Conference on Sensors and Measurement Science, 7.-9. June 2011, Nürnberg, p. 650-653, doi: 10.5162/sensor11/d7.3

R. Moos, W. Missal, J. Kita, E. Wappler, F. Gora, A. Kipka, T. Bartnitzek, F. Bechtold, D. Schabbel, B. Pawlowski:

Einweg-DSC-Chip

Sensor 2011, fms-Sondersession 2011, Workshop Sensorforschung für Medizin und Technik. Ergebnisse aus der industriellen Gemeinschaftsforschung, im Rahmen der Sensor + Test 2011, 9. Juni 2011, Nürnberg, p. 4-9

A. Geupel, G. Beulertz, D.J. Kubinski, J.H. Visser, R. Moos:

Cumulative Measurement Principle for the Detection of Small Amounts of Gaseous Species

ISOEN 2011 - International Symposium on Olfaction and Electronic Nose, New York City, USA, May 2 - 5, 2011, p. 209-210, doi: 10.1063/1.3626362

J. Kita, W. Missal, E. Wappler, T. Bartnitzek, B. Pawlowski, A. Kipka, R. Moos:

Development of a Novel LTCC-Chip for Fast DSC-Analysis

IMAPS/ACerS 7th Int'l Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2011), San Diego, California, 5.4-7.4.2011

S. Reiß, D. Schönauer, G. Fischerauer, R. Moos:

Ammoniak-Beladungserkennung bei SCR-Katalysatoren

Sensoren im Automobil, 5.4.-6.4.2011, München, Germany, in: T. Tille et al.: *Sensoren im Automobil IV*, expert Verlag 2011, p. 113-126, ISBN 978-3-8169-3066-2

C. Schlangen, M. Hämmerle, R. Moos:

Bestimmung von flüchtigen Alkoholen in Frucht und Gemüsesäften mit einer amperometrischen Enzymelektrode durch Analyse des Gasraums über der Probe

7. Deutsches Biosensor Symposium 2011, 3.-6. April 2011, Heilbad Heiligenstadt

N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos:

Resistive-type SO₂ sensors based on V₂O₅/WO₃/TiO₂

Proceedings of the *51st Chemical Sensor Symposium*, Kanagawa, March 29-31, 2011.

Chemical Sensors, **27**, Suppl. A, 154-157 (2011)

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G. Fischerauer, A. Gollwitzer, A. Nerowski, M. Spörl, S. Reiß, R. Moos:

Monitoring of Electrochemical Processes in Catalysts by Microwave Methods.

In: S. Lindenmeier, R. Weigel (eds.), *Electromagnetics and Network Theory and their Microwave Technology Applications*, Springer, Berlin (2011), p. 119-132, ISBN: 978-3-642-18374-4, doi: 10.1007/978-3-642-18375-1_9

R. Moos, K. Sahner:

Chemical sensors based on zeolites.

In: J. Schwank, G. Korotcenkov (eds.), *Chemical sensors: fundamentals of sensing materials*, Volume 2: nanostructured materials, Chapter 7, J. Watson, Series *Comprehensive Sensors Technology*, Momentum Press, LLC, New York (2011), p. 311-334, ISBN: 978-1-60650-106-1

Doctoral Theses

N. Müller:

Direkte Bestimmung von Koksdepositen auf Festbettkatalysatoren durch elektrische Sensoren

(Direct determination of coke deposits on fixed bed catalysts by electrical sensors)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 8, Shaker-Verlag, Aachen (2011), ISBN: 978-3-8322-9931-6

D. Biskupski:

Plattform zur Eliminierung der Sauerstoffabhängigkeit von Hochtemperaturgassensoren

(Platform for the elimination of the oxygen dependency of high temperature gas sensors)

In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 7, Shaker-Verlag, Aachen (2011), ISBN: 978-3-8322-9870-8

Year 2010

Peer Reviewed Journals

R. Moos:

Catalysts as Sensors - A Promising Novel Approach in Automotive Exhaust Gas Aftertreatment
Sensors, **10**, 6773-6787 (2010), doi: 10.3390/s100706773

