

Year 2018

as of November 29, 2017

Peer Reviewed Journals (accepted, in press)

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, accepted

S.A. Müller, D. Degler, C. Feldmann, M. Türk, R. Moos, K. Fink, F. Studt, D. Gerthsen, N. Bârsan, J.-D. Grunwaldt:

Exploiting synergies in catalysis and gas sensing using noble metal-loaded oxide composites
ChemCatChem, in press, doi: 10.1002/cctc.201701545

U. Schadeck, K. Kyrgyzbaev, T. Gerdes, M. Willert-Porada, R. Moos:

Porous and non-porous micrometer-sized glass platelets as separators for lithium-ion batteries
Journal of Membrane Science, in press, doi: 10.1016/j.memsci.2017.10.061

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, in press, doi: 10.1142/S1793604717500734

Peer Reviewed Journals

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

Characterization of Nickel Manganite NTC thermistor films prepared by Aerosol Deposition at room temperature
Journal of the European Ceramic Society, **38**, 613-619 (2018), doi: 10.1016/j.jeurceramsoc.2017.09.005

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

Solid state mixed potential sensors as direct conversion sensors for automotive catalysts
Sensors and Actuators B: Chemical, **255**, 3025-3032 (2018), doi: 10.1016/j.snb.2017.09.126

Year 2017

Peer Reviewed Journals

- M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:
Radio-Frequency-Controlled Urea Dosing for NH₃-SCR Catalysts: NH₃ Storage Influence to Catalyst Performance under Transient Conditions
Sensors, **17**, 2746 (2017), doi: 10.3390/s17122746
- A. Bogner, C. Steiner, S. Walter, J. Kita, G. Hagen, R. Moos:
Planar Microstrip Ring Resonators for Microwave-Based Gas Sensing: Design Aspects and Initial Transducers for Humidity and Ammonia Sensing
Sensors, **17**, 2422 (2017), doi: 10.3390/s17102422
- M. Dietrich, C. Steiner, G. Hagen, R. Moos:
Radio-Frequency-Based Urea Dosing Control for Diesel Engines with Ammonia SCR Catalysts
SAE International Journal of Engines, **10**, 1638-1645 (2017), doi: 10.4271/2017-01-0945
- M. Daab, P. Loch, W. Milius, D. Schönauer-Kamin, M. Schubert, A. Wunder, R. Moos, F.E Wagner, J. Breu:
Single-Crystal Structure and Electronic Conductivity of Melt Synthesized Fe-rich, near End-Member Ferro-Kinoshitalite
Zeitschrift für anorganische und allgemeine Chemie, **643**, 1661-1667, (2017) doi: 10.1002/zaac.201700265
- M.-L. Anke, M. Hämmerle, J. Gerchau, R. Moos, A. Jess:
Radio Frequency-Based in situ Determination of the Mass Loss of Supported Ionic Liquids
Chemical Engineering and Technology, **40**, 1660-1665 (2017), doi: 10.1002/ceat.201700190
- M. Schubert, M. Hahn, J. Exner, J. Kita, R. Moos:
Effect of substrate hardness and surface roughness on the film formation of aerosol-deposited ceramic films
Functional Materials Letters, **10**, 1750045 (2017), doi: 10.1142/S179360471750045X
- J. Exner, G. Albrecht, D. Schönauer-Kamin, J. Kita, R. Moos:
Pulsed Polarization-Based NO_x Sensors of YSZ Films Produced by the Aerosol Deposition Method and by Screen-Printing
Sensors, **17**, 1715 (2017), doi: 10.3390/s17081715
- M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:
Radio-Frequency-Based NH₃-Selective Catalytic Reduction Catalyst Control: Studies on Temperature Dependency and Humidity Influences
Sensors, **17**, 1615 (2017), doi: 10.3390/s17071615
- O. Isakin, R. Schneider, M. Ringl, O. Struck, T. Gerdes, M. Willert-Porada, R. Moos:
High-yield synthesis of ZnO nanoparticles homogeneously coated on exfoliated graphite and simplified method to determine the surface coverage
Surface and Coatings Technology, **325**, 445-453 (2017), doi: 10.1016/j.surfcoat.2017.07.002
- D. Hanft, J. Exner, R. Moos:
Thick-films of garnet-type lithium ion conductor prepared by the Aerosol Deposition Method: The role of morphology and annealing treatment on the ionic conductivity
Journal of Power Sources, **361**, 61-69 (2017), doi: 10.1016/j.jpowsour.2017.06.061
- T. Ritter, G. Hagen, J. Kita, S. Wiegärtner, F. Schubert, R. Moos:
Self-Heated HTCC-based Ceramic Disc for Mixed Potential Sensors and for Direct Conversion Sensors for Automotive Catalysts
Sensors and Actuators B: Chemical, **248**, 793-802 (2017), doi: 10.1016/j.snb.2016.11.079
- I. Marr, R. Moos:
Resistive NO_x dosimeter to detect very low NO_x concentrations – Proof-of-principle and comparison with classical sensing devices
Sensors and Actuators B: Chemical, **248**, 848-855 (2017), doi: 10.1016/j.snb.2016.12.112
- M. Schütt, M. Gallinger, R. Moos:
Particulate Filter Substrates with SCR-Functionality Manufactured by Co-extrusion of Ceramic Substrate and SCR Active Material
Topics in Catalysis, **60**, 204-208 (2017), doi: 10.1007/s11244-016-0598-7
- D. Rauch, M. Dietrich, T. Simons, U. Simon, A. Porch, R. Moos:
Microwave Cavity Perturbation Studies on H-form and Cu Ion-Exchanged SCR Catalyst Materials: Correlation of Ammonia Storage and Dielectric Properties
Topics in Catalysis, **60**, 243-249 (2017), doi: 10.1007/s11244-016-0605-z
- G. Hagen, N. Leupold, S. Wiegärtner, R. Moos:
Sensor Tool for Fast Catalyst Material Characterization
Topics in Catalysis, **60**, 312-317 (2017), doi: 10.1007/s11244-016-0617-8
- 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. Denneler, P. Glosse, T. Berthold, M. Oomen, T. Arndt, T. Stöcker, D. Hanft, R. Moos, M. Weiss, F. Weis, B. Holzapfel:
Superconducting properties of thick films on Hastelloy prepared by the Aerosol Deposition Method with ex-situ MgB₂ powder
IEEE Transactions on Applied Superconductivity, **27**, 6200904 (2017), doi: 10.1109/TASC.2017.2669479

