

## Year 2019

### Peer Reviewed Journals

- U. Schadeck, M. Hahn, T. Gerdes, W. Krenkel, M.A. Danzer, R. Moos:  
Sodium Borosilicate Glass Separators as an Electrolyte Additive Donor for Improving the Electrochemical Performance of Lithium-Ion Batteries  
*Journal of the Electrochemical Society*, **166**, A3416-A3424 (2019), doi: [10.1149/2.1011914jes](https://doi.org/10.1149/2.1011914jes)
- R. Wagner, D. Schönauer-Kamin, R. Moos:  
Novel Operation Strategy to Obtain a Fast Gas Sensor for Continuous ppb-Level NO<sub>2</sub> Detection at Room Temperature Using ZnO—A Concept Study with Experimental Proof  
**open access - free** *Sensors*, **19**, 4104 (2019), doi: [10.3390/s19194104](https://doi.org/10.3390/s19194104)
- M. Schubert, D. Hanft, T. Nazarenus, J. Exner, M. Schubert, P. Nieke, P. Glosse, N. Leupold, J. Kita, R. Moos:  
Powder aerosol deposition method — novel applications in the field of sensing and energy technology  
**open access - free** *Functional Materials Letters*, **12**, 1930005 (2019), doi: [10.1142/S1793604719300056](https://doi.org/10.1142/S1793604719300056)
- N. Müller, S. Lang, R. Moos:  
Influence of Ambient Conditions on Electrical Partial Discharge Resistance of Epoxy Anhydride Based Polymers Using IEC 60343 Method  
*IEEE Transactions on Dielectrics and Electrical Insulation*, **26**, 1463-1470 (2019), doi: [10.1109/TDEI.2019.008070](https://doi.org/10.1109/TDEI.2019.008070)
- N. Leupold, K. Schötz, S. Cacovich, I. Bauer, M. Schultz, M. Daubinger, L. Kaiser, A. Rebai, J. Rousset, A. Köhler, P. Schulz, R. Moos, F. Panzer:  
High Versatility and Stability of Mechanochemically Synthesized Halide Perovskite Powders for Optoelectronic Devices  
*ACS Applied Materials & Interfaces*, **11**, 30259-30268 (2019), doi: [10.1021/acsami.9b09160](https://doi.org/10.1021/acsami.9b09160)
- C. Steiner, V. Malashchuk, D. Kubinski, G. Hagen, R. Moos:  
Catalyst State Diagnosis of Three-Way Catalytic Converters Using Different Resonance Parameters—A Microwave Cavity Perturbation Study  
**open access - free** *Sensors*, **19**, 3559 (2019), doi: [10.3390/s19163559](https://doi.org/10.3390/s19163559)
- J. Exner, J. Kita, R. Moos:  
In- and through-plane conductivity of 8YSZ films produced at room temperature by aerosol deposition  
*Journal of Materials Science*, **54**, 13619-13634 (2019), doi: [10.1007/s10853-019-03844-7](https://doi.org/10.1007/s10853-019-03844-7)
- S. Bresch, B. Mieller, D. Schönauer-Kamin, R. Moos, F. Giovanelli, T. Rabe:  
Influence of pressure assisted sintering and reaction sintering on microstructure and thermoelectric properties of bi-doped and undoped calcium cobaltite  
*Journal of Applied Physics*, **126**, 075102 (2019), doi: [10.1063/1.5107476](https://doi.org/10.1063/1.5107476)
- T. Ritter, J. Lattus, G. Hagen, R. Moos:  
On the influence of the NO<sub>x</sub> equilibrium reaction on mixed potential sensor signals: A comparison between FE modelling and experimental data  
*Sensors and Actuators B: Chemical*, **296**, 126627 (2019), doi: [10.1016/j.snb.2019.126627](https://doi.org/10.1016/j.snb.2019.126627)
- M. Schubert, J. Kita, C. Münch, R. Moos:  
Investigation of the in situ calcination of aerosol co-deposited NiO-Mn<sub>2</sub>O<sub>3</sub> films  
*Functional Materials Letters*, **12**, 1950039 (2019), doi: [10.1142/S1793604719500395](https://doi.org/10.1142/S1793604719500395)
- M. Dietrich, G. Hagen, R. Moos:  
Dielectric properties and temperature dependency of automotive catalyst coatings and substrate materials: Experimental results, influences and approximation approach  
*Functional Materials Letters*, **12**, 195024 (2019), doi: [10.1142/S1793604719500243](https://doi.org/10.1142/S1793604719500243)
- M. Schubert, C. Münch, S. Schuurman, V. Poulain, J. Kita, R. Moos:  
Novel Method for NTC Thermistor Production by Aerosol Co-Deposition and Combined Sintering  
**open access - free** *Sensors*, **19**, 1632 (2019), doi: [10.3390/s19071632](https://doi.org/10.3390/s19071632)
- N. Donker, A. Ruchets, D. Schönauer-Kamin, J. Zosel, U. Guth, R. Moos:  
Influence of polarization time and polarization current of Pt|YSZ-based NO sensors utilizing the pulsed polarization when applying constant charge  
*Sensors and Actuators B: Chemical*, **290**, 28-33 (2019), doi: [10.1016/j.snb.2019.03.060](https://doi.org/10.1016/j.snb.2019.03.060)
- A. Ruchets, N. Donker, D. Schönauer-Kamin, R. Moos, J. Zosel, U. Guth, M. Mertig:  
Selectivity improvement towards hydrogen and oxygen of solid electrolyte sensors by dynamic electrochemical methods  
*Sensors and Actuators B: Chemical*, **290**, 53-58 (2019), doi: [10.1016/j.snb.2019.03.063](https://doi.org/10.1016/j.snb.2019.03.063)
- C. Steiner, A. Gänzler, M. Zehentbauer, G. Hagen, M. Casapu, S. Müller, J.-D. Grunwaldt, R. Moos:  
Oxidation State and Dielectric Properties of Ceria-Based Catalysts by Complementary Microwave Cavity Perturbation and X-Ray Absorption Spectroscopy Measurements  
*Topics in Catalysis*, **62**, 227-236 (2019), doi: [10.1007/s11244-018-1110-3](https://doi.org/10.1007/s11244-018-1110-3)
- M. Dietrich, G. Hagen, R. Moos:  
Modelling Both the NH<sub>3</sub> Storage on Automotive SCR Catalysts and the Radio-Frequency-Based Response  
*Topics in Catalysis*, **62**, 172-178 (2019), doi: [10.1007/s11244-019-01140-x](https://doi.org/10.1007/s11244-019-01140-x)
- S. Walter, L. Ruwisch, U. Göbel, G. Hagen, R. Moos:

Radio Frequency-Based Determination of the Oxygen and the NO<sub>x</sub> Storage Level of NO<sub>x</sub> Storage Catalysts  
*Topics in Catalysis*, **62**, 157-163 (2019), doi: [10.1007/s11244-018-1079-y](https://doi.org/10.1007/s11244-018-1079-y)

T. Ritter, M. Seibel, F. Hofmann, M. Weibel, R. Moos:  
Simulation of a NO<sub>x</sub> Sensor for Model-Based Control of Exhaust Aftertreatment Systems  
*Topics in Catalysis*, **62**, 150-156 (2019), doi: [10.1007/s11244-018-1102-3](https://doi.org/10.1007/s11244-018-1102-3)

T. Michlik, A. Rosin, T. Gerdes, R. Moos:  
Improved Discharge Capacity of Zinc Particles by Applying Bismuth-Doped Silica Coating for Zinc-Based Batteries  
**open access - free** *Batteries*, **5**, 32 (2019), doi: [10.3390/batteries5010032](https://doi.org/10.3390/batteries5010032)

M. Schubert, N. Leupold, J. Kita, R. Moos:  
Oxygen partial pressure dependency of the electrical conductivity of aerosol deposited alumina films between 650 °C and 900 °C  
*Materials Letters*, **245**, 208-210 (2019), doi: [10.1016/j.matlet.2019.02.094](https://doi.org/10.1016/j.matlet.2019.02.094)

T. Ritter, J. Lattus, G. Hagen, R. Moos:  
A finite element model for mixed potential sensors  
*Sensors and Actuators B: Chemical*, **287**, 476-485 (2019), doi: [10.1016/j.snb.2019.02.052](https://doi.org/10.1016/j.snb.2019.02.052)

