

Year 2026

as of April 7, 2026

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

Peer Reviewed Journals

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

Periodically Pulsed Polarization Gas Sensors Based on Au|YSZ: Mechanism of NO_x Detection
Sensors, **26**, 2280 (2026), doi: 10.3390/s26072280

L. Hennerici, D. Bröse, M. Schamel, S. Lang, P. Ficht, D. Kramer, R. Mönig, M.A. Danzer, R. Moos:

Progress in the Cycling Performance of Oxidic Solid-State Batteries Fabricated at Room Temperature by Powder Aerosol Deposition
Journal of The Electrochemical Society, **173**, 040517 (2026), doi: 10.1149/1945-7111/ae4543

M. Sozak, S. Knies, M. Bianchini, R. Moos:

Room Temperature Fabrication of Binder-Free Na₃V₂(PO₄)₃/C High-Loading Electrode Films via the Powder Aerosol Deposition Method
Batteries & Supercaps, **9**, e202500902 (2026), doi: 10.1002/batt.202500902

D. Paulus, M. Linz, A.L. Hansen, S. van Smaalen, R. Moos, A.S. Ulrich, D. Schönauer-Kamin:

Structure matters: A synchrotron study reveals how crystallite structure influences the deposition mechanism for the powder aerosol deposition method
Journal of the European Ceramic Society, **46**, 118127 (2026), doi: 10.1016/j.jeurceramsoc.2026.118127

Invited Talks

Workshop Emissionsminderung: Möglichkeiten und Grenzen von Katalysator, Abbrandsteuerung und elektrostatischem Staubabscheider, 3.2.2026, Leipzig
G. Hagen: *Abbrandregelung aus Sicht der Wissenschaft*

Doctoral Theses

M. Linz:

Die Pulveraerosol-Deposition kleinster Pulvermengen: Weiterentwicklungen, Mechanismus und Anwendungen
(Powder aerosol deposition of very small powder quantities: further developments, mechanism, and applications)
Dissertation Universität Bayreuth, Fakultät für Ingenieurwissenschaften, 2026
doi: 10.15495/EPub_UBT_00008799

Published Conference Contributions

R. Siva Dev, A. Sivasubramanyan, D. Wycisk, M. Oldenburger, R. Moos, J.P. Schmidt:

Modelling of OCV Hysteresis

MODVAL 2026: 22nd Symposium on Modeling and Experimental Validation of Electrochemical Energy Technologies, 10.-11.3.2026, Lausanne Switzerland

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Peer Reviewed Journals

A. Groß, D. Paulus, T. Scholz, R. Moos, D. Schönauer-Kamin:

Room temperature preparation of Ti₂AlC MAX-phase films using the powder aerosol deposition method
Ceramics International, **51**, 59777-59788 (2025), doi: 10.1016/j.ceramint.2025.10.205

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

Formation, Growth, and Shrinkage of Voids in Lithium Metal in Contact With an LLZO Electrolyte
ACS Applied Materials & Interfaces, **17**, 56980-56990 (2025), doi: 10.1021/acsami.5c09594

T. Wöhrl, M. König, R. Moos, G. Hagen:

Monitoring of Ammonia in Biomass Combustion Flue Gas Using a Zeolite-Based Capacitive Sensor
Sensors, **25**, 5519 (2025), doi: 10.3390/s25175519

T. Wöhrl, R. Moos, G. Hagen:

Analyzing the cross-sensitivities of a zeolite-based ammonia sensor for SCR systems for application in the flue gas of biogenic waste combustion
Sensors and Actuators B: Chemical, **436**, 137727 (2025), doi: 10.1016/j.snb.2025.137727

J. Günther, D. Wycisk, R. Siva Dev, A. Fill, K.P. Birke, R. Moos, J.P. Schmidt, M. Oldenburger:

Determination of the Solid State Diffusion Coefficient of Li-ion Battery Single-Phase Materials Using Thin Model Electrodes
Journal of The Electrochemical Society, **172**, 030525 (2025), doi: 10.1149/1945-7111/adbfc5

L. Hennerici, P. Ficht, M. Schamel, U. Mansfeld, M. Linz, D. Paulus, J. Kita, M.A. Danzer, R. Moos:

Lithium All-Solid-State Batteries Fabricated at Room Temperature by the Powder Aerosol Deposition Method with Garnet-Type Electrolyte and Graded Composite Cathode
Advanced Materials Technologies, **10**, 2400745 (2025), doi: 10.1002/admt.202400745

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

Sulfur poisoning of powder aerosol deposited films of BaFe_{0.74}Al_{0.01}Ta_{0.25}O_{3-δ}: A material for resistive temperature independent oxygen sensors
Sensors and Actuators B: Chemical, **425**, 136984 (2025), doi: 10.1016/j.snb.2024.136984

Doctoral Theses

C. Steiner:

Mikrowellengestützte Analyse der Defektchemie von Cer-Zirkonium-Mischoxiden

(Microwave-based analysis of the defect chemistry of cerium-zirconium mixed oxides)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 23, Shaker-Verlag, Düren (2025), ISBN 978-3-8440-9771-9

Invited Talks

Intl. Symposium on Green Processing for Advanced Ceramics - IGPAC 2025, 5.10.-9.10.2025, Ise-Shima/Mie, Japan

D. Paulus, D. Schönauer-Kamin, R. Moos: *How to produce ceramics in the millimeter thickness range at room temperature by the Powder Aerosol Deposition Method (ADM)*

The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025

G. Hagen: *High-Temperature Gas Sensors for Biomass Applications*

The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025

D. Schönauer-Kamin, R. Moos: *Dosimeter-type gas sensors - an overview on dosimeter concepts, materials, and applications*

The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025

R. Moos, J. Zosel: *Development of solid electrolyte based mixed potential gas sensors in the past 40 years - a journey accompanied by Ulrich Guth*

Published Conference Contributions

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

How to produce ceramics in the millimeter thickness range at room temperature by the Powder Aerosol Deposition Method (ADM)

Intl. Symposium on Green Processing for Advanced Ceramics - IGPAC 2025, 5.10.-9.10.2025, Ise-Shima/Mie, Japan, p. 63-64

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

Rapid Posttreatment of Powder Aerosol Deposited Functional Ceramics Using LED Radiation

Intl. Symposium on Green Processing for Advanced Ceramics - IGPAC 2025, 5.10.-9.10.2025, Ise-Shima/Mie, Japan, p. 143-144

D. Paulus, J. Schneider, D. Schönauer-Kamin, R. Moos:

Revealing a new room temperature deposition mechanism for materials with layered-type crystal structure by a synchrotron study

Intl. Symposium on Green Processing for Advanced Ceramics - IGPAC 2025, 5.10.-9.10.2025, Ise-Shima/Mie, Japan, p. 151-152

R. Moos, L. Hennerici, M. Sozak, D. Paulus, J. Schneider, N. Donker, D. Schönauer-Kamin:

Producing Solid-State Batteries by the Powder Aerosol Deposition Method: Overview and Recent Progress

Intl. Symposium on Green Processing for Advanced Ceramics - IGPAC 2025, 5.10.-9.10.2025, Ise-Shima/Mie, Japan, p. 214-215

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T. Xu, M. Griesbach, T. Scholz, A. Köhler, R. Moos:

MAPbBr₃-MAPbI₃ gradient films prepared at room temperature by Powder Aerosol Deposition (PAD) for controlled ion and electron transport
8th International Conference on Perovskite Solar Cells and Optoelectronics - PSCO 2025, 15.9.-18.9.2025, Perugia, Italy

T. Scholz, T. Xu, A. Köhler, R. Moos:

Defect Chemical Engineering in Doped MAPbI₃ Films Prepared from Mechanochemically Synthesized Powders via Powder Aerosol Deposition
8th International Conference on Perovskite Solar Cells and Optoelectronics - PSCO 2025, 15.9.-18.9.2025, Perugia, Italy

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

Void Formation, Growth, and Shrinkage in Lithium Metal in contact with an LLZO Electrolyte
76th Annual Meeting of the International Society of Electrochemistry, 7.9.-12.9.2025, Mainz, Germany, S04-045

P. Hawe, C.E. Hartwig, C. Roth, R. Moos:

Modular Cell Design for Operando XAS: Parameter Transfer and Cu/Ag bimetallic electrocatalyst investigation in CO₂ reduction
76th Annual Meeting of the International Society of Electrochemistry, 7.9.-12.9.2025, Mainz, Germany, S10-026

C.E. Hartwig, J. Tschernoster, P. Hawe, R. Moos, C. Roth:

Challenges of CO₂ Crossover in CO₂RR Flow Cells Achieving High Current Density
76th Annual Meeting of the International Society of Electrochemistry, 7.9.-12.9.2025, Mainz, Germany, S11-013

R. Moos, T. Wöhrl, N. Donker, D. Schönauer-Kamin, G. Hagen:

Ammonia flue gas sensors for SCR applications: A comparison between zeolite-based capacitive sensors and mixed-potential sensors utilizing vanadia-based electrodes
EuroSensors XXXVII, September 7-10, 2025, Wroclaw, Poland, p. 124-125, doi: 10.5162/EUROSENSORS2025/T5.1.2

M. Sozak, C. Zhao, R. Moos:

Electrochemical properties of powder aerosol co-deposited NaCrO₂/C binder-free composite cathodes for sodium-ion batteries
SBS6 - International Sodium Battery Symposium, 3.9.-4.9.2025, Dresden

J. Günther, N. Stumböck, D. Wycisk, M. Oldenburger, R. Moos, J.P. Schmidt:

Determination of the Solid State Diffusion Coefficient Using Thin Model Electrodes - Transfer From NMC622 to NMC811
Oxford Battery Modelling Symposium (OBMS 2025), 24.7.-25.7.2025, Oxford, United Kingdom, p.40

T. Wöhrl, G. Hagen, D. Schönauer-Kamin, R. Moos:

Ion-exchanged zeolites for capacitive gas sensing
The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025, poster presentation

D. Schönauer-Kamin, R. Moos:

Dosimeter-type gas sensors - an overview on dosimeter concepts, materials, and applications
The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025, invited oral presentation

R. Moos, J. Zosel:

Development of solid electrolyte based mixed potential gas sensors in the past 40 years - a journey accompanied by Ulrich Guth
The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025, invited oral presentation

G. Hagen:

High-Temperature Gas Sensors for Biomass Applications
The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025, invited oral presentation

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

On the mechanism of a novel highly selective potentiometric zeolite-based hydrogen sensor for harsh environments
The 20th International Meeting on Chemical Sensors, IMCS 20, Freiburg, Germany, 22nd - 26th June 2025, oral presentation

R. Siva Dev, G.K. Mertin, M. Oldenburger, R. Moos, J.P. Schmidt:

Mastering Microstructure: Better Characterisation of Electrode Porosity for Higher Accuracy of Physics-Based Cell Models
abc europe - advanced automotive battery conference, 23.-25.6.2025, Mainz, Germany, P055

G. Hagen, R. Moos:

Continuous Estimation of Particle Emissions in Flue Gas of Wood Combustion using Gas Sensor Measurements
SMSI 2025 Sensor and Measurement Science International, 06-08 May 2025, Nuremberg, Germany, doi: 10.5162/SMSI2025/C5.2

C. Roth, M. Attia, C.-E. Hartwig, P. Hawe, H. Hoffmann, R. Moos:

CO₂ Electro-Reduction: From Metallic Foams to Gas Diffusion Electrodes
AMN 11, 11th International Conference on Materials and Nanotechnology, 09-13 February 2025, Christchurch, New Zealand, p. 272

Year 2024

Peer Reviewed Journals

- 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, **7**, 5608-5620 (2024), doi: 10.1021/acsaem.4c01039
- 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

Invited Talks

- 59th International Conference on Microelectronics, Devices and Materials MIDEM 2024, 02-04 October 2024, Rimske Toplice, Slovenia
J. Kita: Latest development in Powder Aerosol Deposition
- Future of Emission Control, 21.-23.07.2024, Karlsruhe, Germany
G. Hagen, J. Herrmann, T. Wöhr, B. Streibl, R. Moos: Sensors in Biomass Combustion Exhaust