G. Fischerauer, M. Spörl, S. Reiß, R. Moos:

Mikrowellengestützte Aufklärung elektrochemischer Vorgänge in Katalysatoren und verwandten Systemen
Microwave-Based Investigation of Electrochemical Processes in Catalysts and Related Systems
Technisches Messen, **77**, 419-427 (2010), doi: 10.1524/teme.2010.0066

D. Schönauer, R. Moos:

Detection of water droplets on exhaust gas sensors
Sensors and Actuators B: Chemical, **148**, 624-629 (2010), doi: 10.1016/j.snb.2010.05.060

N. Müller, C. Kern, R. Moos, A. Jess:

Direct detection of coking and regeneration of single particles and fixed bed reactors by electrical sensors
Applied Catalysis A: General, **382**, 254-262 (2010), doi: 10.1016/j.apcata.2010.05.001

S. Fischer, R. Pohle, B. Farber, R. Proch, J. Kaniuk, M. Fleischer, R. Moos:

Method for detection of NO_x in exhaust gases by pulsed discharge measurements using standard zirconia-based lambda sensors
Sensors and Actuators B: Chemical, **147**, 780-785 (2010), doi: 10.1016/j.snb.2010.03.092

A. Geupel, D. Schönauer, U. Röder-Roith, D.J. Kubinski, S. Mulla, T.H. Ballinger, H.-Y. Chen, J.H. Visser, R. Moos:

Integrating nitrogen oxide sensor: a novel concept for measuring low concentrations in the exhaust gas
Sensors and Actuators B: Chemical, **145**, 756-761 (2010), doi: 10.1016/j.snb.2010.01.036

F. Rettig, R. Moos:

α-iron oxide: an intrinsically semiconducting oxide material for direct thermoelectric oxygen sensors
Sensors and Actuators B: Chemical, **145**, 685-690 (2010), doi: 10.1016/j.snb.2010.01.023

G. Hagen, C. Feistkorn, S. Wiegärtner, A. Heinrich, D. Brüggemann, R. Moos:

Conductometric Soot Sensor for Automotive Exhausts: Initial Studies
Sensors, **10**, 1589-1598 (2010), doi: 10.3390/s100301589

G. Fischerauer, M. Förster, R. Moos:

Sensing the Soot Load in Automotive Diesel Particulate Filters by Microwave Methods
Measurement Science and Technology, **21**, 035108 (2010), doi: 10.1088/0957-0233/21/3/035108

N. Müller, A. Jess, R. Moos:

Direct detection of coke deposits on fixed bed catalysts by electrical sensors
Sensors and Actuators B: Chemical, **144**, 437-442 (2010), doi: 10.1016/j.snb.2009.03.008

S. Achmann, G. Hagen, M. Hämmerle, I.M. Malkowsky, C. Kiener, R. Moos:

Sulfur Removal from Low-Sulfur Gasoline and Diesel Fuel by Metal-Organic Frameworks
Chemical Engineering and Technology, **33**, 275-280 (2010), doi: 10.1002/ceat.200900426

M. Hämmerle, K. Hilgert, S. Achmann, R. Moos:

Direct Monitoring of organic vapours with amperometric enzyme gas sensors
Biosensors and Bioelectronics, **25**, 1521-1525 (2010), doi: 10.1016/j.bios.2009.10.022

N. Müller, R. Moos, A. Jess:

In situ Monitoring of Coke Deposits during Coking and Regeneration of Solid Catalysts by Electrical Impedance-based Sensors
Chemical Engineering and Technology, **33**, 103-112 (2010), doi: 10.1002/ceat.200900380

Invited Talks

The Jožef Stefan Institute, Ljubljana, Slovenia, 19.10.2010

R. Moos: *Inorganic Materials - from Sensors and Catalysts*

Conference SEMTO 2010 / Sensors and Actuators, Ljubljana, Slovenia, 20.-21.10.2010

R. Moos: *Sensors in the automotive exhaust – technology, status and future trends*

The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th - 14th July, 2010, plenary talk

R. Moos: *Automotive exhaust gas aftertreatment: Is the catalyst itself the best sensor ?*

Internationales CTI Forum Emissionsrelevante Sensorik, Stuttgart, 8.7.2010

R. Moos: *Exhaust gas sensor technology: trends from a research point of view / Trends in der Abgassensorik aus Forschungssicht*