Year 2017

M. Feulner, G. Hagen, K. Hottner, S. Redel, A. Müller, R. Moos:
Comparative Study of Different Methods for Soot Sensing and Filter Monitoring in Diesel Exhausts
Sensors, **17**, 400 (2017), doi: 10.3390/s17020400

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

Doctoral Theses

D. Rauch:
Mikrowellengestützte Untersuchung des NH₃-Speicherverhaltens von SCR-Katalysatormaterialien
(Microwave-based Characterization of the Ammonia Loading of SCR Catalysts Materials)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 20, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-5081-3

I. Marr:
Materialien für dosimeterartige Gassensoren zur Detektion im ppm- und Sub-ppm-Bereich
(Materials for dosimeter-type gas sensors for ppm- and sub-ppm-detection)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 19, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-5022-6

G. Beulertz:
Anwendung der hochfrequenzgestützten Zustandsdiagnose für Dreiwegekatalysatoren
(Application of the microwave-based state diagnosis for three way catalysts)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 18, Shaker-Verlag, Aachen (2017), ISBN: 978-3-8440-4988-6

Invited Talks

15. FAD-Konferenz: Herausforderung - Abgasnachbehandlung für Dieselmotoren, Radebeul bei Dresden, 8.-9.11.2017
R. Moos: *Regelung von Diesel-Abgasnachbehandlungssystemen mittels Hochfrequenztechnik - ein Überblick über den Stand der Entwicklung beim SCR-Katalysator und beim Diesel-Partikelfilter*

7. Sitzung des Arbeitskreises „Funktionskeramik“ des Gemeinschaftsausschusses Hochleistungskeramik von DGM und DKG, 19.10.2017
R. Moos: *Der keramische Abgassensor - vom einfachen Keramikteil zum komplexen Sensor mit hoher Funktionalität*

Workshop Sensorik trifft Feuerungstechnik 2017: Neue Sensorik- und Regelungskonzepte für Holzfeuerungsanlagen – Aktuelle Ergebnisse und weiterer Forschungsbedarf, Karlsruhe, 20.10.2017
G. Hagen, H. Kohler: *Thermoelektrische Sensoren zur Detektion reduzierender Gase: Potenzial der Anwendung in Kleinfeuerungsanlagen*

41th International Microelectronics and Packaging IMAPS Conference, Warsaw, Poland, 11. - 13.09.2017
M. Bruckner, J. Kita, C. Münch, R. Moos: *Aerosol Deposition Method vs. Screen-Printing Technique – Novel Manufacturing Process for NTCR Thermistor Devices*

Emissions 2017, Am Buesing Palais Frankfurt, Germany, 12.9.-13.9.2017
R. Moos: *Overview on Recent Developments on Engine Control by Radio Frequency-Based Catalyst and Filter Monitoring*

4. Internationale Fachkonferenz Sensoren zur Abgasreinigung und CO₂-Reduktion, Augsburg, 28.-29.6.2017
R. Moos: *SCR Control using Radio Frequency Sensors / Regelung eines SCR-Systems mit Mikrowellensensoren*

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

Institutskolloquium, National Institute of Advanced Industrial Science and Technology (AIST), Advanced Coating Technology Research Center, Tsukuba Japan, Mai 19th, 2017
R. Moos: *Overview on Aerosol Deposition Method at the Department of Functional Materials*

Published Conference Contributions

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 Ca₃Co₄O₉ 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

Year 2017

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2D SnS₂ – 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 BaFe_{1-x}Ta_xO_{3-δ} 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

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

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

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

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

Year 2017

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 $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ 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 MgB_2 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 NiMn_2O_4 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 NH_3 storage and conversion in Cu-ZSM-5 and Cu-SAPO-34 catalysts for NH_3 -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

Year 2016

Peer Reviewed Journals

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

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

First steps to develop a sensor for a Tian-Calvet calorimeter with increased sensitivity
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 Homogeneously Operated Gasoline Engines
Sensors, **15**, 21971-21988 (2015), doi: 10.3390/s150921971
- G. Beulertz, M. Votsmeier, R. Moos:
In operando Detection of Three-Way Catalyst Aging by a Microwave-Based Method: Initial Studies
Applied Sciences, **5**, 174-186 (2015), doi: 10.3390/app5030174
- J. Exner, M. Hahn, M. Schubert, D. Hanft, P. Fuierer, R. Moos:
Powder requirements for aerosol deposition of alumina films
Advanced Powder Technology, **26**, 1143-1151 (2015), doi: 10.1016/j.apt.2015.05.016
- R. Moos:
Microwave-Based Catalyst State Diagnosis - State of the Art and Future Perspectives
SAE International Journal of Engines, **8**, 1240-1245 (2015), doi: 10.4271/2015-01-1042
- D. Rauch, D. Kubinski, G. Cavataio, D. Upadhyay, R. Moos:
Ammonia Loading Detection of Zeolite SCR Catalysts using a Radio Frequency based Method
SAE International Journal of Engines, **8**, 1126-1135 (2015), doi: 10.4271/2015-01-0986
- G. Hagen, K. Burger, S. Wiegärtner, D. Schönauer-Kamin, R. Moos:
A mixed potential based sensor that measures directly catalyst conversion - A novel approach for catalyst on-board diagnostics
Sensors and Actuators B: Chemical, **217**, 158-164 (2015), doi: 10.1016/j.snb.2014.10.004
- S. Wiegärtner, G. Hagen, J. Kita, W. Reitmeier, M. Hien, P. Grass, R. Moos:
Thermoelectric hydrocarbon sensor in thick-film technology for on-board-diagnostics of a diesel oxidation catalyst
Sensors and Actuators B: Chemical, **214**, 234-240 (2015), doi: 10.1016/j.snb.2015.02.083
- P. Fremerey, A. Jess, R. Moos:
Is it possible to detect in situ the sulfur loading of a fixed bed catalysts with a sensor?
Journal of Sensors and Sensor Systems, **4**, 143-149 (2015), doi: 10.5194/jsss-4-143-2015
- J. Kita, A. Engelbrecht, F. Schubert, A. Groß, F. Rettig, R. Moos:
Some practical points to consider with respect to thermal conductivity and electrical resistivity of ceramic substrates for high-temperature gas sensors
Sensors and Actuators B: Chemical, **213**, 541-546 (2015), doi: 10.1016/j.snb.2015.01.041
- I. Pricha, W. Rossner, R. Moos:
Pressureless sintering of luminescent CaAlSiN₃:Eu ceramics
Journal of Ceramic Science and Technology, **6**, 63-68 (2015), doi: 10.4416/JCST2014-00047
- J. Exner, P. Fuierer, R. Moos:
Aerosol Codeposition of Ceramics: Mixtures of Bi₂O₃-TiO₂ and Bi₂O₃-V₂O₅
Journal of the American Ceramic Society, **98**, 717-723 (2015), doi: 10.1111/jace.13364