Published Conference Contributions

- G. Hagen, J. Kita, R. Moos:
Neuartiger Wasserstoff-Sensor
17. Dresden Sensor-Symposium, 25.-27. November 2024, Dresden, doi: 10.5162/17dss2024/5.3

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T. Wöhrl, G. Hagen, R. Moos:

Kapazitive Datenerfassung für einen Ammoniak-Sensor für biogene Reststoff-Feuerungen
17. *Dresdner Sensor-Symposium*, 25.-27. November 2024, Dresden, doi: 10.5162/17dss2024/P09

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

Operando SEM observations of lithium-metal anodes during dissolution and deposition through LLZO
Solid-State Batteries VI, an International Bunsen Discussion Meeting, Nov 13-15, 2024, Frankfurt a. Main, Germany, P204

J. Kita, R. Werner, R. Moos:

In Dickschichttechnik hergestellter Probenräger zur Messung der elektrischen Leitfähigkeit, der Hall-Konstante und des Seebeck-Koeffizienten bis 800 °C
IMAPS Herbstkonferenz 2024, München, 17.10.-18.10.2024

J. Kita:

Latest development in Powder Aerosol Deposition
59th *International Conference on Microelectronics, Devices and Materials MIDEEM 2024*, 02-04 October 2024, Rimske Toplice, Slovenia

J. Kita, J. Baumgärtner, R. Moos:

Next steps in the development of a ceramic DSC sensor
46th *International Microelectronics and Packaging IMAPS Poland Conference*, 22-25 September 2024, Gdańsk, Poland

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

Are Powder Aerosol-Deposited Films Appropriate for Chemiresistive NO_x Gas Dosimeters?
Eurosensors XXXVI, September 1-4, 2024, Debrecen, Hungary, p. 108-109, doi: 10.5162/EUROSENSORSXXXVI/OT5.189

T. Wöhrl, G. Hagen, R. Moos:

Ammonia Sensor to Effectively Dose the Reducing Agent for NO_x SCR Systems in Biomass Combustion Systems
Eurosensors XXXVI, September 1-4, 2024, Debrecen, Hungary, p. 130-131, doi: 10.5162/EUROSENSORSXXXVI/OT5.99

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

Novel applications of the powder aerosol deposition method in the field of energy conversion and energy storage
14th *International Conference on Ceramic Materials and Components for Energy and Environmental Systems*, Budapest, Hungary, 18-22 August 2024, p. 46

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

Microstructural investigations on aerosol-deposited Calcium Cobaltite films revealing the outstanding thermoelectric properties and the deposition mechanism
14th *International Conference on Ceramic Materials and Components for Energy and Environmental Systems*, Budapest, Hungary, 18-22 August 2024, p. 541

M. Sozak, S. Knies, J. Kita, M. Bianchini, R. Moos:

Powder aerosol deposited Na₃V₂(PO₄)₃/C composite cathode films for next generation of energy storage systems
14th *International Conference on Ceramic Materials and Components for Energy and Environmental Systems*, Budapest, Hungary, 18-22 August 2024, p. 544

G. Hagen, J. Herrmann, T. Wöhrl, B. Streibl, R. Moos:

Sensors in Biomass Combustion Exhaust
Future of Emission Control, 21.-23.07.2024, Karlsruhe, Germany, Oral presentation, Proceedings P. 14

D. Schönauer-Kamin, R. Stephan, D. Paulus, R. Moos:

Thermoelectric and Morphological Properties of Powder-Aerosol Deposited Textured Calcium Cobaltite Ca₃Co₄O₉ Films
40th *International Conference on Thermoelectrics - ICT/ECT2024*, June 30 - July 4, 2024, Cracow, Poland, p. 172

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 Fabrication via Reactive Spin coating based on Real-Time In-Situ Feedback from Optical Spectroscopy
26. *International Conference on Science and Technology of Synthetic Electronic Materials (ICSM 24)*, 23-28 June 2024, Dresden, Germany, S-11-02

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. Wöhrl, 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

J. Herrmann, T. Wöhrl, 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:

Year 2024

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 MAPbI_3 and MAPbBr_3

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

Year 2023

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
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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
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Orientation and Grain Size in MAPbI₃ Thin Films: Influence on Phase Transition, Disorder, and Defects
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- 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
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- 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
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- 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
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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
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Disorder to order: how halide mixing in MAPb_{3-x}Br_x perovskites restricts MA dynamics
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J. Distler, T. Wöhr, R. Werner, M. Gerlach, M. Gollner, F. Linseis, J. Kita, R. Moos:

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Operando monitoring of gas drying by adsorption on supported ionic liquids: Determination of velocity of adsorption front by microwaves
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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 MAPb₃ and MAPbBr₃
12th SolTech Conference 2023, October 3-5, 2023, Würzburg, Germany, Book of Abstracts p. 42

Year 2023

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
98. DKG-Jahrestagung, 27.03.-30.03.2023, Jena, p. 104

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

Year 2022

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
- Y. Jännsch:

Year 2022

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. Nazarenius, 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. Nazarenius, 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

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

Year 2022

- 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. Nazarenus, 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. Nazarenus, 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
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- 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
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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. Bätcher, 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

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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 Pulveraerosoldepositionsmethode - 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

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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

D. Schönauer-Kamin, R. Moos:

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

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1503
See also: *ECS Meeting Abstracts*, MA2021-01, 1503 (2021), doi: 10.1149/MA2021-01561503mtgabs

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

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 05-1582
See also: *ECS Meeting Abstracts*, MA2021-01, 1582 (2021), doi: 10.1149/MA2021-01561582mtgabs

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

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 05-1580
See also: *ECS Meeting Abstracts*, MA2021-01, 1580 (2021), doi: 10.1149/MA2021-01581580mtgabs

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

Convection Influence on Redox Potential Measurements at Hot Platinum Electrodes

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1520
See also: *ECS Meeting Abstracts*, MA2021-01, 1520 (2021), doi: 10.1149/MA2021-01561520mtgabs

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

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

The 18th International Meeting on Chemical Sensors, IMCS2021, online conference, May 30 - June 6, 2021, oral presentation, IMCS 03-1521
See also: *ECS Meeting Abstracts*, MA2021-01, 1521 (2021), doi: 10.1149/MA2021-01561521mtgabs

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

Adding Seebeck coefficient measurements to an existing high temperature device for Hall constant and electrical conductivity measurements
SMSI Sensor and Measurement Science International, Virtual Conference, 03-06 May 2021, Nuremberg, Germany, doi: 10.5162/SMSI2021/A6.2

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

Multiple gas detection by dynamic electrochemical methods

SMSI Sensor and Measurement Science International, Virtual Conference, 03-06 May 2021, Nuremberg, Germany, doi: 10.5162/SMSI2021/B2.1

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

Pulsed polarization on Au|YSZ-NO_x-sensors with and without catalytic layer

SMSI Sensor and Measurement Science International, Virtual Conference, 03-06 May 2021, Nuremberg, Germany, doi: 10.5162/SMSI2021/B2.2

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

Impedimetric NO_x sensor for exhaust applications with internal lambda correction

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

Determination of the Dielectric Properties of Ceria and Soot Powders by the Microwave Cavity Perturbation Method

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

Operando State Diagnosis of Supported Ionic Liquid Phase Gas Purification Processes by a Resonant Perturbation Method

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

Influence of the Gas Velocity on the Temperature Homogeneity of Transducers for Gas Sensors

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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

Year 2021

Concept of a Multi-Gas Sensor to Meet the Strictest Emission Requirements for Combustion Engines
42. Internationales Wiener Motorensymposium, 28.–30. April 2021, Wien, Österreich

Y. Jännsch, M. Hämmerle, R. Moos:

Electrochemical CO₂ Reduction to Ethylene via a CuO Nanocatalyst with Focus on Long-term Stability and Scalability
International Conference on Electrocatalysis for Renewable Energy, 29.03 - 31.03.2021, Oral presentation, Online

Year 2020

Peer Reviewed Journals

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

Influence of Humidity and Different Gases on a Resistive Room Temperature NO₂ Gas Dosimeter Based on Al-Doped ZnO for ppb-Concentration Detection
Journal of The Electrochemical Society, **167**, 167516 (2020), doi: 10.1149/1945-7111/abcb65

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

Laser-Annealing of Thermoelectric CuFe_{0.98}Sn_{0.02}O₂ Films Produced by Powder Aerosol Deposition Method
Advanced Materials Interfaces, **7**, 2001114 (2020), doi: 10.1002/admi.202001114

Y. Jännsch, J.J. Leung, M. Hämmerle, E. Magori, K. Wiesner-Fleischer, E. Simon, M. Fleischer, R. Moos:

Pulsed potential electrochemical CO₂ reduction for enhanced stability and catalyst reactivation of copper electrodes
Electrochemistry Communications, **121**, 106861 (2020), doi: 10.1016/j.elecom.2020.106861

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

Cyclic and square-wave voltammetry for selective simultaneous NO and O₂ gas detection by means of solid electrolyte sensors
Journal of Sensors and Sensor Systems, **9**, 355-362 (2020), doi: 10.5194/jsss-9-355-2020

C. Steiner, S. Walter, V. Malashchuk, G. Hagen, I. Kogut, H. Fritze, R. Moos:

Determination of the Dielectric Properties of Storage Materials for Exhaust Gas Aftertreatment Using the Microwave Cavity Perturbation Method
Sensors, **20**, 6024 (2020), doi: 10.3390/s20216024

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

Multi-gas sensor to detect simultaneously nitrogen oxides and oxygen
Journal of Sensors and Sensor Systems, **9**, 327-335 (2020), doi: 10.5194/jsss-9-327-2020

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

Influence of Pt paste and the firing temperature of screen-printed electrodes on the NO detection by pulsed polarization
Journal of Sensors and Sensor Systems, **9**, 293-300 (2020), doi: 10.5194/jsss-9-293-2020

C. Witt, A. Schmid, N. Leupold, M. Schultz, J. Höcker, A. Baumann, R. Moos, F. Panzer:

Impact of Pressure and Temperature on the Compaction Dynamics and Layer Properties of Powder-Pressed Methylammonium Lead Halide Thick Films
ACS Applied Electronic Materials, **2**, 2619-2628 (2020), doi: 10.1021/acsaelm.0c00493

D. Schönauer-Kamin, I. Marr, M. Zehentbauer, C. Zängle, R. Moos:

Characterization of the sensitive material for a resistive NO_x gas dosimeter by DRIFT spectroscopy
Sensors and Actuators B: Chemical, **320**, 128568 (2020), doi: 10.1016/j.snb.2020.128568

J. Exner, T. Nazarenius, D. Hanft, J. Kita, R. Moos:

What Happens during Thermal Post-Treatment of Powder Aerosol Deposited Functional Ceramic Films? Explanations Based on an Experiment-Enhanced Literature Survey
Advanced Materials, **32**, 1908104 (2020), doi: 10.1002/adma.201908104

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

Modelling the Influence of Different Soot Types on the Radio-Frequency-Based Load Detection of Gasoline Particulate Filters
Sensors, **20**, 2659 (2020), doi: 10.3390/s20092659

M. Hahn, D. Rosenbach, A. Krimalowski, T. Nazarenius, R. Moos, M. Thelakkat, M.A. Danzer:

Investigating solid polymer and ceramic electrolytes for lithium-ion batteries by means of an extended Distribution of Relaxation Times analysis
Electrochimica Acta, **344**, 136060 (2020), doi: 10.1016/j.electacta.2020.136060

M. Streibl, S. Werner, J. Kaschta, D.W. Schubert, R. Moos:

The Influence of Nanoparticles and their Functionalization on the Dielectric Properties of Biaxially Oriented Polypropylene for Power Capacitors
IEEE Transactions on Dielectrics and Electrical Insulation, **27**, 468-475 (2020), doi: 10.1109/TDEI.2019.008521

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

Dense Y-doped ion conducting perovskite films of BaZrO₃, BaSnO₃, and BaCeO₃ for SOFC applications produced by powder aerosol deposition at room temperature
International Journal of Hydrogen Energy, **45**, 10000-10016 (2020), doi: 10.1016/j.ijhydene.2020.01.164

U. Schadeck, T. Gerdes, W. Krenkel, R. Moos:

A Glass Platelet Coating on Battery Electrodes and Its Use as a Separator for Lithium-Ion Batteries
Journal of Electrochemical Conversion and Storage, **17**, 034502 (2020), doi: 10.1115/1.4045783

