

Year 2017

as of March 23, 2017

Peer Reviewed Journals (accepted, in press)

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**, in press (2017), doi: 10.4271/2017-01-0945

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, in press, doi: 10.1016/j.snb.2016.12.112

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, in press, doi: 10.1016/j.snb.2016.11.079

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, in press, doi: 10.1007/s11244-016-0605-z

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, in press, doi: 10.1007/s11244-016-0626-7

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

Sensor Tool for Fast Catalyst Material Characterization
Topics in Catalysis, in press, doi: 10.1007/s11244-016-0617-8

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, in press, doi: 10.1007/s11244-016-0598-7

Peer Reviewed Journals

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

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

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

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

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

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

Doctoral Theses

D. Rauch:

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

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

I. Marr:

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

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

G. Beulertz:

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

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

Published Conference Contributions

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

Year 2017

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. Fuierer, K. Ring, J. Exner, R. Moos:

BIMEVOX ceramics as an intermediate temperature SOFC electrolyte: Another look

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

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

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

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

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

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

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

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

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

Year 2015

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

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

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

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

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

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

R. Moos:

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

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

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

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

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 BaFe_{0.7}Ta_{0.3}O_{3-δ} 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 Al₂O₃ 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 V₂O₅ content of the catalyst layer of a non-Nernstian NH₃ 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:
BaFe_{1-x}Ta_xO_{3-δ} - 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
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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

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

How the humidity of a DPF effects the microwave based soot load determination
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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

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Fabrication and Characterization of Optical Ceramic Layers using the Aerosol Deposition Method
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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
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R. Moos:

Überblick über den Stand der Abgassensorik
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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

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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

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S. Achmann, G. Hagen, J. Kita, I.M. Malkowsky, C. Kiener, R. Moos:
Metal-Organic Frameworks for Sensing Applications in the Gas Phase
Sensors, **9**, 1574-1589 (2009), doi: 10.3390/s90301574
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Sensors, **13**, 16051-16064 (2013), doi: 10.3390/s131216051

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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

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Sensors and Actuators B: Chemical, **187**, 295-300 (2013), doi: 10.1016/j.snb.2012.11.042

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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

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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

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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

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Overview: Status of the microwave-based automotive catalyst state diagnosis
Topics in Catalysis, **56**, 358-364 (2013), doi: 10.1007/s11244-013-9980-x

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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

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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

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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

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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

P. Fremerey, A. Jess, R. Moos:
Sensor für die In-situ-Bestimmung der Schwefelbeladung auf Festbettkatalysatoren
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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

Y. Zheng, U. Sauter, L. Kunz, M. Streeb, G. Oehler, K. Sahner, R. Moos:
Investigation of Oxygen Reactions in a Screen-printed Pt/YSZ-Model Electrode System
224th ECS Meeting, October 27 - November 1, 2013, San Francisco, USA, Abstract 2705

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

A. Brandenburg, J. Kita, E. Wappler, R. Moos:
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 18, June 2-7, 2013, Kyoto, Japan, Abstracts, p. 20

D. Schönauer-Kamin, M. Fleischer, R. Moos:
Influence of V₂O₅ content of the catalyst layer of a non-Nernstian NH₃ sensor
Solid State Ionics 18, 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 18, 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 18, 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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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
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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
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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

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

I. Marr, G. Hagen, R. Moos:
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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Peer Reviewed Journals

- 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
- S. Fischer, R. Pohle, E. Magori, D. Schönauer-Kamin, M. Fleischer, R. Moos:
Pulsed Polarization of Platinum Electrodes on YSZ
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- A. Groß, S.R. Bishop, D.J. Yang, H.L. Tuller, R. Moos:
The Electrical Properties of NO_x-storing Carbonates during NO_x exposure
Solid State Ionics, **225**, 317-323 (2012), doi: 10.1016/j.ssi.2012.05.009
- C. Schlangen, M. Hämmerle, R. Moos:
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
- A. Groß, M. Richter, D.J. Kubinski, J.H. Visser, R. Moos:
The Effect of the Thickness of the Sensitive Layer on the Performance of the Accumulating NO_x Sensor
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- 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:
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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
2. Doktorandentreffen der Gassensorik/Gasmesstechnik, 8.10.- 9.10.2012, Saarbrücken

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

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

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

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

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

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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

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

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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

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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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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

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

DSC-Chip in LTCC Technology – Feasibility Study

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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

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

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

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R. Moos:

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

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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:

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

Soot detection in automotive exhausts

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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

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

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

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N. Müller, A. Jess, R. Moos:

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

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

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Planar potentiometric zeolite-based gas sensors

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

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- D. Biskupski, A. Geupel, K. Wiesner, M. Fleischer, R. Moos:
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- R. Moos:
Kap. 5.3 Anwendungen keramischer Werkstoffe in der Technik: Elektronik.
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Doctoral Theses

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

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

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

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

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

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

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

A. Geupel, D.J. Kubinski, S. Mulla, T. Ballinger, H.Y. Chen, J.H. Visser, R. Moos:
Integrating NO_x Sensor for Automotive Exhausts - a Novel Concept
The 8th Asian Conference on Chemical Sensors (ACCS 2009), Daegu, Korea, 11.-14.11.2009, p. 59

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

Year 2009

Planar zeolite-based potentiometric gas sensors

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

N. Müller, A. Jess, R. Moos:

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

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

J. Kita, R. Moos:

Properties and Applications of Zero-Shrinkage LTCC

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

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

Laser-Shaped Thick-film Inductors Embedded in Ferrite Material

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

N. Müller, A. Jess, R. Moos:

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

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

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

Solid State Ionics 17, June 28 - July 3, 2009, Toronto, Canada, p. 250

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

Mixed Potential Type Ammonia Exhaust Gas Sensor for Harsh Environments

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

N. Müller, A. Jess, R. Moos:

Direkte Bestimmung von Koksdepositen auf Festbettkatalysatoren

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M. Hrovat, D. Belavič, H. Uršič, J. Kita, J. Holc, S. Drnovšek, J. Cilenšek, M.S. Zarnik, M. Kosec:

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

Proc. of 2009 IMAPS/ACerS, 5th Intern. Conf. on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT), Denver, Colorado, 21.4-23.4.2009

R. Moos:

Recent Developments in Automotive Exhaust Gas Sensing

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

RF-probing of Automotive Catalysts

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YSZ Thick Film Oxygen Gas Sensor Using the Direct Ionic Thermoelectric Effect

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Direct sensing of coke deposits on fixed bed catalysts in refinery processes

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G. Hagen, R. Moos:

Zeolite-Based Selective Potentiometric Hydrogen Sensor

Sensor 2009, Proceedings of the 14th International Conference, 26.-28. May 2009, in Nürnberg, Vol. II, p. 383-386, doi: 10.5162/sensor09/v2/p5.1

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Detection of Water Condensation on Exhaust Gas Sensors

Sensor 2009, Proceedings of the 14th International Conference, 26.-28. May 2009, in Nürnberg, Vol. II, p. 403-406, doi: 10.5162/sensor09/v2/p5.5

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R. Moos:
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Years 1995 - 2001

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