Year 2015

R. Moos, G. Fischerauer:

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

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

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

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

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

Invited Talks

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

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

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

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

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

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

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

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

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

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

Doctoral Theses

D. Ortolino:

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

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

Published Conference Contributions

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

Neuentwicklung eines Sensorkopfes für ein Tian-Calvet-Kalorimeter

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

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

Neuartige Sensoranwendung zur Katalysator-Materialcharakterisierung

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

J. Exner, R. Moos:

Ermittlung spezifischer Materialkennwerte von Schichten mittels Interdigital-Elektroden

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

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

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

Year 2015

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

M. Schütt, M. Gallinger, R. Moos:

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

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

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

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

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

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

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

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

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

Sensor Tool for Fast Catalyst Material Light-off Characterization

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

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

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

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

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

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

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

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

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

Capacitive Soot Sensor

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

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

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

In situ reaction monitoring of DeNOx SCR on zeolite ZSM-5 by means of simultaneous DRIFTS and IS

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

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

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

Screen-printable type S thermocouple for thick-film technology

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

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

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

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

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

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

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

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

R. Moos:

Applications for Aerosol Deposition in the field of gas sensing

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

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

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

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

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

BIMEVOX ceramics as an intermediate temperature SOFC electrolyte: Another look

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

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

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

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

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

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

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

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

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

Year 2015

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

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

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

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

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

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

R. Moos:

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

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

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

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

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

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

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

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

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

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

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

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

Powder requirements for Aerosol Deposition of alumina films

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

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

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

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

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

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

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

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

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

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

T. Stöcker, P. Dauner, R. Moos:

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

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

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

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

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

R. Fraas, M. Hämmerle, R. Moos:

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

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

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

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

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

Year 2014

Peer Reviewed Journals

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

Year 2014

Invited Talks

Deutsche Keramische Gesellschaft e.V. (DKG), Fachausschusses FA III Verfahrenstechnik, Erlangen, 26.11.2014
M. Schubert, J. Exner, D. Hanft, R. Moos: *Aerosol-Deposition: Kalte Abscheidung keramischer Schichten*

Offene Sitzung des AMA Wissenschaftsrats, Hannover, 30.9.2014
R. Moos: *Neue Sensorprinzipien für die Abgas- und Umweltsensorik*

8. Internationales Forum Abgas- und Partikelemissionen / 8th *International Exhaust Gas and Particulate Emissions Forum*, Ludwigsburg, 1.-2.4.2014
R. Moos: *Mikrowellenbasierte Beladungserkennung von Abgasnachbehandlungssystemen – ein Überblick über den Stand der Entwicklung / Microwave-based monitoring of exhaust gas aftertreatment systems – an overview* (with simultaneous translation)

DGM Fortbildungsseminar Hochtemperatursensorik, Goslar, 20.2.-21.2.2014
R. Moos: *Gas- und Zustandssensoren für den Automobilbereich*

Institutskolloquium, Lehrstuhl für Analytische Chemie der TU München, 19.2.2014
R. Moos: *Sensors for Automotive Emission Control*

Published Conference Contributions

M. Bektas, D. Hanft, D. Schönauer-Kamin, T. Stöcker, G. Hagen, R. Moos
Aerosol Deposited Thick Film $\text{BaFe}_{0.7}\text{Ta}_{0.3}\text{O}_{3-\delta}$ 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 effects 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 u. 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 u. 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
Sensors and Actuators B: Chemical, **189**, 80-88 (2013), doi: 10.1016/j.snb.2012.12.119

A. Groß, T. Weller, H.L. Tuller, R. Moos:
Electrical Conductivity Study of NO_x Trap Materials BaCO₃ and K₂CO₃/La-Al₂O₃ during NO_x Exposure
Sensors and Actuators B: Chemical, **187**, 461-470 (2013), doi: 10.1016/j.snb.2013.01.083

M.Z. Ahmad, A.Z. Sadek, K. Latham, J. Kita, R. Moos, W. Wlodarski:
Chemically synthesized one-dimensional zinc oxide nanorods for ethanol sensing
Sensors and Actuators B: Chemical, **187**, 295-300 (2013), doi: 10.1016/j.snb.2012.11.042

G. Hagen, J. Kita, N. Izu, U. Röder-Roith, D. Schönauer-Kamin, R. Moos:
Planar platform for temperature dependent four-wire impedance spectroscopy – a novel tool for the characterization of functional materials
Sensors and Actuators B: Chemical, **187**, 174-183 (2013), doi: 10.1016/j.snb.2012.10.068

A. Groß, D. Hanft, G. Beulertz, I. Marr, D. Kubinski, J. Visser, R. Moos:
The Effect of SO₂ on the Sensitive Layer of a NO_x Dosimeter
Sensors and Actuators B: Chemical, **187**, 153-161 (2013), doi: 10.1016/j.snb.2012.10.039

R. Moos:
Preface to the special issue IMCS 2012, in Nuremberg, Germany
Sensors and Actuators B: Chemical, **187**, 1 (2013), doi: 10.1016/j.snb.2013.03.027

N. Izu, G. Hagen, F. Schubert, D. Schönauer-Kamin, R. Moos:
Effect of a porous Pt/alumina cover layer for V₂O₅/WO₃/TiO₂ resistive SO₂ sensing materials
Journal of the Ceramic Society of Japan, **121**, 734-737 (2013), doi: 10.2109/jcersj2.121.734

P. Bartscherer, R. Moos:
Improvement of the sensitivity of a conductometric soot sensor by adding a conductive cover layer
Journal of Sensors and Sensor Systems, **2**, 95-102 (2013), doi: 10.5194/jsss-2-95-2013

R. Moos, G. Beulertz, S. Reiß, G. Hagen, G. Fischerauer, M. Votsmeier, J. Gieshoff:
Overview: Status of the microwave-based automotive catalyst state diagnosis
Topics in Catalysis, **56**, 358-364 (2013), doi: 10.1007/s11244-013-9980-x

G. Beulertz, M. Fritsch, G. Fischerauer, F. Herbst, J. Gieshoff, M. Votsmeier, G. Hagen, R. Moos:
Microwave Cavity Perturbation as a Tool for Laboratory In Situ Measurement of the Oxidation State of Three Way Catalysts
Topics in Catalysis, **56**, 405-409 (2013), doi: 10.1007/s11244-013-9987-3