P. Chen, V. Rizzotto, A. Khetan, K. Xie, R. Moos, H. Pitsch, D. Ye, U. Simon:  
Mechanistic understanding of Cu-CHA catalyst as sensor for direct NH<sub>3</sub>-SCR monitoring: the role of Cu mobility  
*ACS Applied Materials & Interfaces*, **11**, 8097-8105 (2019), doi: [10.1021/acsami.8b22104](https://doi.org/10.1021/acsami.8b22104)

M.-L. Anke, M. Hämmerle, R. Moos, A. Jess:  
Operando Determination of the Thermal Decomposition of Supported Ionic Liquids by a Radio-Frequency-Based Method  
**open access - free** *ACS Omega*, **4**, 3351-3360 (2019), doi: [10.1021/acsomega.8b02421](https://doi.org/10.1021/acsomega.8b02421)

P. Nieke, J. Kita, M. Häming, R. Moos:  
Manufacturing Dense Thick Films of Lunar Regolith Simulant EAC-1 at Room Temperature  
**open access - free** *Materials*, **12**, 487 (2019), doi: [10.3390/ma12030487](https://doi.org/10.3390/ma12030487)

S. Walter, A. Bogner, G. Hagen, R. Moos:  
Novel radio-frequency-based gas sensor with integrated heater  
**open access - free** *Journal of Sensors and Sensor Systems*, **8**, 49-56 (2019), doi: [10.5194/jsss-8-49-2019](https://doi.org/10.5194/jsss-8-49-2019)

J. Exner, M. Schubert, D. Hanft, J. Kita, R. Moos:  
How to treat powders for the room temperature aerosol deposition method to avoid porous, low strength ceramic films  
*Journal of the European Ceramic Society*, **39**, 592-600 (2019), doi: [10.1016/j.jeurceramsoc.2018.08.008](https://doi.org/10.1016/j.jeurceramsoc.2018.08.008)

#### Doctoral Theses

M. Schubert:  
Aerosolbasierte Kaltabscheidung für die Herstellung von schichtbasierten NTC-Thermistorbauteilen  
(Powder aerosol deposition for the production of film-type NTC thermistor devices)  
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 29, Shaker-Verlag, Düren (2019), ISBN: [978-3-8440-7041-5](https://doi.org/978-3-8440-7041-5)

D. Hanft:  
Aerosolbasierte Kaltabscheidung Lithium-Ionen leitender Festelektrolytschichten mit Granatstruktur  
(Powder aerosol-based deposition of lithium ion conducting solid electrolyte layers with garnet structure)  
In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 14, Shaker-Verlag, Düren (2019), ISBN: [978-3-8440-7044-6](https://doi.org/978-3-8440-7044-6)

A. Engelbrecht:  
Ausgewählte Materialien und Methoden für die elektrochemische Reduktion von CO<sub>2</sub>  
(Materials and methods for the electrochemical reduction of CO<sub>2</sub>)  
In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 13, Shaker-Verlag, Düren (2019), ISBN: [978-3-8440-7081-1](https://doi.org/978-3-8440-7081-1)

M. Feulner:  
Methoden der Rußdetektion im Dieselabgas  
(Methods for soot detection in diesel exhausts)  
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 28, Shaker-Verlag, Düren (2019), ISBN: [978-3-8440-6926-6](https://doi.org/978-3-8440-6926-6)

T. Ritter:  
Untersuchung und Modellierung der elektrochemischen Vorgänge von Elektroden für Mischpotential-Sensoren  
(Investigation and modelling of electrochemical processes of electrodes for mixed potential sensors)  
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zur Sensorik und Messtechnik, Bd. 27, Shaker-Verlag, Düren (2019), ISBN: [978-3-8440-6906-8](https://doi.org/978-3-8440-6906-8)

Y. Zheng:  
Untersuchung von Sauerstoffreaktionen an Pt-basierten Modellelektroden auf Yttriumoxid-stabilisiertem Zirkoniumdioxid  
(Investigation of oxygen reactions at Pt-based model electrodes on yttria-stabilized zirconium dioxide)  
In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 12, Shaker-Verlag, Aachen (2019), ISBN: [978-3-8440-6800-9](https://doi.org/978-3-8440-6800-9)