Published Conference Contributions

R. Moos:

Sensors in the automotive exhaust – technology, status and future trends
Conference SEMTO 2010 / Sensors and Actuators, Ljubljana, Slovenia, 20.-21.10.2010

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M. Hämmerle, T. Falkner, K. Hilgert, A. Lauterbach, R. Moos:

Kapillarelektrophorese auf einem Chip mit elektrochemischer Detektion in LTCC- Technologie
15. Heiligenstädter Kolloquium, „Technische Systeme für die Lebenswissenschaften“, 27.-29.09.2010, Heiligenstadt, Germany, P 39

J. Kita, W. Missal, E. Wappler, R. Moos:

DSC-Chip in LTCC Technology – Feasibility Study
34th International Microelectronics and Packaging IMAPS Conference, Wrocław, Poland 22. - 25.09.2010, p. 182

D. Ortolino, J. Kita, R. Wurm, E. Blum, K. Beart, R. Moos:

Measurement and modeling of the high-current resistance behavior of vias in thick-film technology
34th International Microelectronics and Packaging IMAPS Conference, Wrocław, Poland 22. - 25.09.2010, p. 218

M. Herling, G. Hagen, R. Moos, J. Breu:

Gas sensitivity of pillared and non-pillared layered silicates
15. Vortragstagung der GdCh-Fachgruppe Festkörperchemie und Materialforschung, Berlin, 20.-22.9.2010, P126, Z. Anorg. Allg. Chem. 2010, p. 2112, doi: 10.1002/zaac.201009128

W. Missal, J. Kita, E. Wappler, F. Gora, A. Kipka, T. Bartnitzek, F. Bechtold, D. Schabbel, B. Pawlowski, R. Moos:

Miniaturized Ceramic Differential Scanning Calorimeter with Integrated Oven and Crucible in LTCC Technology
Eurosensors XXIV, September 5 - 8, 2010, Linz, Austria, Procedia Engineering, 5, 940-943 (2010), doi: 10.1016/j.proeng.2010.09.263

A. Geupel, R. Moos:

Review: Lean NO_x Trap Materials as Sensitive Elements for NO_x Sensors
MSE 2010 - Materials Science and Engineering, 24.08.-26.08.2010, Darmstadt, Germany

R. Moos:

Automotive exhaust gas aftertreatment: Is the catalyst itself the best sensor ?
The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010

S. Reiß, M. Spörl, G. Fischerauer, M. Rösch, R. Moos:

In situ characterization of three-way catalysts: Combination of conductivity and radio frequency measurements
The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010, p. 92

G. Hagen, I. Marr, R. Moos:

Solid-state CO₂ gas sensor based on zeolites:
The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010, p. 98

G. Hagen, C. Feistkorn, S. Wiegärtner, A. Heinrich, D. Brüggemann, R. Moos:

Soot detection in automotive exhausts
The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010, p. 252

R. Moos:

Exhaust gas sensor technology: trends from a research point of view / Trends in der Abgassensorik aus Forschungssicht (with simultaneous translation)
Internationales CTI Forum Emissionsrelevante Sensorik, Stuttgart, 8.7.2010

S. Denneler, C. Schuh, K. Benkert, R. Moos:

Piezoelectric ceramic compositions for oxygen poor sintering conditions
Electroceramics XII, June 13-16, 2010, Trondheim, Norway

M. Hämmerle, T. Falkner, K. Hilgert, S. Achmann, R. Moos:

Sensitivity and long-term stability of an amperometric enzyme gas sensor for formaldehyde
Biosensors 2010, 20th Anniversary World Congress on Biosensors, 26-28 May, 2010, Glasgow, UK, P3.2.021

N. Müller, A. Jess, R. Moos:

Online in-situ Sensorik des Koks- und Schwefelgehaltes von heterogenen Festbettkatalysatoren mittels Impedanzspektroskopie
Sensoren und Messsysteme 2010, 18.-20.5.2010, Nürnberg, ISBN 978-3-8007-3260-9

W. Missal, J. Kita, E. Wappler, R. Moos:

Neuartige DSC-Messzelle mit integriertem Ofen und Tiegel in LTCC-Technologie
Sensoren und Messsysteme 2010, 18.-20.5.2010, Nürnberg, ISBN 978-3-8007-3260-9