Doctoral Theses

M. Streibl:

Polymere Dielektrika für Leistungskondensatoren
(Polymer dielectrics for power capacitors)

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

Year 2020

M. Bektas:

BaFe_{(1-x)0.01Al_{0.01}Ta_{0.3-6}}: A material for temperature independent resistive and thermoelectric oxygen sensors

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 31, Shaker-Verlag, Düren (2020), ISBN: 978-3-8440-7459-8

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:

Entwicklung einer neuartigen Biosensor-Plattform zur Protein-Detektion

(Development of a novel biosensor platform for protein detection)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 30, Shaker-Verlag, Düren (2020), ISBN: 978-3-8440-7209-9

Book Contributions

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

Hochfrequenzsensorik zur direkten Beladungserkennung von Benzinpartikelfiltern

In: T. Tille (Hrsg.), Automobil-Sensorik 3 - Prinzipien, Technologien und Anwendungen, Springer-Verlag, Heidelberg (2020), p. 185-208, 978-3-662-61259-0 (gedruckt), ISBN 978-3-662-61260-6 (online), doi: 10.1007/978-3-662-61260-6_7

F. Rettig, R. Moos:

Semiconducting direct thermoelectric gas sensors

In: R. Jaaniso, O.K. Tan (eds.), Semiconductor gas sensors, 2nd edition, Woodhead Publishing Ltd., Cambridge, UK (2019), p. 347-384, ISBN 978-0-08-102559-8 (print), ISBN 978-0-08-102560-4 (online), doi: 10.1016/B978-0-08-102559-8.00011-2

Invited Talks

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*

NMB TechDays Thermisches Spritzen: Vom Beschichtungsverfahren zur Additiven Fertigung, Bayreuth, 10.-11.3.2020

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

VCT 2020, Virtual Conference on Thermoelectrics, July 21-23, 2020, Book of Abstracts, p. 212

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

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

VCT 2020, Virtual Conference on Thermoelectrics, July 21-23, 2020, Book of Abstracts, p. 240

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

SMSI Sensor and Measurement Science International, cancelled conference, 22-25 June 2020, Nuremberg, Germany, doi: 10.5162/SMSI2020/P1.7

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:

Year 2020

Influence of Gas Flow on the Temperature Homogeneity of Sensor Transducers

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
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

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2263, doi: 10.1149/MA2020-01302263mtgabs

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

Dynamic Catalyst Conversion Measurement Using One Single Sensor Device

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2157, doi: 10.1149/MA2020-01282157mtgabs

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

Influence of Humidity on a Resistive Room Temperature NO₂ Dosimeter Based on Al-Doped ZnO

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2079, doi: 10.1149/MA2020-01282079mtgabs

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, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2062, doi: 10.1149/MA2020-01282062mtgabs

D. Schönauer-Kamin, R. Moos:

In-Situ DRIFT Spectroscopy on a Resistive NO_x Dosimeter – How Can the Non-Linear Electrical Behavior be Explained?

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2060, doi: 10.1149/MA2020-01282060mtgabs

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

NO Detection By Cyclic Voltammetry with Platinum Electrodes on YSZ

The 18th International Meeting on Chemical Sensors, IMCS 18, cancelled conference, Montreal, Canada, 10th - 15th May 2020
Available at: *ECS Meeting Abstracts*, MA2020-01, 2059, doi: 10.1149/MA2020-01282059mtgabs

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

Monitoring eines Partikelfilters für direkteinspritzende Benzinmotoren mit einer Hochfrequenzantenne

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

11. Internationales Forum Abgas- und Partikelemissionen / Proceedings, 11th International Exhaust Gas and Particulate Emissions Forum, 3.-4.3.2020, Ludwigsburg, Germany

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

Aerosol-Deposition Lithium-Ionen leitender Festelektrolytmembranen für Festkörperbatterien

Batterieforum Deutschland 2020, 22.-24. Januar 2020, Berlin

U. Schadeck, M. Hahn, T. Gerdes, W. Krenkel, M.A. Danzer, R. Moos:

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

Batterieforum Deutschland 2020, 22.-24. Januar 2020, Berlin

Year 2019

Peer Reviewed Journals

U. Schadeck, M. Hahn, T. Gerdes, W. Krenkel, M.A. Danzer, R. Moos:

Sodium Borosilicate Glass Separators as an Electrolyte Additive Donor for Improving the Electrochemical Performance of Lithium-Ion Batteries
Journal of the Electrochemical Society, **166**, A3416-A3424 (2019), doi: 10.1149/2.1011914jes

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

Novel Operation Strategy to Obtain a Fast Gas Sensor for Continuous ppb-Level NO₂ Detection at Room Temperature Using ZnO—A Concept Study with Experimental Proof
Sensors, **19**, 4104 (2019), doi: 10.3390/s19194104

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

Powder aerosol deposition method — novel applications in the field of sensing and energy technology
Functional Materials Letters, **12**, 1930005 (2019), doi: 10.1142/S1793604719300056

N. Müller, S. Lang, R. Moos:

Influence of Ambient Conditions on Electrical Partial Discharge Resistance of Epoxy Anhydride Based Polymers Using IEC 60343 Method
IEEE Transactions on Dielectrics and Electrical Insulation, **26**, 1463-1470 (2019), doi: 10.1109/TDEI.2019.008070

N. Leupold, K. Schötz, S. Cacovich, I. Bauer, M. Schultz, M. Daubinger, L. Kaiser, A. Rebai, J. Rousset, A. Köhler, P. Schulz, R. Moos, F. Panzer:

High Versatility and Stability of Mechanochemically Synthesized Halide Perovskite Powders for Optoelectronic Devices
ACS Applied Materials & Interfaces, **11**, 30259-30268 (2019), doi: 10.1021/acsami.9b09160

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

Catalyst State Diagnosis of Three-Way Catalytic Converters Using Different Resonance Parameters—A Microwave Cavity Perturbation Study
Sensors, **19**, 3559 (2019), doi: 10.3390/s19163559

J. Exner, J. Kita, R. Moos:

In- and through-plane conductivity of 8YSZ films produced at room temperature by aerosol deposition
Journal of Materials Science, **54**, 13619-13634 (2019), doi: 10.1007/s10853-019-03844-7

S. Bresch, B. Mieller, D. Schönauer-Kamin, R. Moos, F. Giovannelli, T. Rabe:

Influence of pressure assisted sintering and reaction sintering on microstructure and thermoelectric properties of bi-doped and undoped calcium cobaltite
Journal of Applied Physics, **126**, 075102 (2019), doi: 10.1063/1.5107476

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

On the influence of the NO_x equilibrium reaction on mixed potential sensor signals: A comparison between FE modelling and experimental data
Sensors and Actuators B: Chemical, **296**, 126627 (2019), doi: 10.1016/j.snb.2019.126627

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

Investigation of the in situ calcination of aerosol co-deposited NiO-Mn₂O₃ films
Functional Materials Letters, **12**, 1950039 (2019), doi: 10.1142/S1793604719500395

M. Dietrich, G. Hagen, R. Moos:

Dielectric properties and temperature dependency of automotive catalyst coatings and substrate materials: Experimental results, influences and approximation approach
Functional Materials Letters, **12**, 195024 (2019), doi: 10.1142/S1793604719500243

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

Novel Method for NTC Thermistor Production by Aerosol Co-Deposition and Combined Sintering
Sensors, **19**, 1632 (2019), doi: 10.3390/s19071632

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

Influence of polarization time and polarization current of Pt|YSZ-based NO sensors utilizing the pulsed polarization when applying constant charge
Sensors and Actuators B: Chemical, **290**, 28-33 (2019), doi: 10.1016/j.snb.2019.03.060

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

Selectivity improvement towards hydrogen and oxygen of solid electrolyte sensors by dynamic electrochemical methods
Sensors and Actuators B: Chemical, **290**, 53-58 (2019), doi: 10.1016/j.snb.2019.03.063

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

Oxidation State and Dielectric Properties of Ceria-Based Catalysts by Complementary Microwave Cavity Perturbation and X-Ray Absorption Spectroscopy Measurements
Topics in Catalysis, **62**, 227-236 (2019), doi: 10.1007/s11244-018-1110-3

M. Dietrich, G. Hagen, R. Moos:

Modelling Both the NH₃ Storage on Automotive SCR Catalysts and the Radio-Frequency-Based Response
Topics in Catalysis, **62**, 172-178 (2019), doi: 10.1007/s11244-019-01140-x

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
Topics in Catalysis, **62**, 157-163 (2019), doi: 10.1007/s11244-018-1079-y

Year 2019

T. Ritter, M. Seibel, F. Hofmann, M. Weibel, R. Moos:

Simulation of a NO_x Sensor for Model-Based Control of Exhaust Aftertreatment Systems
Topics in Catalysis, **62**, 150-156 (2019), doi: 10.1007/s11244-018-1102-3

T. Michlik, A. Rosin, T. Gerdes, R. Moos:

Improved Discharge Capacity of Zinc Particles by Applying Bismuth-Doped Silica Coating for Zinc-Based Batteries
Batteries, **5**, 32 (2019), doi: 10.3390/batteries5010032

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

Oxygen partial pressure dependency of the electrical conductivity of aerosol deposited alumina films between 650 °C and 900 °C
Materials Letters, **245**, 208-210 (2019), doi: 10.1016/j.matlet.2019.02.094

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

A finite element model for mixed potential sensors
Sensors and Actuators B: Chemical, **287**, 476-485 (2019), doi: 10.1016/j.snb.2019.02.052

P. Chen, V. Rizzotto, A. Khetan, K. Xie, R. Moos, H. Pitsch, D. Ye, U. Simon:

Mechanistic understanding of Cu-CHA catalyst as sensor for direct NH₃-SCR monitoring: the role of Cu mobility
ACS Applied Materials & Interfaces, **11**, 8097-8105 (2019), doi: 10.1021/acsami.8b22104

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

Operando Determination of the Thermal Decomposition of Supported Ionic Liquids by a Radio-Frequency-Based Method
ACS Omega, **4**, 3351-3360 (2019), doi: 10.1021/acsomega.8b02421

P. Nieke, J. Kita, M. Häming, R. Moos:

Manufacturing Dense Thick Films of Lunar Regolith Simulant EAC-1 at Room Temperature
Materials, **12**, 487 (2019), doi: 10.3390/ma12030487

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

Novel radio-frequency-based gas sensor with integrated heater
Journal of Sensors and Sensor Systems, **8**, 49-56 (2019), doi: 10.5194/jsss-8-49-2019

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

How to treat powders for the room temperature aerosol deposition method to avoid porous, low strength ceramic films
Journal of the European Ceramic Society, **39**, 592-600 (2019), doi: 10.1016/j.jeurceramsoc.2018.08.008

Doctoral Theses

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 Puls polarisation

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:

Multigasensor 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

Year 2019

- 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
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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. 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)

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R. Moos, S. Walter, C. Steiner, G. Hagen: *Sensing catalytic converters and filters at work using radio frequencies*

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R. Moos: *Radio frequency sensors for catalyst control – an overview / RF-Sensoren zur Katalysator-Kontrolle – ein Überblick*

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T. Nazarenius, D. Hanft, J. Kita, R. Moos:
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Multilayer Technologies and New Deposition Techniques in Sensors and Transducers Applications

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

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

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Sensing catalytic converters and filters at work using radio frequencies

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Low temperature characteristics of the Pt|YSZ electrode system

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

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

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NO_x sensor for exhaust applications

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

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

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Dynamic methods for solid electrolyte sensors

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

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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. Denner, 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

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- 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
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- 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
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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:
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- T. Ritter, G. Hagen, J. Kita, S. Wiegärtner, F. Schubert, R. Moos:
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Resistive NO_x dosimeter to detect very low NO_x concentrations – Proof-of-principle and comparison with classical sensing devices
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- 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

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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
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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

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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
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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
Proceedings, 1, 455 (2017), doi: 10.3390/proceedings1040455

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

Exhaust Gas Analysis of Firewood Combustion Processes: Application of a Robust Thermoelectric Gas Sensor
Eurosensors XXXI, September 3 - 6, 2017, Paris, France
Proceedings, 1, 457 (2017), doi: 10.3390/proceedings1040457