M. Feulner, G. Hagen, A. Piontkowski, A. Müller, G. Fischerauer, D. Brüggemann, R. Moos:
In-Operation Monitoring of the Soot Load of Diesel Particulate Filters - Initial Tests
Topics in Catalysis, **56**, 483-488 (2013), doi: 10.1007/s11244-013-0002-9

D. Schönauer-Kamin, M. Fleischer, R. Moos:
Half-cell potential analysis of an ammonia sensor with the electrochemical cell Au | YSZ | Au, VWT
Sensors, **13**, 4760-4780 (2013), doi: 10.3390/s130404760

A. Groß, M. Kremling, I. Marr, D.J. Kubinski, J.H. Visser, H.L. Tuller, R. Moos:
Dosimeter-type NO_x sensing properties of KMnO₄ and its electrical conductivity during temperature programmed desorption
Sensors, **13**, 4428-4449 (2013), doi: 10.3390/s130404428

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D. Rauch, P. Fremerey, A. Jess, R. Moos:
In situ detection of coke deposits on fixed-bed catalysts by a radio frequency-based method
Sensors and Actuators B: Chemical, **181**, 681-689 (2013), doi: 10.1016/j.snb.2013.01.022

Invited Talks

22. Diskussionstagung Anorganisch-Technische Chemie, 28.2.-1.3. 2013, Frankfurt
R. Moos: *ZrO₂-basierte Gassensoren für Anwendungen im Abgas*

Book Contributions

F. Rettig, R. Moos:
Semiconducting direct thermoelectric gas sensors
In: R. Jaaniso, O.K. Tan (eds.), *Semiconductor gas sensors*, Woodhead Publishing Ltd., Cambridge, UK (2013), p. 261-296,
ISBN 978-0-85709-236-6 (print), ISBN 978-0-85709-866-5 (online), doi: 10.1533/9780857098665.2.261

Published Conference Contributions

S. Fischer, D. Schönauer-Kamin, R. Pohle, E. Magori, M. Fleischer, R. Moos:
NO_x-Detektion mittels Spannungs-Puls-Messung am System Pt | YSZ
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 28-33, doi: 10.5162/11dss2013/2.1

M. Feulner, A. Müller, R. Stöber, G. Fischerauer, R. Moos:
Messungen zum Einfluss von Wasser auf die Beladungserkennung von Dieselpartikelfiltern mit Mikrowellentechnik
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 239-242, doi: 10.5162/11dss2013/B8

A. Brandenburg, J. Kita, E. Wappler, R. Moos:
Optimierung eines miniaturisierten dynamischen Wärmestromdifferenzkalorimeters in LTCC-Technologie
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 300-303, doi: 10.5162/11dss2013/E9

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Sensor für die In-situ-Bestimmung der Schwefelbeladung auf Festbettkatalysatoren
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 308-312, doi: 10.5162/11dss2013/F1

G. Hagen, J. Kita, D. Schönauer-Kamin, R. Moos:
Planarer Vierleiter-Transducer für impedanzspektroskopische Material- und Sensorcharakterisierung
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 313-316, doi: 10.5162/11dss2013/F2

I. Marr, T. Stöcker, R. Moos:
Resistives Gasdosimeter auf Basis von PEDOT:PSS zur Detektion von NO und NO₂
G. Gerlach, A. Schütze (Hrsg.), *11. Dresdner Sensor-Symposium*, 9.-11. Dezember 2013, Dresden, p. 317-320, doi: 10.5162/11dss2013/F3

Y. Zheng, U. Sauter, C. Dormann, G. Oehler, M. Streeb, K. Sahner, L. Kunz, U. Glanz, R. Moos:
Investigation of Oxygen Reactions in a Screen-printed Pt/YSZ-Model Electrode System
ECS Transactions, **58**, 37-43 (2014), doi: 10.1149/05822.0037ecst

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I. Marr, A. Groß, R. Moos:
Conductometric Gas Dosimeter for NO₂ Detection
COST Action TD1105 EuNetAir, European Environment Agency (EEA), Copenhagen, 3 - 4 October 2013
International Meeting on New Sensing Technologies and Methods for Air-Pollution Monitoring, Copenhagen

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Optimization of a miniaturized ceramic differential scanning calorimeter device
37th International Microelectronics and Packaging IMAPS Conference, Kraków, Poland 22. - 25.09.2013, p. 102

I. Marr:
Das integrierende Messverfahren – Beispiele für Gasdosimeter
4. Doktorandentreffen der Gassensorik/Gasmesstechnik, 19.9.-20.9.2013, Tübingen

I. Pricha, U. Liepold, M. Ahlstedt, W. Rossner, R. Moos:
Processing of luminescent multilayer converter ceramics for light emitting diodes
13th International Conference of the European Ceramic Society, June 23-26, 2013, Limoges, France

D. Chen, A. Groß, D.C. Bono, R. Moos, H.L. Tuller:

Year 2013

Electrical conductivity relaxation measurements: Application of low thermal mass heater stick
Solid State Ionics 19, June 2-7, 2013, Kyoto, Japan, Abstracts, p. 20

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Influence of V₂O₅ content of the catalyst layer of a non-Nernstian NH₃ sensor
Solid State Ionics 19, June 2-7, 2013, Kyoto, Japan, Abstracts, p. 38

S. Fischer, R. Pohle, E. Magori, M. Fleischer, R. Moos:
Detection of NO by Pulsed Polarization of Pt | YSZ
Solid State Ionics 19, June 2-7, 2013, Kyoto, Japan, Abstracts, p. 100

J. Exner, M. Maier, P. Fuierer, R. Moos:
Aerosol Deposition of Bismuth Vanadates
Solid State Ionics 19, June 2-7, 2013, Kyoto, Japan, Abstracts, p. 132

A. Groß, I. Marr, R. Moos:
Overview on solid-state dosimeter-type gas sensors
Sensor 2013, Proceedings of the 16th International Conference on Sensors and Measurement Science, 14.-16. May 2013, Nürnberg, p. 650 - 655
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S. Wiegärtner, G. Hagen, J. Kita, R. Moos, E. Glaser, J. Spallek, A. Bolz, C. Schmaus, A. Kießig:
A solid-state potentiometric CO₂-sensor in thick film technology for breath analysis
Sensor 2013, Proceedings of the 16th International Conference on Sensors and Measurement Science, 14.-16. May 2013, Nürnberg, p. 717 - 719
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S. Fischer, R. Pohle, E. Magori, B. Farber, M. Fleischer, R. Moos:
Pulsed polarization of lambda probes – evaluation of the polarization current
Sensor 2013, Proceedings of the 16th International Conference on Sensors and Measurement Science, 14.-16. May 2013, Nürnberg, p. 732 - 735
doi: 10.5162/sensor2013/P2.7