M. Schubert:  
Die aerosolbasierte Kaltabscheidung von Aluminiumoxid: Verfahren, Hintergründe, Anwendungen  
(Aerosol deposition of aluminum oxide: process, background, and applications)

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

T.N.H. Hanus:

Herstellung und Charakterisierung von Aluminiumoxidschichten nach dem Verfahren der aerosolbasierten Kaltabscheidung  
(Production and characterization of aluminum oxide layers by the aerosol deposition method)

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

T. Stöcker:

Delafossite für die thermoelektrische Energiewandlung bei hohen Temperaturen  
(Delafossites for thermoelectric energy conversion at high temperatures)

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

M.L. Anke:

Bestimmung der thermischen Stabilität von ionischen Fluiden auf porösen Trägern und festen Katalysatoren mittels elektrischer Sensoren  
(Determination of the thermal stability of ionic fluids on porous supports and on solid catalysts by electrical sensors)

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

J. Exner:

Aerosolbasierte Kaltabscheidung von Funktionskeramiken für neuartige Anwendungen im Bereich der Sensorik und Energiewandlung  
(Aerosol deposition of functional ceramics for novel applications in the field of sensor technology and energy conversion)

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

## Year 2018

### Peer Reviewed Journals

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

Materials and Applications of Polymer Films for Power Capacitors with Special Respect to Nanocomposites

**open access - free** *IEEE Transactions on Dielectrics and Electrical Insulation*, **25**, 2429-242 (2018), doi: [10.1109/TDEI.2018.007392](#)

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

Effect of the Heterogeneous Catalytic Activity of Electrodes for Mixed Potential Sensors

**open access - free** *Journal of the Electrochemical Society*, **165**, B795-B803 (2018), doi: [10.1149/2.0181816jes](#)

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

Thermal Treatment of Aerosol Deposited NiMn<sub>2</sub>O<sub>4</sub> NTC Thermistors for Improved Aging Stability

**open access - free** *Sensors*, **18**, 3982 (2018), doi: [10.3390/s18113982](#)

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

Annealing of Gadolinium-Doped Ceria (GDC) Films Produced by the Aerosol Deposition Method

**open access - free** *Materials*, **11**, 2072 (2018), doi: [10.3390/ma11112072](#)

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

Conductometric Soot Sensors: Internally Caused Thermophoresis as an Important Undesired Side Effect

**open access - free** *Sensors*, **18**, 3531 (2018), doi: [10.3390/s18103531](#)

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

Thermal, dielectric, and mechanical properties of h-BN-filled PTFE composites

*Journal of Applied Polymer Science*, **135**, 46859 (2018), doi: [10.1002/APP.46859](#)

S. Bresch, B. Mieller, F. Delorme, C. Chen, M. Bektas, R. Moos, T. Rabe:

Influence of Reaction-Sintering and Calcination Conditions on Thermoelectric Properties of Sm-doped Calcium Manganate CaMnO<sub>3</sub>

**open access - free** *Journal of Ceramic Science and Technology*, **9**, 289-300 (2018), doi: [10.4416/JCST2018-00017](#)

T. Stöcker, R. Moos:

Effect of Oxygen Partial Pressure on the Phase Stability of Copper-Iron Delafossites at Elevated Temperatures

**open access - free** *Materials*, **11**, 1888 (2018), doi: [10.3390/ma11101888](#)

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

On the Electrochemical CO<sub>2</sub> Reduction at Copper Sheet Electrodes with Enhanced Long-Term Stability by Pulsed Electrolysis

**open access - free** *Journal of the Electrochemical Society*, **165**, J3059-J3068 (2018), doi: [10.1149/2.0091815jes](#)

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

Investigations on the crystal growth mechanism of one-pot-synthesized Al-doped ZnO and its UV-enhanced room temperature NO<sub>2</sub> gas sensing characteristics

*Functional Materials Letters*, **11**, 1850087 (2018), doi: [10.1142/S179360471850087X](#)

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

The Aerosol Deposition Method: A Modified Aerosol Generation Unit to Improve Coating Quality