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

Pressure assisted sintering of tape casted calcium cobaltite
15th *International Conference of the European Ceramic Society*, July 9-13, 2017, Budapest, Hungary, p. 422-423

M. Bektas, T. Stöcker, G. Hagen, R. Moos:

Initial Defect Model of Gas Sensitive $\text{BaFe}_{1-x}\text{Ta}_x\text{O}_{3-\delta}$ Films
Solid State Ionics 21, June 18-23, 2017, Padua, Italy, I-12_45/O, Proceedings, p. 370-371

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

Oxygen transport paths in screen-printed dense Pt electrodes on YSZ
Solid State Ionics 21, June 18-23, 2017, Padua, Italy, I-12_22/O, Proceedings, p. 363-364

G. Hagen, A. Harsch, R. Moos:

Setup to eliminate the gas flow dependency of a hydrocarbon sensor for automotive exhaust applications
Sensor 2017, Proceedings of the 18th International Conference on Sensors and Measurement Technology, 30.5.-1.6.2017, Nürnberg, doi: 10.5162/sensor2017/A4.1

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

Novel mixed potential sensor device to compare two gas compartments and to determine directly the conversion of an automotive catalyst
Sensor 2017, Proceedings of the 18th International Conference on Sensors and Measurement Technology, 30.5.-1.6.2017, Nürnberg, doi: 10.5162/sensor2017/A6.4

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

Dense Ceramic NTC Thermistor Films Produced at Room Temperature by the Novel Aerosol Deposition Method (ADM) for Temperature Sensor Applications
Sensor 2017, Proceedings of the 18th International Conference on Sensors and Measurement Technology, 30.5.-1.6.2017, Nürnberg, doi: 10.5162/sensor2017/P1.4

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Simulation of a thermoelectric gas sensor to determine hydrocarbons in exhaust gases and to characterize catalyst materials
Sensor 2017, Proceedings of the 18th International Conference on Sensors and Measurement Technology, 30.5.-1.6.2017, Nürnberg,
doi: 10.5162/sensor2017/P5.7

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Thermopower and Conductivity of Aerosol Deposited Gas Sensitive BaFe_{1-x}Ta_xO_{3-δ} Films
Sensor 2017, Proceedings of the 18th International Conference on Sensors and Measurement Technology, 30.5.-1.6.2017, Nürnberg,
doi: 10.5162/sensor2017/P5.9

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

Ceramic Composite Films formed by Aerosol Co-Deposition – Overview and Potential Applications
8th International Conference on Electroceramics (ICE2017), Nagoya, Japan, 28.5.-31.5.2017, p. 108

R. Moos:

Ceramic Exhaust Gas Sensors: Recent Developments
8th International Conference on Electroceramics (ICE2017), Nagoya, Japan, 28.5.-31.5.2017, p. 186

J. Exner, H. Pöpke, F.-M. Fuchs, J. Kita, R. Moos:

Influence of Powder Pretreatment for Aerosol Deposition of Ceria based Diffusion Barrier Layers for Solid Oxide Fuel Cells
8th International Conference on Electroceramics (ICE2017), Nagoya, Japan, 28.5.-31.5.2017, p. 216

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

Some novel aspects when manufacturing alumina films by the Aerosol Deposition Method (ADM)
PACRIM 12, The 12th Pacific Rim Conference on Ceramic and Glass Technology, Waikoloa, Hawaii, 21.5.-26.5.2017, p. 165, S14-007-2017

D. Hanft, R. Moos:

The role of the Aerosol Deposition process on the film properties of Li₇La₃Zr₂O₁₂ thick-films
PACRIM 12, The 12th Pacific Rim Conference on Ceramic and Glass Technology, Waikoloa, Hawaii, 21.5.-26.5.2017, p. 233, S14-026-2017

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

Aerosol Deposition of MgB₂ as a novel processing method for superconducting tapes
PACRIM 12, The 12th Pacific Rim Conference on Ceramic and Glass Technology, Waikoloa, Hawaii, 21.5.-26.5.2017, p. 134, P-047-2017

M. Dietrich, C. Steiner, G. Hagen, R. Moos:

Radio-Frequency-Based Urea Dosing Control for Diesel Engines with Ammonia SCR Catalysts
2017 SAE World Congress, April 4-6, 2017, Detroit, Michigan, USA, *SAE paper 2017-01-0945 (2017)*, doi: 10.4271/2017-01-0945

M. Hämmerle, K. Hilgert, R. Moos:

Gas diffusion biocathode for oxygen reduction based on direct electron transfer between carbon nanotubes and laccase
1st European & 10th German BioSensor Symposium, Potsdam, 20.3.-23.3.2017, p. 130

J. Metzner, K. Luckert, R. Moos, M. Hämmerle:

A novel biosensor platform for inflammation analysis - assessment of platform feasibility
1st European & 10th German BioSensor Symposium, Potsdam, 20.3.-23.3.2017, p. 205

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

Spinel-based NiMn₂O₄ negative temperature coefficient (NTC) thermistor thick films produced by the Aerosol Deposition Method (ADM)
92. DKG Jahrestagung / Symposium Hochleistungskeramik 2017, Berlin, 19.3.-22.3.2017, p. 33

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

Monitoring NH₃ storage and conversion in Cu-ZSM-5 and Cu-SAPO-34 catalysts for NH₃-SCR by simultaneous impedance and DRIFT spectroscopy
50. Jahrestreffen Deutscher Katalytiker, 15. - 17. März 2017, Weimar

M. Deluca, R. Wimmer-Teubenbacher, M. Bruckner, J. Kita, R. Moos, K. Reichmann, G.A. Maier:

Alternative spray-based processing methods for dielectric and piezoelectric film deposition
Electronic Materials and Applications 2017, Orlando, Florida, Jan 18-20, 2017, EMA-S2-025-2017

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

Metal Loading Affects the Proton Transport Properties and the Reaction Monitoring Performance of Fe-ZSM-5 and Cu-ZSM-5 in NH₃-SCR
Journal of Physical Chemistry C, **120**, 25361-25370 (2016), doi: 10.1021/acs.jpcc.6b07353

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

Optimization of a sensor for a Tian-Calvet calorimeter with LTCC-based sensor discs
Journal of Sensors and Sensors Systems, **5**, 381-388 (2016), doi: 10.5194/jsss-5-381-2016

P. Chen, M. Jabłońska, P. Weide, T. Caumanns, T. Weirich, M. Muhler, R. Moos, R. Palkovits, U. Simon:

Formation and Effect of NH₄⁺ Intermediates in NH₃-SCR over Fe-ZSM-5 Zeolite Catalysts
ACS Catalysis, **6**, 7696-7700 (2016), doi: 10.1021/acscatal.6b02496

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

Capacitive soot sensor for diesel exhausts
Sensors and Actuators B: Chemical, **236**, 1020-1027 (2016), doi: 10.1016/j.snb.2016.05.006

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

Monitoring NH₃ storage and conversion in Cu-ZSM-5 and Cu-SAPO-34 catalysts for NH₃-SCR by simultaneous impedance and DRIFT spectroscopy
Sensors and Actuators B: Chemical, **236**, 1075-1082 (2016), doi: 10.1016/j.snb.2016.05.164

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

Review on Radio Frequency Based Monitoring of SCR and Three Way Catalysts
Topics in Catalysis, **59**, 961-969 (2016), doi: 10.1007/s11244-016-0575-1

F. Panzer, S. Baderschneider, T. Gujar, T. Unger, S. Bagnich, H. Bässler, M. Jakoby, S. Hüttner, J. Köhler, R. Moos, M. Thelakkat, R. Hildner, A. Köhler:

Reversible Laser-Induced Amplified Spontaneous Emission from Coexisting Tetragonal and Orthorhombic Phases in Hybrid Lead Halide Perovskites
Advanced Optical Materials, **4**, 917-928 (2016), doi: 10.1002/adom.201500765

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Journal of Sensors and Sensors Systems, **5**, 205-212 (2016), doi: 10.5194/jsss-5-205-2016

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

Investigation of Oxygen Transport Paths in Geometrically Defined Thick-Film Composite Pt Electrodes on YSZ
Journal of the Electrochemical Society, **163**, F877-F884 (2016), doi: 10.1149/2.1081608jes

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

The effect of Cu and Fe cations on NH₃-supported proton transport in DeNO_x-SCR zeolite catalysts
Catalysis Science & Technology, **6**, 3362-3366 (2016), doi: 10.1039/C6CY00452K

F. Panzer, D. Hanft, T.P. Gujar, F.-J. Kahle, M. Thelakkat, A. Köhler, R. Moos:

Compact Layers of Hybrid Halide Perovskites Fabricated via the Aerosol Deposition Process – Uncoupling Material Synthesis and Layer Formation
Materials, **9**, 277 (2016), doi: 10.3390/ma9040277

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

Influence of Oxygen Partial Pressure during Processing on the Thermoelectric Properties of Aerosol-Deposited CuFeO₂
Materials, **9**, 227 (2016), doi: 10.3390/ma9040227

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

Tuning of the electrical conductivity of Sr(Ti,Fe)O₃ oxygen sensing films by aerosol co-deposition with Al₂O₃
Sensors and Actuators B: Chemical, **230**, 427-433 (2016), doi: 10.1016/j.snb.2016.02.033

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

Miniaturized ceramic DSC device with strain gauge-based mass detection - First steps to realize a fully integrated DSC/TGA device
Sensors and Actuators A: Physical, **241**, 145-151 (2016), doi: 10.1016/j.sna.2016.02.011

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

Platform to develop exhaust gas sensors manufactured by glass-solder-supported joining of sintered yttria-stabilized zirconia
Journal of Sensors and Sensor Systems, **5**, 25-32 (2016), doi: 10.5194/jsss-5-25-2016

D. Ortolino, J. Kita, K. Beart, R. Wurm, S. Kleinewig, A. Pletsch, R. Moos:

Failure of electrical vias manufactured in thick-film technology when loaded with short high current pulses
Microelectronics Reliability, **56**, 121-128 (2016), doi: 10.1016/j.microrel.2015.10.011

I. Pricha, W. Rossner, R. Moos:

Layered Ceramic Phosphors Based on CaAlSiN₃:Eu and YAG:Ce for White Light-Emitting Diodes
Journal of the American Ceramic Society, **99**, 211-217 (2016), doi: 10.1111/jace.13948

Year 2016

T. Simons, P. Chen, D. Rauch, R. Moos, U. Simon:
Sensing catalytic conversion: Simultaneous DRIFT and impedance spectroscopy for *in situ* monitoring of NH₃-SCR on zeolites
Sensors and Actuators B: Chemical, **224**, 492-499 (2016), doi: 10.1016/j.snb.2015.10.069

Book Contributions

R. Moos:
Mikrowellengestützte Systeme zur Zustandserkennung von Abgaskatalysatoren und Abgasfiltern im Überblick
In: T. Tille (Hrsg.), *Automobil-Sensorik - Ausgewählte Sensorprinzipien und deren automobiler Anwendung*, Springer-Verlag, Heidelberg (2016), p. 115-132, ISBN 978-3-662-48943-7 (gedruckt), ISBN 978-3-662-48944-4 (online), doi: 10.1007/978-3-662-48944-4_6

P. Fuierer, K. Ring, J. Exner, R. Moos:
BiCu(Ti)VOX as a Low/Intermediate Temperature SOFC Electrolyte: Another Look
In: T. Pfeifer, J. Matyáš, P. Balaya, D. Singh, J. Wei (Eds.): *Ceramics for Energy Conversion, Storage, and Distribution Systems: Ceramic Transactions*, Volume 255, John Wiley & Sons, Inc., Hoboken, New Jersey, USA, (2016), p. 29-40, ISBN: 978-1-119-23448-7 (print), ISSN: 1042-1122, doi: 10.1002/9781119234531.ch3

Doctoral Theses

S. Fischer:
Neuartiges Sensorprinzip basierend auf einer Spannungs-Puls-Methode zur Detektion von Stickoxiden an Zirkondioxid
(Novel zirconia sensor principle based on a voltage pulse method to detect nitrogen oxides)
In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 17, Shaker-Verlag, Aachen (2016), ISBN: 978-3-8440-4478-2