I. Marr, G. Hagen, R. Moos:

Planar potentiometric zeolite-based gas sensors
22. Deutsche Zeolith-Tagung, München, 3. -5. März 2010, p. 150-151

Miscellaneous

R. Werthschützky, V. Großer, D. Heydenbluth, R. Moos, D. Rein, J. Sauerer, T. Simmons, W. Sinn, J. Wilde:

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Year 2009

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- R. Moos, M. Wedemann, M. Spörl, S. Reiß, G. Fischerauer:
Direct Catalyst Monitoring by Electrical Means: An Overview on Promising Novel Principles
Topics in Catalysis, **52**, 2035-2040 (2009), doi: 10.1007/s11244-009-9399-6
- S. Reiß, M. Wedemann, R. Moos, M. Rösch:
Electrical In Situ Characterization of Three-Way Catalyst Coatings
Topics in Catalysis, **52**, 1898-1902 (2009), doi: 10.1007/s11244-009-9366-2
- D. Biskupski, A. Geupel, K. Wiesner, M. Fleischer, R. Moos:
Platform for a hydrocarbon exhaust gas sensor utilizing a pumping cell and a conductometric sensor
Sensors, **9**, 7498-7508 (2009), doi: 10.3390/s90907498
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Selective Mixed Potential Ammonia Exhaust Gas Sensor
Sensors and Actuators B: Chemical, **140**, 585-590 (2009), doi: 10.1016/j.snb.2009.04.064
- R. Moos, K. Sahner, M. Fleischer, U. Guth, N. Barsan, U. Weimar:
Solid State Gas Sensor Research in Germany - a Status Report
Sensors, **9**, 4323-4365 (2009), doi: 10.3390/s90604323
- M. Hrovat, D. Belavič, J. Kita, J. Holc, J. Cilenšek, S. Drnovšek:
Thick-film NTC thermistors and LTCC materials: The dependence of the electrical and microstructural characteristics on the firing temperature
Journal of the European Ceramic Society, **29**, 3265-3271 (2009), doi: 10.1016/j.jeurceramsoc.2009.05.019
- K. Sahner, M. Kaspar, R. Moos:
Assessment of the novel aerosol deposition method for room temperature preparation of metal oxide gas sensor films
Sensors and Actuators B: Chemical, **139**, 394-399 (2009), doi: 10.1016/j.snb.2009.03.011
- D. Nowak, E. Miš, A. Dziedzic, J. Kita:
Fabrication and electrical properties of laser-shaped thick-film and LTCC microresistors
Microelectronics Reliability, **49**, 600-606 (2009), doi: 10.1016/j.microrel.2009.02.019
- F. Rettig, R. Moos:
Temperature-modulated direct thermoelectric gas sensors: thermal modeling and results for fast hydrocarbon sensors
Measurement Science and Technology, **20**, 065205 (2009), doi: 10.1088/0957-0233/20/6/065205
- T. Richter, C. Schuh, E. Suvaci, R. Moos:
Single crystal growth in PMN-PT and PMN-PZT
Journal of Materials Science, **44**, 1757-1763 (2009), doi: 10.1007/s10853-009-3286-1
- S. Achmann, G. Hagen, J. Kita, I.M. Malkowsky, C. Kiener, R. Moos:
Metal-Organic Frameworks for Sensing Applications in the Gas Phase
Sensors, **9**, 1574-1589 (2009), doi: 10.3390/s90301574
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- U. Röder-Roith, F. Rettig, T. Röder, J. Janek, R. Moos, K. Sahner:
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Sensors and Actuators B: Chemical, **136**, 530-535 (2009), doi: 10.1016/j.snb.2008.12.024

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- R. Moos:
Kap. 2.5 Elektrische Eigenschaften.
In W. Kollenberg (Hrsg.): Technische Keramik, Vulkan-Verlag GmbH, Essen (2009), 121-135, 2. Auflage, ISBN 978-3-8027-2953-9
- R. Moos:
Kap. 5.3 Anwendungen keramischer Werkstoffe in der Technik: Elektronik.
In W. Kollenberg (Hrsg.): Technische Keramik, Vulkan-Verlag GmbH, Essen (2009), 605-609, 2. Auflage, ISBN 978-3-8027-2953-9