**open access - free** *Materials*, **11**, 1572 (2018), doi: [10.3390/ma11091572](#)

D. Hanft, M. Bektas, R. Moos:

Powder pre-treatment for aerosol deposition of tin dioxide coatings for gas sensors

**open access - free** *Materials*, **11**, 1342 (2018), doi: [10.3390/ma11081342](https://doi.org/10.3390/ma11081342)

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

Radio frequency- and impedance-based sensing of ionic liquids supported on porous carriers and their limitations

*Sensors and Actuators B: Chemical*, **273**, 1564-1571 (2018), doi: [10.1016/j.snb.2018.07.036](https://doi.org/10.1016/j.snb.2018.07.036)

S. Bresch, B. Mieller, C. Selleng, T. Stöcker, R. Moos, T. Rabe:

Influence of the calcination procedure on the thermoelectric properties of calcium cobaltite  $\text{Ca}_3\text{Co}_4\text{O}_9$

*Journal of Electroceramics*, **40**, 225-234 (2018), doi: [10.1007/s10832-018-0124-3](https://doi.org/10.1007/s10832-018-0124-3)

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

High-Temperature Electrical Insulation Behavior of Alumina Films Prepared at Room Temperature by Aerosol Deposition and Influence of Annealing Process and Powder Impurities

*Journal of Thermal Spray Technology*, **27**, 870-879 (2018), doi: [10.1007/s11666-018-0719-x](https://doi.org/10.1007/s11666-018-0719-x)

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

High-Yield Preparation of ZnO Nanoparticles on Exfoliated Graphite as Anode Material for Lithium Ion Batteries and the Effect of Particle Size as well as of Conductivity on the Electrochemical Performance of Such Composites

**open access - free** *Batteries*, **4**, 24 (2018), doi: [10.3390/batteries4020024](https://doi.org/10.3390/batteries4020024)

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

Influence of high temperature annealing on the dielectric properties of alumina films prepared by the aerosol deposition method

*Functional Materials Letters*, **11**, 1850022 (2018), doi: [10.1142/S1793604718500224](https://doi.org/10.1142/S1793604718500224)

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

Towards an Electrochemical Immunosensor System with Temperature Control for Cytokine Detection

**open access - free** *Sensors*, **18**, 1309 (2018), doi: [10.3390/s18051309](https://doi.org/10.3390/s18051309)

U. Schadeck, K. Kyrgyzbaev, H. Zettl, T. Gerdes, R. Moos:

Flexible, Heat-Resistant, and Flame-Retardant Glass Fiber Nonwoven/Glass Platelet Composite Separator for Lithium-Ion Batteries

**open access - free** *Energies*, **11**, 999 (2018), doi: [10.3390/en11040999](https://doi.org/10.3390/en11040999)

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

Combined resistive and thermoelectric oxygen sensor with almost temperature-independent characteristics

**open access - free** *Journal of Sensors and Sensor Systems*, **7**, 289-297 (2018), doi: [10.5194/jsss-7-289-2018](https://doi.org/10.5194/jsss-7-289-2018)

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

Exploiting Synergies in Catalysis and Gas Sensing using Noble Metal-Loaded Oxide Composites

*ChemCatChem*, **10**, 864-880 (2018), doi: [10.1002/cctc.201701545](https://doi.org/10.1002/cctc.201701545)

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

Mechanical Coating of Zinc Particles with  $\text{Bi}_2\text{O}_3\text{-Li}_2\text{O-ZnO}$  Glasses as Anode Material for Rechargeable Zinc-Based Batteries

**open access - free** *Batteries*, **4**, 12 (2018), doi: [10.3390/batteries4010012](https://doi.org/10.3390/batteries4010012)

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

A pathway to eliminate the gas flow dependency of a hydrocarbon sensor for automotive exhaust applications

**open access - free** *Journal of Sensors and Sensor Systems*, **7**, 79-84 (2018), doi: [10.5194/jsss-7-79-2018](https://doi.org/10.5194/jsss-7-79-2018)

O. Isakin, S. Hiltl, R. Schneider, J. Bleisteiner, O. Struck, K. Schindler, M. Willert-Porada, R. Moos:

Ultrasound-assisted one-pot syntheses of ZnO nanoparticles that are homogeneously adsorbed on exfoliated graphite and a simplified method to determine the graphite layer thickness in such composites