A. Groß:
Einfluss von NO_x auf die elektrische Leitfähigkeit von NO_x-Speichermaterialien und die Anwendung dieser Materialien für neuartige NO_x-Dosimeter
(The effect of NO_x on the electrical conductivity of NO_x storage materials and the application of these materials for novel NO_x dosimeters)
In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 16, Shaker-Verlag, Aachen (2016), ISBN: 978-3-8440-4217-7

W. Missal:
Miniaturisiertes Dynamisches Differenzkalorimeter in Mehrlagenkeramiktechnologie
(Miniaturized dynamic differential scanning calorimeter manufactured in low temperature co-fired ceramic multilayer technology)
In: R. Moos, G. Fischerauer (Hrsg.), *Bayreuther Beiträge zur Sensorik und Messtechnik*, Bd. 15, Shaker-Verlag, Aachen (2016), ISBN: 978-3-8440-4182-8

Invited Talks

Deutsche Keramische Gesellschaft e.V. (DKG), Fachausschusses FA III Verfahrenstechnik, Erlangen, 30.11.-1.12.2016
J. Kita, A. Brandenburg, F. Schubert, R. Moos: *Unkonventionelle Verarbeitung keramischer Folien für sensorische Anwendungen*

4th International Conference on Real Driving Emissions, Berlin, Germany, 25.-27.10.2016
G. Hagen, R. Moos (tandem presentation): *OBM-PEMS made of chemical sensors – illusion or probable perspective?*

40th International Microelectronics and Packaging IMAPS Conference, Książ Castle, Poland, 25. - 28.09.2016
J. Kita: *Cold film deposition of ceramic functional materials using the Aerosol-Deposition-Method – an overview*

Institutskolloquium, College of Electronic Science and Engineering, Jilin University, Changchun, China, July 15th, 2016
R. Moos: *Chemical gas sensors with electrical readout: novel principles and novel materials*

Sensoren im Automobil, München, 5.4.-6.4.2016
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*

DGM Fortbildungsseminar Hochtemperatursensorik, Goslar, 25.2.-26.2.2016
R. Moos: *Gas- und Zustandssensoren für den Automobilbereich*

Published Conference Contributions

S. Denneler, P. Glosse, M. Oomen, T. Berthold, T. Stöcker, D. Hanft, R. Moos, S. Kauffmann-Weiss, B. Holzapfel, W. Häßler, M. Weiss, F. Weis:
Superconducting MgB₂ films prepared by the Aerosol Deposition Method
The 7th Tsukuba International Coating Symposium 2016, Tsukuba, Japan, 8.12.-9.12.2016

D. Hanft, R. Moos:
Solid-Electrolyte Garnet-type Thick-Films by Aerosol Deposition
Bunsen-Kolloquium Solid-State Batteries II - from Fundamentals to Application, 23.11.-25.11.2016, Frankfurt, Germany, p. 57-58

G. Hagen, R. Moos:
OBM-PEMS made of chemical sensors – illusion or probable perspective?
4th International Conference on Real Driving Emissions, Berlin, Germany, 25.-27.10.2016

Year 2016

D. Schönauer-Kamin, I. Marr, R. Moos:

Dosimeter-Type Sensor for sub-ppm NO_x Detection

COST Action TD1105 EuNetAir, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic, 5-7 October 2016

Final Meeting at PRAGUE (CZ) on New Sensing Technologies for Air Quality Monitoring, Prague, Czech Republic

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

MgB₂ superconducting films on Hastelloy prepared by Aerosol Deposition Method

Applied Superconductivity Conference 2016, ASC2016, Denver, Colorado, Sep. 4-9, 2016, 3MPo2B-02

M. Oomen, T. Arndt, P. van Hasselt, M. Frank, S. Denneler, P. Glosse, T. Stoecker, S. Kauffmann-Weiss, W. Haessler:

HTS Technology for High-Field Persistent-Current Magnet Systems

Applied Superconductivity Conference 2016, ASC2016, Denver, Colorado, Sep. 4-9, 2016, 5Lor1A-02

M. Bektas, T. Stöcker, G. Hagen, R. Moos:

Thermopower and conductivity of aerosol deposited BaFe_{1-x}Ta_xO_{3-δ} films

Nonstoichiometric Compounds VI, September 4-8, 2016, Santa Fe, New Mexico, USA

P. Glosse, S. Denneler, S. Kauffmann-Weiss, M. Oomen, R. Moos:

MgB₂ superconducting films prepared by the aerosol deposition method

6th International Congress on Ceramics, 21.-25.8.2016, Dresden, Germany, S. 134

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

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

6th International Congress on Ceramics, 21.-25.8.2016, Dresden, Germany, S. 290

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

NO_x detection by pulsed polarization of YSZ films prepared by aerosol deposition

6th International Congress on Ceramics, 21.-25.8.2016, Dresden, Germany, S. 300

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

Thermoelectric properties of copper based oxide materials processed with the novel aerosol deposition method

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

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

Soot Sensing: Modelling and Real Gas Test of a Capacitive Approach

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, 3.5.7

I. Marr, R. Moos:

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

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, 5.2.2

T. Ritter, G. Hagen, J. Kita, F. Schubert, S. Wiegärtner, R. Moos:

Self-heated Direct Conversion Sensor for Automotive Catalysts Manufactured in HTCC Technology

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, 5.2.4

D. Schönauer-Kamin, I. Marr, M. Zehentbauer, C. Zängle, R. Moos:

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

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, 5.2.5

D. Schönauer-Kamin, S. Fischer, J. Kita, R. Moos:

Temperature Independent Resistive Oxygen Sensors on Flexible Steel substrates

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, P1.4.8

G. Hagen, C. Spannauer, M. Feulner, J. Kita, A. Müller, D. Brüggemann, R. Moos:

Conductometric Soot Sensors: Influence of Voltage and Temperature on the Soot Deposition

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, P2.3.2

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

Modelling of a Temperature Modulated Thermoelectric Hydrocarbon Gas Sensor

The 16th International Meeting on Chemical Sensors, IMCS 16, Jeju, Korea, 10th - 13th July 2016, P2.4.2

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

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

16th International Congress on Catalysis (ICC 16), July 3-8, 2016, Beijing, China, OD01

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

6th Baltic Electrochemistry Conference, 15th - 17th June, 2016, Helsinki, Finland, p. 60

M. Hämmerle, K. Hilgert, R. Moos:

Year 2016

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

Biosensors 2016, 26th Anniversary World Congress on Biosensors, May 25.-27., 2016, Gothenburg, Sweden, P3.001

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

Optimierung eines neuentwickelten Sensorkopfes für ein Tian-Calvet-Kalorimeter

Sensoren und Messsysteme 2016, 10.5.-11.5.2016, Nürnberg, p. 50-52, doi: 10.5162/sensoren2016/1.2.2

S. Wiegärtner, G. Hagen, J. Kita, D. Schönauer-Kamin, W. Reitmeier, K. Burger, P. Grass, M. Kaspar, H.-P. Rabl, A. Prince, P. Weigand, R. Moos:

Thermoelektrischer Kohlenwasserstoffsensoren in Dickschichttechnik mit Pt|PtRh Thermopile zur On-Board-Diagnose eines Diesel-Oxidations-Katalysators

Sensoren und Messsysteme 2016, 10.5.-11.5.2016, Nürnberg, p. 126-129, doi: 10.5162/sensoren2016/2.2.3

G. Hagen, R. Werner, M. Feulner, A. Müller, R. Moos:

Grundlegende Betrachtungen zu kapazitiven Rußsensoren

Sensoren und Messsysteme 2016, 10.5.-11.5.2016, Nürnberg, p. 173-176, doi: 10.5162/sensoren2016/3.2.2

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

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

EMRS Spring Meeting 2016, May 2-6, 2016, Lille, France X.XI.7

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

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

IMAPS/ACerS 12th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2016), Denver, April 19-21, 2016, p. 19-23, doi: 10.4071/2016CICMT-TP1A2

J. Kita, S. Wiegärtner, A. Prince, P. Weigand, R. Moos:

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

IMAPS/ACerS 12th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2016), Denver, April 19-21, 2016, p. 53-57, doi: 10.4071/2016CICMT-TP1B1

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

91. DKG Jahrestagung / Symposium Hochleistungskeramik 2016, Freiberg, 7.3.-9.3.2016, p. 139

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

Year 2015

Peer Reviewed Journals

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

Journal of Sensors and Sensor Systems, **4**, 321-329 (2015), doi: 10.5194/jsss-4-321-2015

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 Homogenously 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

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

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

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

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

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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

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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 DeNOx-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

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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. Fuierer, 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. Fuierer, 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. Fuierer, 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

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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 $\text{BaFe}_{0.7}\text{Ta}_{0.3}\text{O}_{3-\delta}$ 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. Brey, R. Moos:
 $\text{BaFe}_{1-x}\text{Ta}_x\text{O}_{3-\delta}$ - 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

A. Brandenburg, E. Wappler, J. Kita, R. Moos:
Influence of the temperature distribution on the thermal resolution of a miniaturized ceramic differential scanning calorimeter
Thermal Analysis and Calorimetry in Industry and Research - 40 Years of GEFTA, Berlin, Germany, September 16 - 19, 2014, p. P6

G. Hagen, A. Müller, M. Feulner, A. Schott, C. Zöllner, D. Brüggemann, R. Moos:
Determination of the soot mass by conductometric soot sensors
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, A4P-F15, Procedia Engineering, 87, 244-247 (2014), doi: 10.1016/j.proeng.2014.11.646

J. Kita, A. Brandenburg, R. Moos:
FEM-based modeling of the temperature distribution influence on melting process in ceramic differential micro-calorimeter
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, A4P-H05 Procedia Engineering, 87, 412-415 (2014), doi: 10.1016/j.proeng.2014.11.277

S. Wiegärtner, G. Hagen, J. Kita, D. Schönauer-Kamin, W. Reitmeier, M. Hien, P. Grass, R. Moos:
Thermoelectric Hydrocarbon Sensor in Thick-film Technology for On-Board-Diagnostics of a Diesel Oxidation Catalyst
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, B1L-A05 Procedia Engineering, 87, 616-619 (2014), doi: 10.1016/j.proeng.2014.11.564

S. Fischer, R. Pohle, E. Magori, M. Fleischer, R. Moos:
Detection of NO by pulsed polarization technique using Pt interdigital electrodes on yttria-stabilized zirconia
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, B1L-A06 Procedia Engineering, 87, 620-623 (2014), doi: 10.1016/j.proeng.2014.11.565

S. Wiegärtner, J. Kita, G. Hagen, C. Schmaus, A. Kießig, E. Glaser, A. Bolz, R. Moos:
Development and application of a fast solid-state potentiometric CO₂-Sensor in thick-film technology
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, B4P-F10 Procedia Engineering, 87, 1031-1034 (2014), doi: 10.1016/j.proeng.2014.11.337

Year 2014

J. Kita, F. Schubert, F. Rettig, A. Engelbrecht, A. Groß, R. Moos:

Ceramic Alumina Substrates for High-Temperature Gas Sensors – Implications for Applicability
Eurosensors XXVIII, September 7 - 10, 2014, Brescia, Italy, C2L-A04
Procedia Engineering, **87**, 1505-1508 (2014), doi: 10.1016/j.proeng.2014.11.584

Y. Zheng, U. Sauter, G. Oehler, M. Streeb, R. Moos:

Identification of Oxygen Exchange Mechanisms on Geometrically Defined Pt|YSZ Electrodes
65th Annual Meeting of the International Society of Electrochemistry, 31.8.-5.9.2014, Lausanne, Switzerland, p. s13-057

T. Stöcker, B. Plochmann, S. Lang, R. Rüger, R. Moos:

Materials for a novel thermoelectric generator with a high degree of design freedom
ICT2014: International Conference on Thermoelectrics, Nashville, USA, July 6-10, 2014, PC4-001

T. Stöcker, J. Exner, R. Moos:

Influence of oxygen on the thermoelectric properties of aerosol-deposited CuFeO₂
ICT2014: International Conference on Thermoelectrics, Nashville, USA, July 6-10, 2014, PA4-003