M. Feulner, A. Müller, G. Hagen, D. Brüggemann, R. Moos:
Microwave-Based Diesel Particulate Filter Monitoring – Soot Load Determination and Influencing Parameters
Sensor 2013, Proceedings of the 16th International Conference on Sensors and Measurement Science, 14.-16. May 2013, Nürnberg, p. 753 - 756
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P. Fremerey, D. Rauch, A. Jess, R. Moos:
In operando detection of coke deposits on a fixed-bed catalyst by a contactless microwave method
Sensor 2013, Proceedings of the 16th International Conference on Sensors and Measurement Science, 14.-16. May 2013, Nürnberg, p. 761 - 765
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T. Stöcker, R. Moos, R. Rüger:
Defect chemistry and thermoelectric properties of doped Delafossite-type oxide CuFeO₂
2nd International Conference on Materials for Energy, EnMat II, Karlsruhe, Germany, May 12-16, 2013, 1.02-04

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Direkte Bestimmung der Koksbeladung von Festbettkatalysatoren mit einem Mikrowellenmessverfahren
Jahrestreffen Reaktionstechnik 2013, 6.-8. Mai 2013, Würzburg, P13

J. Kita, A. Brandenburg, R. Moos:
Application of Cylindrical Pipe-Type LTCC Substrates as a Platform for Multi-Array Gas Sensors
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D. Ortolino, J. Kita, R. Moos, R. Wurm, A. Pletsch, K. Beart:
Modeling the Failure Mechanism of Electrical Vias Manufactured in Thick-Film Technology
IMAPS/ACerS 9th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2013), Orlando, Florida, April 23-25, 2013, p. 149-154, doi: 10.4071/CICMT-2013-WP23

M. Hämmerle, K. Hilgert, R. Moos:
Papierbasierter enzymatischer Gassensor
8. Deutsches Biosensor Symposium 2013, 10.-13. März 2013, Wildau, P29

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Sensing the zeolites' functionalities and zeolites for sensing applications - an overview
Proceedings 25. Deutsche Zeolith-Tagung, March, 6.-8. 2013, Hamburg, P019, p. 104-105

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

Determining the Total Amount of NO_x in a Gas Stream - Advances in the Accumulating Gas Sensor Principle
Sensors and Actuators B: Chemical, **175**, 157-162 (2012), doi: 10.1016/j.snb.2012.02.017

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Pulsed Polarization of Platinum Electrodes on YSZ
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The Electrical Properties of NO_x-storing Carbonates during NO_x exposure
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Amperometric enzyme electrodes for the determination of volatile alcohols in the headspace above fruit and vegetable juices
Microchimica Acta, **179**, 115-121 (2012), doi: 10.1007/s00604-012-0867-5

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The Effect of the Thickness of the Sensitive Layer on the Performance of the Accumulating NO_x Sensor
Sensors, **12**, 12329-12346 (2012), doi: 10.3390/s120912329

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

Influence of sintering conditions on doped PZT ceramics for base-metal electrode multilayer actuators
Functional Materials Letters, **5**, 1250022 (2012), doi: 10.1142/S1793604712500221

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

Calorimetric Sensitivity and Thermal Resolution of a Novel Miniaturized Ceramic DSC Chip in LTCC Technology
Thermochimica Acta, **543**, 142-149 (2012), doi: 10.1016/j.tca.2012.05.019

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Why does the electrical conductivity in PEDOT: PSS decrease with PSS content? A study combining thermoelectric measurements with impedance spectroscopy
Journal of Polymer Science Part B: Polymer Physics, **50**, 976-983 (2012), doi: 10.1002/polb.23089

A. Groß, G. Beulertz, I. Marr, D.J. Kubinski, J.H. Visser, R. Moos:

Dual Mode NO_x Sensor: Measuring Both the Accumulated Amount and Instantaneous Level at Low Concentrations
Sensors, **12**, 2831-2850 (2012), doi: 10.3390/s120302831

Book Contributions

R. Moos:

New approaches for exhaust gas sensing.

In: M. Lehmann, M. Fleischer (eds.), *Solid State Gas Sensors: Industrial Application*, Springer, Berlin (2012), p. 173-188, ISBN 978-3-642-28092-4, doi: 10.1007/5346_2011_6

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*

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

CAPOC9, 9th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, August 29 - 31, 2012

R. Moos, G. Beulertz, S. Reiß, G. Hagen, G. Fischerauer, M. Votsmeier, J. Gieshoff: *Status of the microwave-based automotive catalyst state diagnosis*

DGM Fortbildungsseminar Hochtemperatursensorik, Goslar, 23.2.-24.2.2012

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

36th Intl. Conference on Advanced Ceramics and Composites, Daytona Beach, Florida, 22.-27.1.2012

R. Moos: *Sensors and Catalysts in Automotive Exhaust Gas Aftertreatment - an Overview on recent developments and research trends*

Published Conference Contributions

R. Moos:

Overview of the status of the automotive catalyst state diagnosis using microwave-based techniques

E-COSM'12, IFAC Workshop on Engine and Powertrain Control, Simulation and Modeling, Rueil-Malmaison, France, October 23-25, 2012, p. 409-414

Year 2012

I. Marr:

Integrierendes Messprinzip am Beispiel eines NO_x-Speichermaterials
2. Doktorandentreffen der Gassensorik/Gasmesstechnik, 8.10.- 9.10.2012, Saarbrücken

P. Fremerey:

Katalysatorüberwachung mittels Hochfrequenztechnik am Beispiel der Koksbelastung von Festbettkatalysatoren
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J. Kita, A. Brandenburg, A. Groß, R. Moos:

Novel tube-type LTCC transducers with buried heaters and inner electrodes for high-temperatures gas sensors
Eurosensors XXVI, September 9 - 12, 2012, Cracow, Poland, *Procedia Engineering*, **47**, 60-63 (2012), doi: 10.1016/j.proeng.2012.09.084

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Status of the microwave-based automotive catalyst state diagnosis
CAPOC9 - 9th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Aug. 29 - 31, 2012, Vol. 1, p. 33-44

G. Beulertz, M. Fritsch, G. Fischerauer, F. Herbst, J. Gieshoff, M. Votsmeier, G. Hagen, R. Moos:

In-situ three-way-catalyst characterization for a laboratory test bench
CAPOC9 - 9th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Aug. 29 - 31, 2012, Vol. 3, p. 321-329