*Journal of Materials Science*, **53**, 6586-6601 (2018), doi: [10.1007/s10853-018-2023-z](https://doi.org/10.1007/s10853-018-2023-z)

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*, **550**, 518-525 (2018), doi: [10.1016/j.memsci.2017.10.061](https://doi.org/10.1016/j.memsci.2017.10.061)

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

Oxygen transport paths in screen-printed Pt- $\text{Al}_2\text{O}_3$  composite model electrodes on YSZ

*Solid State Ionics*, **316**, 53-58 (2018), doi: [10.1016/j.ssi.2017.12.026](https://doi.org/10.1016/j.ssi.2017.12.026)

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

On the defect chemistry of  $\text{BaFe}_{0.89}\text{Al}_{0.01}\text{Ta}_{0.1}\text{O}_{3-\delta}$ , a material for temperature independent resistive and thermoelectric oxygen sensors

*Solid State Ionics*, **316**, 1-8 (2018), doi: [10.1016/j.ssi.2017.12.017](https://doi.org/10.1016/j.ssi.2017.12.017)

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](https://doi.org/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](https://doi.org/10.1016/j.snb.2017.09.126)

## Doctoral Theses

O. Isakin

ZnO-Graphit-Komposite als Anodenmaterialien für Lithium-Ionen-Batterien

(ZnO graphite composites as anode materials for lithium ion batteries)

In: R. Moos u. G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 7, Shaker-Verlag, Aachen (2018), ISBN: [978-3-8440-6279-3](#),

doi: [10.2370/9783844062793](#)

F. Schubert:

Tian-Calvet-Kalorimeter mit Wärmestromsensoren in keramischer Mehrlagentechnik

(Tian-Calvet calorimeter with heat flow sensors in ceramic multilayer technology)

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

M. Dietrich:

Anwendung der hochfrequenzgestützten Zustandsdiagnose zur Überwachung und Regelung von SCR-Katalysatoren

(Application of radio frequency-based techniques for monitoring and control of SCR catalysts)

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

## Year 2017

### Peer Reviewed Journals

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

Analysis of the characteristics of thick-film NTC thermistor devices manufactured by screen-printing and firing technique and by room temperature aerosol deposition method (ADM)

*Functional Materials Letters*, **10**, 1750073 (2017), doi: [10.1142/S1793604717500734](#)

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

Simulation of a thermoelectric gas sensor that determines hydrocarbon concentrations in exhausts and the light-off temperature of catalyst materials

**open access - free** *Journal of Sensors and Sensor Systems*, **6**, 395-405 (2017), doi: [10.5194/jsss-6-395-2017](#)

M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:

Radio-Frequency-Controlled Urea Dosing for NH<sub>3</sub>-SCR Catalysts: NH<sub>3</sub> Storage Influence to Catalyst Performance under Transient Conditions

**open access - free** *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

**open access - free** *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<sub>x</sub> Sensors of YSZ Films Produced by the Aerosol Deposition Method and by Screen-Printing

**open access - free** *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 NH<sub>3</sub>-Selective Catalytic Reduction Catalyst Control: Studies on Temperature Dependency and Humidity Influences

**open access - free** *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](https://doi.org/10.1016/j.snb.2016.11.079)

I. Marr, R. Moos:

Resistive NO<sub>x</sub> dosimeter to detect very low NO<sub>x</sub> 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1007/s11244-016-0626-7)

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

Superconducting properties of thick films on Hastelloy prepared by the Aerosol Deposition Method with ex-situ MgB<sub>2</sub> powder  
*IEEE Transactions on Applied Superconductivity*, **27**, 6200904 (2017), doi: [10.1109/TASC.2017.2669479](https://doi.org/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  
**open access - free** *Sensors*, **17**, 400 (2017), doi: [10.3390/s17020400](https://doi.org/10.3390/s17020400)

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

Improvement of the selectivity of the electrochemical conversion of CO<sub>2</sub> 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](https://doi.org/10.1016/j.electacta.2016.12.059)