Doctoral Theses

- G. Hagen:
Impedimetrische Gassensoren auf Zeolith-Basis (Impedimetric zeolite-based gas sensors)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 5, Shaker-Verlag, Aachen (2009), ISBN: 978-3-8322-8410-7
- S. Achmann:
Enzymbasierter Gassensor zur selektiven, direkten und kontinuierlichen Detektion von Formaldehyd
(Enzyme-based gas sensor for the selective, direct and continuous detection of formaldehyde)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 4, Shaker-Verlag, Aachen (2009), ISBN: 978-3-8322-8378-1

Year 2009

Invited Talks

Motortechnisches Seminar 2009/2010, Lehrstuhl für Verbrennungskraftmaschinen, RWTH Aachen, 14.12.2009
R. Moos: *Abgasnachbehandlung im Automobil: Ist der Katalysator selbst der beste Sensor ?*

9. Dresdner Sensor-Symposium, 7.-9. Dezember 2009, Dresden
R. Moos: *Neue Ansätze bei der Automobil-Abgassensorik*

IMAPS Poland, Gliwice – Pszczyna, September 21-24, 2009
J. Kita, R. Moos: *Properties and Applications of Zero-Shrinkage LTCC*

2nd MacroNano-Colloquium on Ceramic Microsystems, Ilmenau University of Technology, 9.-10.9.2009,
J. Kita: *Advanced Processing of LTCC-Materials - Possibilities and Limitations*

Sensor 2009, 14th International Conference on Sensors, Technologies, Electronics and Applications, Nürnberg, 26.-28.5.2009
R. Moos: *Recent Developments in Automotive Exhaust Gas Sensing*

3. Gassensor-Workshop - Neue Technologien und Anwendungen, 19.3.2009, Freiburg
R. Moos: *Zeolithe in der Gassensorik - ein Überblick*

CAPOC8, 8th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, April 15 - 17, 2009
R. Moos, M. Wedemann, M. Spörl, S. Reiß, G. Fischerauer: *Direct Catalyst Monitoring by Electrical Means - an Overview on Promising Novel Principles*

Miscellaneous

R. Moos, G. Hagen:
Neue Wege in der Abgasnachbehandlung
Powerworld, 03/2009, p. 6 - p. 9

R. Moos:
Modellierung bei konduktometrischen Gassensoren
Workshop im Rahmen des SPP 1296 vom 13.-14.10.2009, Bayreuth

Published Conference Contributions

R. Moos:
Neue Ansätze bei der Automobil-Abgassensorik
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 21-27

A. Geupel, D.J. Kubinski, S. Mulla, T. Ballinger, H.Y. Chen, J.H. Visser, R. Moos:
Integrierender NO_x Sensor für Automobilabgas. Ein neuartiges Konzept
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 33-36

S. Achmann, M. Hämmerle, P. Gouma, R. Moos:
Elektrospinnen reaktiver Polymere als Immobilisationsmatrix in enzymbasierten Gassensoren
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 145-148

A. Ernstberger, M. Hämmerle, S. Achmann, R. Moos:
Biosensor für gasförmiges Formaldehyd: kovalente Enzymimmobilisierung an einer Membran
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 177-180

S. Reiß, M. Spörl, G. Fischerauer, R. Moos:
Realabgastauglichkeit einer HF-gestützten Automobilabgasdiagnose
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 263-266

D. Schönauer, K. Wiesner, M. Fleischer, R. Moos:
Einfluss der Katalysatorzusammensetzung auf das Verhalten eines mischpotentialbasierten Ammoniakensors
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 341-344

G. Hagen, R. Moos:
Potentiometrische Gassensoren auf Zeolith-Basis
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 315-318

A. Geupel, D.J. Kubinski, S. Mulla, T. Ballinger, H.Y. Chen, J.H. Visser, R. Moos:
Integrating NO_x Sensor for Automotive Exhausts - a Novel Concept
The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 59

S. Reiß, M. Wedemann, M. Spörl, G. Fischerauer, R. Moos:
Study of Influence Effects on an RF-based Three-Way Catalyst Monitoring System
The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 60
G. Hagen, R. Moos:

Year 2009

Planar zeolite-based potentiometric gas sensors

The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 146

N. Müller, A. Jess, R. Moos:

Direct sensing of coke deposits on fixed bed catalysts and the modeling of the electrical impedance and reaction kinetics

11th International Symposium on CATALYST DEACTIVATION, Delft, October 25 - 28, 2009, Delft, The Netherlands, p. 96-97

J. Kita, R. Moos:

Properties and Applications of Zero-Shrinkage LTCC

XXXIII Int'l Conference of International Microelectronics and Packaging Society IMAPS Poland, Gliwice – Pszczyna, September 21-24, 2009, p. 183-189

D. Nowak, A. Dziedzic, T. Piasecki, J. Kita:

Laser-Shaped Thick-film Inductors Embedded in Ferrite Material

XXXIII Int'l Conference of International Microelectronics and Packaging Society IMAPS Poland, Gliwice – Pszczyna, September 21-24, 2009, p. 273-276

N. Müller, A. Jess, R. Moos:

Abhängigkeit des Impedanzsignals von den Versuchsbedingungen bei der Bestimmung von Koksdepositen in Festbettkatalysatoren

ProcessNet-Jahrestagung 2009, 8.-10. September 2009, Mannheim, Germany

S. Fischer, R. Pohle, M. Fleischer, R. Moos:

Method for reliable detection of different exhaust gas components by pulsed discharge measurements using standard zirconia based sensors

Proceedings Eurosensors XXIII, Lausanne, Switzerland, 6.-9.9.2009, in *Procedia Chemistry*, **1**, 585–588 (2009), doi: 10.1016/j.proche.2009.07.146

A.S. Kumar, P. Suresh, M.M. Kumar, M.L. Post, K. Sahner, R. Moos, S. Srinath:

Magnetic and ferroelectric properties of Fe doped SrTiO₃ film

International Conference on Magnetism - ICM 2009, Karlsruhe, Germany, July 26-31, 2009,

Journal of Physics: Conference Series **200** (2010) 092010, doi: 10.1088/1742-6596/200/9/092010

U. Röder-Roith, F. Rettig, K. Sahner, T. Röder, J. Janek, R. Moos:

Dependence of the Thermopower of a Perovskite-Type Proton Conductor on the Hydrogen Partial Pressure

Solid State Ionics **17**, June 28 - July 3, 2009, Toronto, Canada, p. 250

D. Schönauer, K. Wiesner, M. Fleischer, R. Moos:

Mixed Potential Type Ammonia Exhaust Gas Sensor for Harsh Environments

Solid State Ionics **17**, June 28 - July 3, 2009, Toronto, Canada, p. 120

N. Müller, A. Jess, R. Moos:

Direkte Bestimmung von Koksdepositen auf Festbettkatalysatoren

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M. Hrovat, D. Belavič, H. Uršič, J. Kita, J. Holc, S. Drnovšek, J. Cilenšek, M.S. Zarnik, M. Kosec:

Thick-Film Pressure / Force Sensors on Different LTCC Substrates; a Characterization and Evaluation

Proc. of 2009 IMAPS/ACerS, 5th Intern. Conf. on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT), Denver, Colorado, 21.4-23.4.2009

R. Moos:

Recent Developments in Automotive Exhaust Gas Sensing

Sensor 2009, Proceedings of the 14th International Conference, 26.-28. May 2009, in Nürnberg, Vol. I, p. 227-231, doi: 10.5162/sensor09/v1/b5.1

S. Reiß, R. Moos, M. Wedemann, M. Spörl, A. Nerowski, G. Fischerauer:

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J. Kita, R. Moos: *Development of LTCC-Materials and Their Applications – an Overview*

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Elektroden und Sonden aus Yttrium-stabilisiertem Zirkondioxid in Kontakt mit sauerstoffhaltigen Plasmen
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R. Moos, J. Kita: *Ceramic Multilayer Gas Sensors - an Overview*

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Ion-Conducting Probes for Low Temperature Plasmas

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(**) Work was conducted between 1990 and 1995 at Institut für Technologie der Elektrotechnik (head: Prof. K.H. Härdtl; now Institut für Werkstoffe der Elektrotechnik, head Prof. Ellen Ivers-Tiffée), Universität Karlsruhe (TH), Germany