M. Feulner, G. Hagen, A. Piontkowski, A. Müller, G. Fischerauer, D. Brüggemann, R. Moos:

In-operation monitoring of the soot load of diesel particulate filters - initial tests
CAPOC9 - 9th International Congress on Catalysis and Automotive Pollution Control, Brussels, Belgium, Aug. 29 - 31, 2012, Vol. 3, p. 431-439

K. Grimm, D. Otte, E. Glaser, S. Wiegärtner, G. Hagen, J. Kita, C. Schmaus, A. Kießig, R. Moos, A. Bolz:

Praktifizierung eines neuartigen Kapnometriesensors für die Fehlintonationserkennung
26. *Treffpunkt Medizintechnik*, Charité - Universitätsmedizin Berlin, 7. Juni 2012

P. Fremerey, D. Rauch, R. Moos, A. Jess

Detection of coke loading on fixed bed catalyst by a contactless microwave-based method
15th International Congress on Catalysis 2012, Munich, Germany, July 01 - 06, 2012, P1.01_6875

D. Rauch, P. Fremerey, A. Jess, R. Moos:

Detection of coke deposits on a fixed-bed catalyst by a contactless microwave method: first measurements
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 76-79, doi: 10.5162/IMCS2012/1.1.5

M. Z. Ahmad, A.Z. Sadek, K. Latham, J. Kita, R. Moos, W. Wlodarski:

Chemically synthesized one-dimensional zinc oxide nanorods for ethanol sensing
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 283-286, doi: 10.5162/IMCS2012/3.3.3

D. Schönauer-Kamin, R. Moos:

SCR-Catalyst Materials for Exhaust Gas Detection
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 387-390, doi: 10.5162/IMCS2012/4.4.4

A. Groß, D. Hanft, M. Richter, G. Beulertz, D. Kubinski, J. Visser, R. Moos:

The influence of SO₂ and the thickness of the sensitive layer on the performance of the Integrating NO_x Sensor
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 436-439, doi: 10.5162/IMCS2012/5.2.2

S. Fischer, D. Schönauer-Kamin, R. Pohle, E. Magori, B. Farber, M. Fleischer, R. Moos:

NO_x-detection by pulsed polarization of lambda probes
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1050-1053, doi: 10.5162/IMCS2012/P1.6.4

M.Z. Ahmad, J. Chang, A.Z. Sadek, J. Kita, E.R. Waclawik, R. Moos, W. Wlodarski:

Non-aqueous synthesis of In₂O₃ nanoparticles and its NO₂ gas sensing properties
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1060-1063, doi: 10.5162/IMCS2012/P1.7.3

P. Fremerey, A. Jess, R. Moos:

Direct in-situ detection of sulfur loading on fixed bed catalysts
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1209-1212, doi: 10.5162/IMCS2012/P1.9.17

P.J. Smith, L. Cavanagh, R. Binions, G. Hagen, S. Wiegärtner:

A Feasibility Study on a Two-Component Metal Oxide Sensor for Engine NO_x Detection
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1308-1311, doi: 10.5162/IMCS2012/P2.0.15

C. Schlangen, M. Hämmerle, K. Hilgert, R. Moos:

Determination of Volatile Alcohols in Fruit and Vegetable Juices by an Amperometric Enzyme Electrode Measuring in the Headpace above the Liquid
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1397-1398, doi: 10.5162/IMCS2012/P2.1.23

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

In-Operation Monitoring of the Soot Load of Diesel Particulate Filters with a Microwave Method
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1422-1425, doi: 10.5162/IMCS2012/P2.2.6

Year 2012

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

Replacing the lambda probe by radio frequency-based in-operando three-way catalyst oxygen loading detection
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1426-1428, doi: 10.5162/IMCS2012/P2.2.7

D. Schönauer-Kamin, M. Fleischer, R. Moos:

Half-cell characterization of a novel NH₃ gas sensor
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1601-1604, doi: 10.5162/IMCS2012/P2.6.5

I. Marr, A. Nützel, D. Schönauer-Kamin, R. Moos:

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

A. Groß, T. Weller, H.L. Tuller, R. Moos:

Study of the electrical conductivities of the NO_x trap materials BaCO₃ and K₂CO₃/La-Al₂O₃ during NO_x exposure as sensitive layers or for in-situ characterization of catalyst systems
The 14th International Meeting on Chemical Sensors, IMCS 14, Nuremberg, Germany, 20th -23rd May 2012, p. 1664-1667, doi: 10.5162/IMCS2012/P2.8.6

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

Temperature-controlled sensor transducer for planar four-wire impedance spectroscopy
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

G. Beulertz, S. Reiß, G. Hagen, G. Fischerauer, M. Votsmeier, J. Gieshoff, R. Moos:

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

A. Groß:

Integrierende Gassensoren
1. Doktorandentreffen der Gassensorik/Gasmesstechnik, 9.4.-10.4.2014, Hannover

I. Marr, D. Schönauer-Kamin, A. Nützel, M. Schwidder, R. Moos:

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

R. Moos:

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)
In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 3, Shaker-Verlag, Aachen (2012), ISBN: 978-3-8440-1003-9

S. Reiß:

Direkte Zustandssensorik von Automobilabgaskatalysatoren (Direct diagnosis of automotive exhaust gas catalysts)
In: R. Moos u. 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 u. 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

Year 2011

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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
Journal of the Ceramic Society of Japan, **119**, 687-691 (2011), doi: 10.2109/jcersj2.119.687
- 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
Sensors, **11**, 8261-8280 (2011), doi: 10.3390/s110908261
- N. Müller, S. Reiß, P. Fremerey, A. Jess, R. Moos:
Initial tests to detect quantitatively the coke loading of reforming catalysts by a contactless microwave method
Chemical Engineering and Processing, **50**, 729-731 (2011), doi: 10.1016/j.cep.2011.07.002
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Planar Zeolite Film-Based Potentiometric Gas Sensors Manufactured by a Combined Thick-Film and Electroplating Technique
Sensors, **11**, 7736-7748 (2011), doi: 10.3390/s110807736
- M. Hämmerle, K. Hilgert, M.A. Horn, R. Moos:
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Investigation of the Electrode Effects in Mixed Potential Type Ammonia Exhaust Gas Sensors
Solid State Ionics, **192**, 38-41 (2011), doi: 10.1016/j.ssi.2010.03.028
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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
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Potentiometric CO₂ gas sensor based on zeolites
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- N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos:
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Integrating NO_x Sensor for Automotive Exhausts - a Novel Concept