M. Feulner, R. Stöber, G. Fischerauer, R. Moos:

How the humidity of a DPF affects the microwave based soot load determination
18th ETH Conference on Combustion Generated Nanoparticles, June 22- 25, 2014, Zurich, Switzerland

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

Aerosol Co-Deposition of Bi₂O₃ and TiO₂ and in-situ formation of Bi₄Ti₃O₁₂
Electroceramics XIV, June 16-20, 2014, Bucharest, Romania, p. 357-358

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

Room temperature aerosol deposition process for dense ceramic coatings
Aerosol Technology 2014, 16.6.-18.6.2014, Karlsruhe, Germany, T240A04

T.N.H. Nguyen, S. Denneler, M. Ahlstedt, C.Schuh, R. Moos:

Fabrication and Characterization of Optical Ceramic Layers using the Aerosol Deposition Method
CIMTEC 13th International Ceramics Congress, June 8-13, 2014, Montecatini Terme, Italy, CI-1:L10

S. Wiegärtner, G. Hagen, J. Kita, D. Schönauer-Kamin, R. Moos, M. Hien, W. Reitmeier, P. Grass:

Thermoelektrischer Kohlenwasserstoffsensoren in Dickschichttechnik zur On-Board-Diagnose eines Diesel-Oxidations-Katalysators
Sensoren und Messsysteme 2014, 3.6.-4.6.2014, Nürnberg, ISBN 978-3-8007-3622-5

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

Optimierung eines LTCC-basierten miniaturisierten dynamischen Wärmestromdifferenzkalorimeters
Sensoren und Messsysteme 2014, 3.6.-4.6.2014, Nürnberg, ISBN 978-3-8007-3622-5

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

Resistive temperature independent oxygen and NO sensors of BaFe_{1-x}TaxO_{3-δ} produced by aerosol deposition method
E-MRS 2014 Spring Meeting, Lille, France, May 26-30, 2014, B.IX 2

I. Marr:

Gasdosimeter zur NO_x-Detektion
5. Doktorandentreffen der Gassensorik/Gasmesstechnik, 9.4.-10.4.2014, Aachen

M. Bektas:

Resistive temperature independent oxygen and NO sensors of BaFe_{1-x}TaxO_{3-δ} produced by aerosol deposition method
5. Doktorandentreffen der Gassensorik/Gasmesstechnik, 9.4.-10.4.2014, Aachen

R. Moos:

Überblick über den Stand der Abgassensorik
Sensoren im Automobil, 7.4.-8.4.2013, München, Germany, in: T. Tille et al.: Sensoren im Automobil V, expert Verlag 2014, p. 1 - 14, ISBN 978-3-8169-3207-9

R. Moos:

Mikrowellenbasierte Beladungserkennung von Abgasnachbehandlungssystemen – ein Überblick über den Stand der Entwicklung / *Microwave-based monitoring of exhaust gas aftertreatment systems – an overview* (in German and English)
Beiträge, 8. Internationales Forum Abgas- und Partikelemissionen / Proceedings, 8th International Exhaust Gas and Particulate Emissions Forum, Ludwigsburg, Germany, 1.-2.4.2014, ISBN 978-3-00-039634-2, p. 71-79

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

Detection of the ammonia loading of a zeolite SCR-catalyst by a radio frequency-based method
The 15th International Meeting on Chemical Sensors, IMCS 15, Buenos Aires, Argentina, 16th - 19th March 2014, M-SA-1-02

I. Marr, A. Groß, R. Moos:

Conductometric Gas Dosimeters for NO_x Sensing
The 15th International Meeting on Chemical Sensors, IMCS 15, Buenos Aires, Argentina, 16th - 19th March 2014, T-MCI-2-01

Year 2014

G. Hagen, K. Burger, S. Wiegärtner, D. Schönauer-Kamin, R. Moos:

A novel approach for catalyst OBD – Comparing directly the up- and downstream atmospheres of a catalyst using a special solid electrolyte mixed-potential setup

The 15th International Meeting on Chemical Sensors, IMCS 15, Buenos Aires, Argentina, 16th - 19th March 2014, M-MCII-2-01

S. Fischer, R. Moos, D. Schönauer-Kamin, R. Pohle, J. Janek, M. Fleischer:

Why can we detect selectively NO_x with Pt/YSZ by applying the pulsed polarization technique – a first model approach

The 15th International Meeting on Chemical Sensors, IMCS 15, Buenos Aires, Argentina, 16th - 19th March 2014, M-SA-1-02

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

A microwave-based method to monitor the ammonia loading of a vanadia doped tungsten-titania SCR catalyst

The 15th International Meeting on Chemical Sensors, IMCS 15, Buenos Aires, Argentina, 16th - 19th March 2014, MPS-T2-7

R. Moos, D. Rauch, T. Simons, U. Simon:

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

Doctoral Theses

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)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 4, Shaker-Verlag, Aachen (2014), ISBN: 978-3-8440-3033-4

P. Bartscherer:

Entwicklung einer elektrisch leitfähigen keramischen Funktionsschicht für Abgassensoren

(Development of a Conductive Ceramic Functional Layer for Exhaust Gas Sensors)

In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 11, Shaker-Verlag, Aachen (2014), ISBN: 978-3-8440-2912-3

Year 2013

Paper Awards

Best Paper Award 2013

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
Details about the award: *Sensors*, **13**, 2113-2116 (2013), doi: 10.3390/s130202113

Peer Reviewed Journals

S. Fischer, D. Schönauer-Kamin, R. Pohle, M. Fleischer, R. Moos:

NO Detection by Pulsed Polarization of Lambda Probes - Influence of the Reference Atmosphere
Sensors, **13**, 16051-16064 (2013), doi: 10.3390/s131216051

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

Development of a Miniaturized Ceramic Differential Calorimeter Device in LTCC Technology
Journal of Ceramic Science and Technology, **4**, 137-144 (2014), doi: 10.4416/JCST2013-00008

A. Brandenburg, J. Kita, A. Groß, R. Moos:

Novel tube-type LTCC transducers with buried heaters and inner interdigitated electrodes as a platform for gas sensing at various high temperatures
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22. Diskussionstagung Anorganisch-Technische Chemie, 28.2.-1.3. 2013, Frankfurt
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Direkte Bestimmung der Koksbeladung von Festbettkatalysatoren mit einem Mikrowellenmessverfahren
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Invited Talks

European Network on New Sensing Technologies for Air-Pollution Control and Environmental Sustainability - EuNetAir, Rome, Italy, 4 - 6 Dec. 2012
Daniela Schönauer-Kamin: *Examples of applications of SCR-catalyst materials for exhaust gas monitoring in Germany*

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R. Moos: *Overview of the status of the automotive catalyst state diagnosis using microwave-based techniques*

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Detection of coke loading on fixed bed catalyst by a contactless microwave-based method
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The influence of SO₂ and the thickness of the sensitive layer on the performance of the Integrating NO_x Sensor
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Non-aqueous synthesis of In₂O₃ nanoparticles and its NO₂ gas sensing properties
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In-Operation Monitoring of the Soot Load of Diesel Particulate Filters with a Microwave Method
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Sensing of NO, NO₂, and NH₃ with Zeolite-Based Impedimetric Gas Sensors
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1660-1663, doi: 10.5162/IMCS2012/P2.8.5

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The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1735-1736, doi: 10.5162/IMCS2012/P2.9.13

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In situ Katalysator-Charakterisierung mittels Hochfrequenzmesstechnik
45. Jahrestreffen Deutscher Katalytiker, Weimar, 14. - 16. März 2012

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Detection of NO_x and NH₃ by an impedimetric sensor based on Fe-ZSM-5 and Fe-SAPO-5
24. Deutsche Zeolith-Tagung, Magdeburg, 7.-9.3.2012, p. 275-276

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Sensors and Catalysts in Automotive Exhaust Gas Aftertreatment - an Overview on recent developments and research trends
Abstracts of the 36th International Conference on Advanced Ceramics and Composites, Daytona Beach, Florida, January 22-27, 2012, p. 146

Doctoral Theses

U. Röder-Roith:

Elektrochemische Entstickung von Abgasen und direkte thermoelektrische Gassensoren: Beispiele für neuartige Anwendungen von Feststoff-Ionenleitern
(Electrochemical Removal of NO_x from Exhausts and Direct Thermoelectric Gas Sensors: Examples for Novel Applications of Solid Ion Conductors)
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S. Reiß:

Direkte Zustandssensorik von Automobilabgaskatalysatoren
(Direct diagnosis of automotive exhaust gas catalysts)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 9, Shaker-Verlag, Aachen (2012), ISBN: 978-3-8440-0841-8

S. Denneler:

Piezoelektrische Vielschichtaktoren mit kupferbasierten Innenelektroden
(Piezoelectric multilayer actuators with copper-based internal electrodes)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 2, Shaker-Verlag, Aachen (2012), ISBN: 978-3-8440-0747-3, doi: 10.2370/9783844007473

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- 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
Sensors and Actuators A: Physical, **172**, 21-26 (2011), doi: 10.1016/j.sna.2011.01.025
- N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos:
Planar potentiometric SO₂ gas sensor for high temperatures using NASICON electrolyte combined with V₂O₅/WO₃/TiO₂ + Au or Pt electrode
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- P. Fremerey, S. Reiß, A. Geupel, G. Fischerauer, R. Moos:
Determination of the NO_x Loading of an Automotive Lean NO_x Trap by Directly Monitoring the Electrical Properties of the Catalyst Material Itself
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Initial tests to detect quantitatively the coke loading of reforming catalysts by a contactless microwave method
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- I. Marr, S. Reiß, G. Hagen, R. Moos:
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Analysis of volatile alcohols in apple juices by an electrochemical biosensor measuring in the headspace above the liquid
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Investigation of the Electrode Effects in Mixed Potential Type Ammonia Exhaust Gas Sensors
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Perovskite-Type Proton Conductor for Novel Direct Ionic Thermoelectric Hydrogen Sensor
Solid State Ionics, **192**, 101-104 (2011), doi: 10.1016/j.ssi.2010.05.044
- D. Ortolino, J. Kita, R. Wurm, E. Blum, K. Beart, R. Moos:
Investigation of the short-time high-current behavior of vias manufactured in hybrid thick-film technology
Microelectronics Reliability, **34**, 1257-263 (2011), doi: 10.1016/j.microrel.2011.02.025
- P.A. Fuierer, R. Maier, U. Röder-Roith, R. Moos:
Processing Issues Related to the Bi-dimensional Ionic Conductivity of BIMEVOX Ceramics
Journal of Materials Science, **46**, 5447-545 (2011), doi: 10.1007/s10853-011-5486-8
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Vanadia doped tungsten-titania SCR catalysts as functional materials for exhaust gas sensor applications
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Monitoring the ammonia loading of zeolite-based ammonia SCR catalysts by a microwave method
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- R. Moos, N. Izu, F. Rettig, S. Reiß, W. Shin, I. Matsubara:
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- G. Hagen, I. Marr, R. Moos:
Potentiometric CO₂ gas sensor based on zeolites
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Application of V₂O₅/WO₃/TiO₂ for resistive-type SO₂ sensors
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- S. Reiß, M. Wedemann, M. Spörl, G. Fischerauer, R. Moos:
Effects of H₂O, CO₂, CO, and Flow Rates on the RF-Based Monitoring of Three-Way Catalysts
Sensor Letters, **9**, 316-320 (2011), doi: 10.1166/sl.2011.1472
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Integrating NO_x Sensor for Automotive Exhausts - a Novel Concept

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A. Fischerauer, G. Fischerauer, G. Hagen, R. Moos:
Integrated impedance based hydro-carbon gas sensors with Na-zeolite/Cr₂O₃ thin-film interfaces: From physical modeling to devices
physica status solidi (a), **208**, 404-415 (2011), doi: 10.1002/pssa.201026606

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Combination of Wirebound and Microwave Measurements for In Situ Characterization of Automotive Three-Way Catalysts
IEEE Sensors Journal **11**, 434-438 (2011), doi: 10.1109/JSEN.2010.2058798

Invited Talks

Kolloquium Chemie- und Bioingenieurwesen der Technischen Fakultät der Universität Erlangen, 15.12.2011, Erlangen
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*