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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

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Pulsed Polarization of YSZ-Sensors for Gas Detection
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- 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
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- 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 chloroaluminate ionic liquids (BMIM-AlCl₄)
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- 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
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Investigation of non-symmetric contacting and voids in electrical vias produced in hybrid thick-film technology
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- 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
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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
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- 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
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- 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. 538-542, doi: 10.5162/sensor11/d3.4
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Potential-type sulfur dioxide planar gas sensor for high temperature application
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Radio frequency-based determination of the oxygen loading of automotive three-way catalysts
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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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S. Wiegärtner, G. Hagen, D. Biskupski, J. Kita, R. Moos, M. Seufert, T. Carlson, N. Jörns, A. Bolz, C. Schmaus, A. Kießig:

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

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

Einweg-DSC-Chip

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

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

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

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

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

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

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

Ammoniak-Beladungserkennung bei SCR-Katalysatoren

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

C. Schlangen, M. Hämmerle, R. Moos:

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

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

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

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

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

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

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

Monitoring of Electrochemical Processes in Catalysts by Microwave Methods.

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

R. Moos, K. Sahner:

Chemical sensors based on zeolites.

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

Doctoral Theses

N. Müller:

Direkte Bestimmung von Koksdepositen auf Festbettkatalysatoren durch elektrische Sensoren

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

In: R. Moos u. 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 u. 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

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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*

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R. Moos:

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

15. Vortragsstagung der GdCh-Fachgruppe Festkörperchemie und Materialforschung, Berlin, 20.-22.9.2010, P126,

Z. Anorg. Allg. Chem. 2010, p. 2112, doi: 10.1002/zaac.201009128

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

Miniaturized Ceramic Differential Scanning Calorimeter with Integrated Oven and Crucible in LTCC Technology

Eurosensors XXIV, September 5 - 8, 2010, Linz, Austria, *Procedia Engineering*, 5, 940-943 (2010), doi: 10.1016/j.proeng.2010.09.263

A. Geupel, R. Moos:

Review: Lean NO_x Trap Materials as Sensitive Elements for NO_x Sensors

MSE 2010 - Materials Science and Engineering, 24.08.-26.08.2010, Darmstadt, Germany

R. Moos:

Automotive exhaust gas aftertreatment: Is the catalyst itself the best sensor ?

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

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

In situ characterization of three-way catalysts: Combination of conductivity and radio frequency measurements

The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010, p. 92

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

Solid-state CO₂ gas sensor based on zeolites:

The 13th International Meeting on Chemical Sensors, IMCS 13, Perth, Australia, 11th -14th July, 2010, p. 98

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

Soot detection in automotive exhausts

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

R. Moos:

Exhaust gas sensor technology: trends from a research point of view / Trends in der Abgassensorik aus Forschungssicht (with simultaneous translation)

Internationales CTI Forum Emissionsrelevante Sensorik, Stuttgart, 8.7.2010

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

Piezoelectric ceramic compositions for oxygen poor sintering conditions

Electroceramics XII, June 13-16, 2010, Trondheim, Norway

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

Sensitivity and long-term stability of an amperometric enzyme gas sensor for formaldehyde

Biosensors 2010, 20th Anniversary World Congress on Biosensors, 26-28 May, 2010, Glasgow, UK, P3.2.021

N. Müller, A. Jess, R. Moos:

Online in-situ Sensorik des Koks- und Schwefelgehaltes von heterogenen Festbettkatalysatoren mittels Impedanzspektroskopie

Sensoren und Messsysteme 2010, 18.-20.5.2010, Nürnberg, ISBN 978-3-8007-3260-9

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

Neuartige DSC-Messzelle mit integriertem Ofen und Tiegel in LTCC-Technologie

Sensoren und Messsysteme 2010, 18.-20.5.2010, Nürnberg, ISBN 978-3-8007-3260-9

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

Planar potentiometric zeolite-based gas sensors

22. Deutsche Zeolith-Tagung, München, 3. -5. März 2010, p. 150-151

Miscellaneous

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

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Year 2009

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- R. Moos, M. Wedemann, M. Spörl, S. Reiß, G. Fischerauer:
Direct Catalyst Monitoring by Electrical Means: An Overview on Promising Novel Principles
Topics in Catalysis, **52**, 2035-2040 (2009), doi: 10.1007/s11244-009-9399-6
- S. Reiß, M. Wedemann, R. Moos, M. Rösch:
Electrical In-situ Characterization of Three-Way Catalyst Coatings
Topics in Catalysis, **52**, 1898-1902 (2009), doi: 10.1007/s11244-009-9366-2
- D. Biskupski, A. Geupel, K. Wiesner, M. Fleischer, R. Moos:
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Sensors, **9**, 7498-7508 (2009), doi: 10.3390/s90907498
- D. Schönauer, K. Wiesner, M. Fleischer, R. Moos:
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- R. Moos, K. Sahner, M. Fleischer, U. Guth, N. Barsan, U. Weimar:
Solid State Gas Sensor Research in Germany - a Status Report
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- M. Hrovat, D. Belavič, J. Kita, J. Holc, J. Cilenšek, S. Drnovšek:
Thick-film NTC thermistors and LTCC materials: The dependence of the electrical and microstructural characteristics on the firing temperature
Journal of the European Ceramic Society, **29**, 3265-3271 (2009), doi: 10.1016/j.jeurceramsoc.2009.05.019
- K. Sahner, M. Kaspar, R. Moos:
Assessment of the novel aerosol deposition method for room temperature preparation of metal oxide gas sensor films
Sensors and Actuators B: Chemical, **139**, 394-399 (2009), doi: 10.1016/j.snb.2009.03.011
- D. Nowak, E. Miš, A. Dziedzic, J. Kita:
Fabrication and electrical properties of laser-shaped thick-film and LTCC microresistors
Microelectronics Reliability, **49**, 600-606 (2009), doi: 10.1016/j.microrel.2009.02.019
- F. Rettig, R. Moos:
Temperature modulated direct thermoelectric gas sensors: thermal modeling and results for fast hydrocarbon sensors
Measurement Science and Technology, **20**, 065205 (2009), doi: 10.1088/0957-0233/20/6/065205
- T. Richter, C. Schuh, E. Suvaci, R. Moos:
Single crystal growth in PMN-PT and PMN-PZT
Journal of Materials Science, **44**, 1757-1763 (2009), doi: 10.1007/s10853-009-3286-1
- S. Achmann, G. Hagen, J. Kita, I.M. Malkowsky, C. Kiener, R. Moos:
Metal-Organic Frameworks for Sensing Applications in the Gas Phase
Sensors, **9**, 1574-1589 (2009), doi: 10.3390/s90301574
Received the Best Paper Award 2013: Details: *Sensors*, **13**, 2113-2116 (2013), doi: 10.3390/s130202113
- U. Röder-Roith, F. Rettig, T. Röder, J. Janek, R. Moos, K. Sahner:
Thick-film solid electrolyte oxygen sensors using the direct ionic thermoelectric effect
Sensors and Actuators B: Chemical, **136**, 530-535 (2009), doi: 10.1016/j.snb.2008.12.024

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

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

Year 2009

Invited Talks

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

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

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

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

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

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

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

Miscellaneous

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

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

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

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

S. Achmann, M. Hämmerle, P. Gouma, R. Moos:
Elektrospinnen reaktiver Polymere als Immobilisationsmatrix in enzymbasierten Gassensoren
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 145-148

A. Ernstberger, M. Hämmerle, S. Achmann, R. Moos:
Biosensor für gasförmiges Formaldehyd: kovalente Enzymimmobilisierung an einer Membran
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 177-180

S. Reiß, M. Spörl, G. Fischerauer, R. Moos:
Realabgastauglichkeit einer HF-gestützten Automobilabgasdiagnose
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 263-266

D. Schönauer, K. Wiesner, M. Fleischer, R. Moos:
Einfluss der Katalysatorzusammensetzung auf das Verhalten eines mischpotentialbasierten Ammoniakensors
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 341-344

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Potentiometrische Gassensoren auf Zeolith-Basis
G. Gerlach, P. Hauptmann (Hrsg.), *9. Dresdner Sensor-Symposium*, 7.-9. Dezember 2009, Dresden, p. 315-318

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Integrating NO_x Sensor for Automotive Exhausts - a Novel Concept
The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 59

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Study of Influence Effects on an RF-based Three-Way Catalyst Monitoring System
The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 60
G. Hagen, R. Moos:

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Planar zeolite-based potentiometric gas sensors

The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 146

N. Müller, A. Jess, R. Moos:

Direct sensing of coke deposits on fixed bed catalysts and the modeling of the electrical impedance and reaction kinetics

11th International Symposium on CATALYST DEACTIVATION, Delft, October 25 - 28, 2009, Delft, The Netherlands, p. 96-97

J. Kita, R. Moos:

Properties and Applications of Zero-Shrinkage LTCC

XXXIII Int'l Conference of International Microelectronics and Packaging Society IMAPS Poland, Gliwice – Pszczyna, September 21-24, 2009, p. 183-189

D. Nowak, A. Dziedzic, T. Piasecki, J. Kita:

Laser-Shaped Thick-film Inductors Embedded in Ferrite Material

XXXIII Int'l Conference of International Microelectronics and Packaging Society IMAPS Poland, Gliwice – Pszczyna, September 21-24, 2009, p. 273-276

N. Müller, A. Jess, R. Moos:

Abhängigkeit des Impedanzsignals von den Versuchsbedingungen bei der Bestimmung von Koksdepositen in Festbettkatalysatoren

ProcessNet-Jahrestagung 2009, 8.-10. September 2009, Mannheim, Germany

S. Fischer, R. Pohle, M. Fleischer, R. Moos:

Method for reliable detection of different exhaust gas components by pulsed discharge measurements using standard zirconia based sensors

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Magnetic and ferroelectric properties of Fe doped SrTiO₃ film

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Dependence of the Thermopower of a Perovskite-Type Proton Conductor on the Hydrogen Partial Pressure

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

Mixed Potential Type Ammonia Exhaust Gas Sensor for Harsh Environments

Solid State Ionics 17, June 28 - July 3, 2009, Toronto, Canada, p. 120

N. Müller, A. Jess, R. Moos:

Direkte Bestimmung von Koksdepositen auf Festbettkatalysatoren

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Thick-Film Pressure / Force Sensors on Different LTCC Substrates; a Characterization and Evaluation

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Recent Developments in Automotive Exhaust Gas Sensing

Sensor 2009, Proceedings of the 14th International Conference, 26.-28. May 2009, in Nürnberg, Vol. I, p. 227-231, doi: 10.5162/sensor09/v1/b5.1

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Detection of Water Condensation on Exhaust Gas Sensors

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Selective Mixed Potential Ammonia Exhaust Gas Sensor for Harsh Environments

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- S. Reiß, M. Wedemann, R. Moos, M. Rösch:
Electrical In-situ Characterization of Three-Way Catalyst Coatings
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- M. Hämmerle, K. Hilgert, S. Achmann, R. Moos:
Bestimmung von Ethanol-Dämpfen mit einem amperometrischen Enzym-Biosensor
6. Deutsches Biosensor Symposium 2009, Freiburg, 29. März - 1. April 2009, p. 73
- S. Achmann, J. Kita, M. Hämmerle, R. Moos:
Miniaturisierung eines enzymbasierten Biosensors zur direkten amperometrischen Detektion von Formaldehyd aus der Gasphase
6. Deutsches Biosensor Symposium 2009, Freiburg, 29. März - 1. April 2009, p. 71
- G. Fischerauer, A. Gollwitzer, A. Nerowski, M. Spörl, R. Moos:
On the inverse problem associated with the observation of electrochemical processes by the RF cavity perturbation method
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Automotive Exhaust Gas Sensor Based on a Combination of an Electrochemical Pumping Cell and a Resistive Gas Sensor
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K. Sahner, R. Moos:
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R. Moos, D. Schönauer:
Recent Developments in the Field of Automotive Exhaust Gas Ammonia Sensing
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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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K. Sahner, G. Hagen, D. Schönauer, S. Reiß, R. Moos:
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Morphology dependence of thermopower and conductance in semiconducting oxides with space charge regions
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Miniaturized low temperature co-fired ceramics (LTCC) biosensor for amperometric gas sensing
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Geometrical, electrical and stability properties of thick-film and LTCC microcapacitors
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ZSM-5 zeolite films on Si substrates grown by in-situ seeding and secondary crystal growth and application in an electrochemical hydrocarbon gas sensor
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In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 3, Shaker-Verlag, Aachen (2008), ISBN: 978-3-8322-7631-7

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Piezoelektrische Einkristalle und texturierte Piezokeramik im System Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃-PbZrO₃
In: R. Moos u. 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, Fiesa - 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

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Ingenieurwissenschaftliches Kolloquium, Universität des Saarlandes, Saarbrücken, 12.2.2008

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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
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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

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Zeolithe zur Ammoniakdetektion in Abgasen
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