Int'l AIST Workshop, Nagoya, Japan, Nov., 18th, 2011
R. Moos: *High Temperature Gas Sensors - Novel Approaches from the Bayreuth FM-Lab*

3rd International Workshop "Novel Developments and Applications in Sensor Technology", 14.-16.9. 2011, Coburg.
R. Moos: *Sensors in the Automotive Exhaust - Status and Future Trends*

4. Internationales CTI Forum Emissionsrelevante Sensorik, Nürnberg, 12.-13.7.2011
R. Moos: *Catalyst Diagnosis Using Microwaves / Katalysatordiagnose mit Mikrowellen*

Sensor 2011, 15th International Conference on Sensors and Measurement Science, Nürnberg, 7.-9.6.2011
N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos: *Potential-type sulfur dioxide planar gas sensor for high temperature application*

Published Conference Contributions

S. Wiegärtner, G. Hagen, J. Kita, M. Seufert, E. Glaser, K. Grimm, C. Schmaus, A. Kießig, A. Bolz, R. Moos:
Potentiometrischer CO₂-Sensor in Dickschichttechnologie zur Atemgasanalyse
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 343 - 346, doi: 10.5162/10dss2011/17.2

S. Reiß, C. Bodensteiner, C. Hitzke, T. Lorösch, D. Schönauer, R. Moos:
Kontaktlose hochfrequenzbasierte Qualitätsanalyse von Harnstoff-Wasser-Lösungen für SCR-Anwendungen
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 257 - 260, doi: 10.5162/10dss2011/12.15

G. Beulertz, A. Geupel, I. Marr, D.J. Kubinski, J.H. Visser R. Moos:
Das akkumulierende Messprinzip in der Gassensorik, vom Konzentrations- zum mengenintegrierenden Verhalten
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 203 - 206, doi: 10.5162/10dss2011/12.2

G. Hagen, A. Piontkowski, A. Müller, D. Brüggemann, R. Moos:
Ortsaufgelöste in-situ Beladungsdiagnose von Diesel-Partikelfiltern
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 199 - 202, doi: 10.5162/10dss2011/12.1

S. Fischer, R. Moos, R. Pohle, E. Magori, M. Fleischer, B. Farber:
NO_x - Detektion an YSZ-Sensoren mittels Spannungspulsen
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 185 - 188, doi: 10.5162/10dss2011/11.4

I. Marr, G. Hagen, R. Moos:
Potentiometrischer Sensor für reduzierende Gase auf Basis von Zeolithen
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 181 - 184, doi: 10.5162/10dss2011/11.3

D. Schönauer-Kamin, I. Sichert, D. Forberg, M. Schwidder, R. Moos:
Impedimetrische Gassensoren auf Basis von Fe-Zeolithen und Fe-SAPO zur NH₃- oder NO_x-Detektion
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 177 - 180, doi: 10.5162/10dss2011/11.2

P. Fremerey, A. Düsel, R. Moos, A. Jess:
Sensorbasierte direkte Bestimmung von Schwefeldepositen auf festen Katalysatoren – erste Versuche
G. Gerlach, A. Schütze (Hrsg.), *10. Dresdner Sensor-Symposium*, 5.-7. Dezember 2011, Dresden, p. 159 - 162, doi: 10.5162/10dss2011/10.2

S. Fischer, S. Achmann, D. Schönauer, R. Moos:
Detection of the Dynamics of Lambda Probes by Cyclic Voltammetry
9th Asian Conference on Chemical Sensors, 14-17 November 2011, Taipei, Taiwan, p. 169

Year 2011

- S. Fischer, R. Pohle, B. Farber, M. Fleischer, R. Moos:
Pulsed Polarization of YSZ-Sensors for Gas Detection
9th Asian Conference on Chemical Sensors, 14-17 November 2011, Taipei, Taiwan, p. 168
- G. Hagen, A. Piontkowski, A. Müller, D. Brüggemann, R. Moos:
Locally resolved in-situ detection of the soot loading in diesel particulate filters
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- S. Wiegärtner, G. Hagen, J. Kita, R. Moos, M. Seufert, K. Grimm, A. Bolz, C. Schmaus, A. Kießig:
Solid-state potentiometric CO₂-sensor in thick film technology for breath analysis
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- J. Kita, R. Moos, W. Missal, T. Bartnitzek, F. Bechtold, F. Gora, A. Kipka, D. Schabbel, B. Pawlowski, E. Wappler:
Einweg-DSC-Chip in der LTCC-Technologie
IMAPS Herbstkonferenz 2011, München, 18.10.-19.10.2011
- A. Düsel, P. Fremerey, N. Müller, R. Moos, A. Jess:
Direct detection of sulfur deposits on fixed bed catalysts by electrical sensors
8th European Congress of Chemical Engineering, September 25-29, 2011, Berlin, Germany, P 19.16
- S.J. Aschauer, F. Pöhlmann, L. Schilder, D. Schönauer, R. Moos, A. Jess:
Solubility of 1-olefins, 2-olefins, n-paraffins and iso-paraffins in Lewis acidic chloroaluminat ionic liquids (BMIM-AlCl₃)
8th European Congress of Chemical Engineering, September 25-29, 2011, Berlin, Germany, P 17.05
- J. Kita, F. Leweling, R. Moos:
Cylindrical LTCC Substrates for Gas Sensors - First Steps
35th International Microelectronics and Packaging IMAPS Conference, Gdansk, Poland 21. - 24.09.2011, p. 139-142
- D. Ortolino, J. Kita, R. Wurm, E. Blum, K. Beart, R. Moos:
Investigation of non-symmetric contacting and voids in electrical vias produced in hybrid thick-film technology
35th International Microelectronics and Packaging IMAPS Conference, Gdansk, Poland 21. - 24.09.2011, p. 289-292
- G. Beulertz, A. Geupel, R. Moos, D.J. Kubinski, J.H. Visser:
Accumulating gas sensor principle - how to come from concentration integration to real amount measurements
EuroSensors XXV, September 4 - 7, 2011, Athens, Greece, *Procedia Engineering*, **25**, 1109-1112 (2011), doi: 10.1016/j.proeng.2011.12.273
- A. Geupel, S.R. Bishop, D.J. Yang, H.L. Tuller, R. Moos:
The electrical properties of carbonate-based NO_x-storage materials for in-situ characterization of catalyst systems
Solid State Ionics 18, July 3-8, 2011, Warsaw, Poland, Oral abstracts, p. 41
- S. Fischer, R. Pohle, M. Fleischer, R. Moos:
Cyclic Voltammetry of Pt Electrodes on YSZ
Solid State Ionics 18, July 3-8, 2011, Warsaw, Poland, Oral abstracts, p. 248
- S. Fischer, R. Pohle, M. Fleischer, R. Moos:
Pulsed Polarisation of Pt Electrodes on YSZ
Solid State Ionics 18, July 3-8, 2011, Warsaw, Poland, Poster abstracts, p. 256
- A. Geupel, G. Beulertz, D.J. Kubinski, J.H. Visser, R. Moos:
A novel sensor principle for the detection of low levels of NO and NO₂
Solid State Ionics 18, July 3-8, 2011, Warsaw, Poland, Poster abstracts, p. 260
- N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos:
Potential-type sulfur dioxide planar gas sensor for high temperature application
Sensor 2011, Proceedings of the 15th International Conference on Sensors and Measurement Science, 7.-9. June 2011, Nürnberg, p. 538-542, doi: 10.5162/sensor11/d2.1
- S. Fischer, R. Pohle, U. Guth, B. Farber, M. Fleischer, R. Moos:
Pulsed-potential method for NO_x detection using standard zirconia-based lambda sensors
Sensor 2011, Proceedings of the 15th International Conference on Sensors and Measurement Science, 7.-9. June 2011, Nürnberg, p. 568-573, doi: 10.5162/sensor11/d3.4
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- A. Geupel, R. Moos, D.J. Kubinski, J.H. Visser:
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

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

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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)

Book Contributions

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

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Sensors in the automotive exhaust – technology, status and future trends

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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
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S. Achmann, M. Hämmerle, R. Moos:
Amperometric Enzyme-based Gas Sensor for Formaldehyde: Impact of Possible Interferences
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Doctoral Theses

F. Rettig:
Direkte thermoelektrische Gassensoren (Direct thermoelectric gas sensors)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 3, Shaker-Verlag, Aachen (2008), ISBN: 978-3-8322-7631-7

T. Richter:
Piezoelektrische Einkristalle und texturierte Piezokeramik im System Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃-PbZrO₃
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 1, Shaker-Verlag, Aachen (2008), ISBN: 978-3-8322-7128-2

Invited Talks

44th International Conference on Microelectronics, Devices and Materials, Fiesca - Slovenia, 17.-19. September 2008
J. Kita, R. Moos: *Development of LTCC-Materials and Their Applications – an Overview*

The 12th International Meeting on Chemical Sensors, IMCS 12, Columbus, Ohio, 13th-16th July 2008
F. Rettig, R. Moos: *Direct Thermoelectric Gas Sensors - An Overview on a Very Promising Principle*

2nd International cti-Forum, Frankfurt, 1.4.-2.4.2008
R. Moos: *Neue Trends in der Abgassensorik aus Forschungssicht / New trends in exhaust gas technology from a research point of view (with simultaneous translation)*

5. Internationales Forum Abgas- und Partikelemissionen, Ludwigsburg, 19.-20.2.2008
R. Moos: *Abgassensoren für NO_x-Speicherkatalysatoren und Ammoniak-SCR-Systeme / Exhaust Gas Sensors for NO_x Storage Catalysts and Ammonia-SCR Systems (with simultaneous translation)*

Miscellaneous

R. Moos:
Klassische und neue Abgasnachbehandlungsverfahren für das Automobil - vom geregelten Drei-Wege-Katalysator zum Harnstoff-SCR-Verfahren.
Ingenieurwissenschaftliches Kolloquium, Universität des Saarlandes, Saarbrücken, 12.2.2008

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Published Conference Contributions

T. Röder, U. Röder, F. Rettig, K. Sahner, R. Moos, J. Janek:

A „Real“ Direct Thermoelectric Gas Oxygen Sensor Based on YSZ - First Results of an Entropy Sensor

GdCh-Jahrestagung 2008 der Fachgruppe Angewandte Elektrochemie, "Electrochemistry: Crossing Boundaries ", 6. - 8.10.2008, Gießen

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

Monitoring of Electrochemical Processes by Microwave Methods

IEEE MTT-S International Mini-Symposium on Electromagnetic and Network Theory and their Microwave Technology Applications, Munich, 8.-9. Oct. 2008, in honor of Prof. M. Russer

U. Röder, K. Sahner, R. Moos:

Elektrochemische Reduktion von Stickoxiden im Abgas durch Kombination von Ionenleitern mit NO_x-Speicher-Materialien

14. Vortragsstagung der GdCh-Fachgruppe Festkörperchemie und Materialforschung, Bayreuth, 24.-26.9.2008, B24, und *Z. Anorg. Allg. Chem.* 2008, 634, p. 2071, doi: 10.1002/zaac.200870126

D. Schönauer, I. Sichert, R. Moos:

Zeolithe zur Ammoniakdetektion in Abgasen

14. Vortragsstagung der GdCh-Fachgruppe Festkörperchemie und Materialforschung, Bayreuth, 24.-26.9.2008, B36, und *Z. Anorg. Allg. Chem.* 2008, 634, p. 2077, doi: 10.1002/zaac.200870138

J. Kita, R. Moos:

Development of LTCC-Materials and Their Applications – an Overview

Proceedings 44th International Conference on Microelectronics, Devices and Materials, Fiesa, Slovenia, 17.-19. 9.2008, ISBN 978-961-91023-7-4, p. 3-10

D. Schönauer, R. Moos, M. Fleischer, K. Wiesner:

Selective Mixed Potential Ammonia Exhaust Gas Sensor

Proceedings Eurosensors XXII, Dresden, 7.-10.9.2008, ISBN 978-3-00-025218-1, T3-04.25, p. 370

U. Röder, F. Rettig, K. Sahner, T. Röder, J. Janek, R. Moos:

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S. Reiß, G. Hagen, R. Moos:

Zeolite Based Gas Sensor Device for Hydrocarbon Detection

Proceedings Eurosensors XXII, Dresden, 7.-10.9.2008, ISBN 978-3-00-025218-1, T3-04.34, p. 379

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

Three-Way Catalyst Washcoat for Air-to-Fuel Ratio Sensing

Proceedings Eurosensors XXII, Dresden, 7.-10.9.2008, ISBN 978-3-00-025218-1, M2-11.03, p. 175

N. Müller, A. Jess, R. Moos:

Direct Sensing of Coke Deposits on Fixed Bed Catalysts

Proceedings Eurosensors XXII, Dresden, 7.-10.9.2008, ISBN 978-3-00-025218-1, T4C/6, p. 450

D. Biskupski, K. Wiesner, R. Moos, M. Fleischer:

Automotive Exhaust Gas Sensor Based on a Combination of Electrochemical Pumping Cell and Resistive Gas Sensor

Proceedings Eurosensors XXII, Dresden, 7.-10.9.2008, ISBN 978-3-00-025218-1, T4C/5, p. 449

M. Spörl, M. Wedemann, G. Hagen, A. Gollwitzer, R. Moos, G. Fischerauer:

In-Situ Monitoring of Automotive Catalysts by the Cavity-Perturbation Method

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An Investigation of Thick-film Materials for Temperature and Pressure Sensors on Self-constrained LTCC Substrates

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J. Kita, E. Gollner, R. Moos:

Laser Processing of Materials for MCM-C Applications

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M. Bąk, M. Dudek, A. Dziedzic, J. Kita:

Chosen electrical and stability properties of laser-shaped thick-film and LTCC inductors

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Novel NO_x reduction method combining NO_x storing materials with electrochemical reduction of nitrogen oxides

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

Influence of sintering conditions on doped PZT ceramics for base-metal electrode multilayer actuators
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U. Röder, K. Sahner, R. Moos:

Electrochemical reduction of nitrogen oxides combining ion conducting ceramics with nitrogen oxide storing materials
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Potentiometric CO₂ Sensor In Thick Film Technology
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Selective Mixed Potential Ammonia Exhaust Gas Sensor
The 12th International Meeting on Chemical Sensors, IMCS 12, Columbus, Ohio, 13th -16th July 2008, SCEA 7

M. Hämmerle, S. Achmann, R. Moos:

Diffusion Membranes for Gas Phase Biosensor Devices
The 12th International Meeting on Chemical Sensors, IMCS 12, Columbus, Ohio, 13th -16th July 2008, CBST 78

M. Hämmerle, S. Achmann, R. Moos:

Direct monitoring of organic vapours with amperometric enzyme gas sensors
The Tenth World Congress on Biosensors, Shanghai, 14-16 May 2008, P2.59

S. A. Meiss, S.O. Steinmüller, M. Rohnke, F. Rettig, R. Moos, J. Janek

Elektroden und Sonden aus Yttrium-stabilisiertem Zirkondioxid in Kontakt mit sauerstoffhaltigen Plasmen
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R. Moos, M. Spörl, G. Hagen, A. Gollwitzer, M. Wedemann, G. Fischerauer:

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Four-Wire Impedance Spectroscopy on Planar Zeolite/Chromium Oxide Based Hydrocarbon Gas Sensors
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Synthesis, Structure, and Electric Conductivity of Ferrous Tainiolite and its Oxidative Conversion into Coarse-Grained Swellable Smectite
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Modeling of hydrocarbon sensors based on p-type semiconducting perovskites
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C. Zimmermann:

Neuartiger Sensor zur Bestimmung des Zustandes eines NO_x-Speicher-katalysators (Novel sensor for determining the state of a NO_x storage catalyst)
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Invited Talks

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R. Moos: *Recent developments in the field of automotive exhaust sensing*

XXXI International Conference of International Microelectronics and Packaging Society, Krasiczyn, Poland, 23.-26.9.2007

R. Moos, J. Kita: *Ceramic Multilayer Gas Sensors - an Overview*

31st Intl. Conference on Advanced Ceramics and Composites, Cocoa Beach, Florida, 21.-26.1.2007

R. Moos: *Recent Developments in the Field of Ceramic Automotive Exhaust Gas Sensors*

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D. Biskupski, R. Moos, K. Wiesner, M. Fleischer:

Elektrochemische Zelle mit integriertem Kohlenwasserstoffsensoren für das Automobilabgas
G. Gerlach, P. Hauptmann (Hrsg.), *8. Dresdner Sensor-Symposium*, 10.-12. Dezember 2007, Dresden, p. 145 -148

S. Achmann, J. Kita, M. Hämmerle, R. Moos:

Multilayer LTCC-Biosensor zur direkten Detektion der Formaldehydkonzentration aus der Gasphase
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G. Gerlach, P. Hauptmann (Hrsg.), *8. Dresdner Sensor-Symposium*, 10.-12. Dezember 2007, Dresden, p. 11 -14

J. Kita, A. Schulz, K. Sahner, R. Merkle, J. Maier:

Sauerstoffunabhängiger potentiometrischer CO₂-Sensor in Dickschichttechnik
G. Gerlach, P. Hauptmann (Hrsg.), *8. Dresdner Sensor-Symposium*, 10.-12. Dezember 2007, Dresden, p. 295 -298

F. Rettig, F. Thalmayr, R. Moos:

Schnelle Temperaturmodulation von direkten thermoelektrischen Gassensoren
G. Gerlach, P. Hauptmann (Hrsg.), *8. Dresdner Sensor-Symposium*, 10.-12. Dezember 2007, Dresden, p. 153 -156

A. Fischerauer, A. Gollwitzer, F. Thalmayr, G. Hagen, R. Moos, G. Fischerauer:

Modellierung des Impedanzspektrums eines Kohlenwasserstoffsensors mit einer Zeolith-Cr₂O₃-Grenzfläche
G. Gerlach, P. Hauptmann (Hrsg.), *8. Dresdner Sensor-Symposium*, 10.-12. Dezember 2007, Dresden, p. 165 -168

K. Sahner, R. Moos:

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P-Type Semiconducting Hydrocarbon Sensors: Mechanistic Model

The 7th East Asian Conference on Chemical Sensors (EACCS 7), Singapore, 3.-5.12.2007, p. 80

R. Moos:

Recent developments in the field of automotive exhaust sensing

The 7th East Asian Conference on Chemical Sensors (EACCS 7), Singapore, 3.-5.12.2007, p. 26

D. Biskupski, K. Wiesner, R. Moos, M. Fleischer:

Hydrocarbon sensor for automotive exhaust gases with integrated electrochemical cell to adjust oxygen partial pressure

The 7th East Asian Conference on Chemical Sensors (EACCS 7), Singapore, 3.-5.12.2007, p. 27

A. Fischerauer, A. Gollwitzer, F. Thalmayr, G. Hagen, R. Moos, G. Fischerauer:

An initial physics-based model for the impedance spectrum of a hydrocarbon sensor with a zeolite/Cr₂O₃ interface

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S.A. Meiss, M. Rohnke, F. Rettig, R. Moos, J. Janek:

Ion-Conducting Probes for Low Temperature Plasmas

6. Doktoranden-Workshop Physikalische Festkörperchemie, 8.-9. Oktober 2007, Braunschweig, Germany

R. Moos, J. Kita:

Ceramic Multilayer Gas Sensors - an Overview

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E. Miś, A. Dziedzic, T. Piasecki, J. Kita, R. Moos:

Thick-Film and LTCC Microcapacitors

XXXI Int'l Conference of International Microelectronics and Packaging Society, Krasiczyn, Poland, 23.-26.9.2007, ISBN 978-83-917701-4-6, p. 401-404

K. Sahner, R. Moos:

Mechanistic model of p-type semiconducting hydrocarbon sensors

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S.A. Meiss, M. Rohnke, F. Rettig, R. Moos, J. Janek:

Ion-Conducting Probes for Low Temperature Plasmas

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S.A. Meiss, S.O. Steinmüller, M. Rohnke, F. Rettig, R. Moos, J. Janek:

Ion-conducting electrodes and probes for low temperature plasmas

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A. Dubbe, R. Moos:

Material Influence on Characteristics of Zeolite Based Hydrocarbon Gas Sensor

Solid State Ionics 16, July 1-6, 2007, Shanghai, China, P 508

T. Richter, C. Schuh, S. Denneler, E. Suvaci, R. Moos:

Grain oriented PMN-PT and PMN-PZT

10th International Conference and Exhibition of the European Ceramic Society, June 17 - 21, 2007, Berlin

J. Kita, R. Moos:

Application of Metallo-organic Pastes on LTCC Substrates

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K. Sahner, R. Moos:

P-Type Semiconducting Hydrocarbon Sensors: Mechanistic Model

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A. Dubbe, R. Moos:

Zeolites as solid state ion-conducting materials in micro gas sensors

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Anwendung eines frequenzverdreifachten Nd:YAG Lasers zur Bearbeitung gebrannter Keramiken

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NAD-unabhängige Formaldehyddehydrogenase aus *H. zavarzinii*: Einsatz im Biosensor

5. Deutsches Biosensor Symposium 2007, Bochum, 18. - 21. März 2007, p. 65

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H⁺/Na⁺ ion equilibria of ZSM-5 with respect to surface composition

19. Deutsche Zeolith-Tagung, Leipzig, 7. -9. März 2007, p. 150-151

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Sensorik aktuell, Ausgabe II/2007, p.8-9

R. Moos:

Die Zeit des Drei-Wege-Katalysators ist vorbei

Produktion, Ausgabe 18, 3. Mai 2007, p. 16

R. Moos:

Bewährte und neue Abgasnachbehandlungsverfahren - vom geregelten Drei-Wege-Katalysator zum Harnstoff-SCR-Verfahren

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F. Rettig:

Oxidische Halbleiter für thermoelektrische Gassensoren: Simulation und Messungen

Festkörperseminar des Physikalisch-Chemischen Instituts, Justus-Liebig Universität Gießen, 6.3.2007

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Rare Metal Materials And Engineering, **35**, Suppl. 3, 447-451 (2006)

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Impedance Spectroscopy of Na⁺ conducting zeolite ZSM-5
Solid State Ionics, **177**, 2321-2323 (2006), doi: 10.1016/j.ssi.2006.04.006

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Magnetization in insulating phases of Ti⁴⁺ doped SrFeO_{3-δ}
J. Appl. Phys., **99**, 08S904 (2006), doi: 10.1063/1.2167050

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Cuprate-ferrate compositions for temperature independent resistive oxygen sensors
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Solid Electrolyte Hydrocarbon Gas Sensor Using Zeolite as the Sensitive Phase
Electrochemical and Solid-State Letters, **9**, H31-H34 (2006), doi: 10.1149/1.2181292

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Response kinetics of temperature independent resistive oxygen sensor formulations: a comparative study
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Invited Talks

Anwendungen der keramischen Mehrlagentechnologie in der Gassensorik - eine Übersicht.

R. Moos, J. Kita: *Materialica-Kongress „Von funktionskeramischen Materialien zu innovativen Produkten“*, München, 10.10.-11.10.2006

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R. Moos: *GdCh-Jahrestagung 2006 der Fachgruppe Angewandte Elektrochemie, "Festkörper-Elektrochemie und -Elektrolyte"*, 9. - 11.10.2006, Bayreuth

NH₃-Abgassensoren: Eine Übersicht über die neuesten Entwicklungen

R. Moos, D. Schönauer, M. Fleischer: *Sensoren im Automobil*, München, 12.9.-13.9.2006.

Potentiometric hydrocarbon gas sensing characteristics of Na⁺ ion conducting zeolite

A. Dubbe, R. Moos: *The 11th International Meeting on Chemical Sensors*, IMCS 11, Brescia, Italy, 16th-19th July 2006, TO 2.2.4

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G. Hagen, A. Dubbe, R. Moos:

Einfluss von Pt in Cr₂O₃ / Pt-ZSM-5 – Kohlenwasserstoff-Gassensoren

GdCh-Jahrestagung 2006 der Fachgruppe Angewandte Elektrochemie, "Festkörper-Elektrochemie und -Elektrolyte", 9. - 11.10.2006, Bayreuth, p. 50

A. Dubbe, R. Moos:

Untersuchungen zu Mechanismen von Kohlenwasserstoff-Gassensoren auf der Basis von ionenleitenden Zeolithen

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