## Doctoral Theses

D. Rauch:

Mikrowellengestützte Untersuchung des NH<sub>3</sub>-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](https://doi.org/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](https://doi.org/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](https://doi.org/978-3-8440-4988-6)

## 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 NH<sub>3</sub>-SCR  
*Journal of Physical Chemistry C*, **120**, 25361-25370 (2016), doi: [10.1021/acs.jpcc.6b07353](https://doi.org/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  
**open access - free** *Journal of Sensors and Sensors Systems*, **5**, 381-388 (2016), doi: [10.5194/jsss-5-381-2016](https://doi.org/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 NH<sub>4</sub><sup>+</sup> Intermediates in NH<sub>3</sub>-SCR over Fe-ZSM-5 Zeolite Catalysts  
*ACS Catalysis*, **6**, 7696-7700 (2016), doi: [10.1021/acscatal.6b02496](https://doi.org/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](https://doi.org/10.1016/j.snb.2016.05.006)

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

Monitoring NH<sub>3</sub> storage and conversion in Cu-ZSM-5 and Cu-SAPO-34 catalysts for NH<sub>3</sub>-SCR by simultaneous impedance and DRIFT spectroscopy

*Sensors and Actuators B: Chemical*, **236**, 1075–1082 (2016), doi: [10.1016/j.snb.2016.05.164](https://doi.org/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](https://doi.org/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](https://doi.org/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

**open access - free** *Journal of Sensors and Sensors Systems*, **5**, 205-212 (2016), doi: [10.5194/jsss-5-205-2016](https://doi.org/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](https://doi.org/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 NH<sub>3</sub>-supported proton transport in DeNO<sub>x</sub>-SCR zeolite catalysts

*Catalysis Science & Technology*, **6**, 3362-3366 (2016), doi: [10.1039/C6CY00452K](https://doi.org/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

**open access - free** *Materials*, **9**, 277 (2016), doi: [10.3390/ma9040277](https://doi.org/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 CuFeO<sub>2</sub>

**open access - free** *Materials*, **9**, 227 (2016), doi: [10.3390/ma9040227](https://doi.org/10.3390/ma9040227)

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

Tuning of the electrical conductivity of Sr(Ti,Fe)O<sub>3</sub> oxygen sensing films by aerosol co-deposition with Al<sub>2</sub>O<sub>3</sub>

*Sensors and Actuators B: Chemical*, **230**, 427-433 (2016), doi: [10.1016/j.snb.2016.02.033](https://doi.org/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](https://doi.org/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

**open access - free** *Journal of Sensors and Sensor Systems*, **5**, 25-32 (2016), doi: [10.5194/jsss-5-25-2016](https://doi.org/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](https://doi.org/10.1016/j.microrel.2015.10.011)

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

Layered Ceramic Phosphors Based on CaAlSiN<sub>3</sub>:Eu and YAG:Ce for White Light-Emitting Diodes

*Journal of the American Ceramic Society*, **99**, 211–217 (2016), doi: [10.1111/jace.13948](https://doi.org/10.1111/jace.13948)

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

Sensing catalytic conversion: Simultaneous DRIFT and impedance spectroscopy for *in situ* monitoring of NH<sub>3</sub>-SCR on zeolites

*Sensors and Actuators B: Chemical*, **224**, 492-499 (2016), doi: [10.1016/j.snb.2015.10.069](https://doi.org/10.1016/j.snb.2015.10.069)

#### Book contributions

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](https://doi.org/10.1002/9781119234531.ch3)

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](https://doi.org/10.1007/978-3-662-48944-4_6)

#### 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<sub>x</sub> auf die elektrische Leitfähigkeit von NO<sub>x</sub>-Speichermaterialien und die Anwendung dieser Materialien für neuartige NO<sub>x</sub>-Dosimeter  
(The effect of NO<sub>x</sub> on the electrical conductivity of NO<sub>x</sub> storage materials and the application of these materials for novel NO<sub>x</sub> 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](#)

## 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

**open access - free** *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

**open access - free** *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

**open access - free** *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

**open access - free** *Journal of Ceramic Science and Technology*, **6**, 147-182 (2015), doi: [10.4416/JCST2015-00018](#)

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

**open access - free** *Journal of Sensors and Sensor Systems*, **4**, 263-269 (2015), doi: [10.5194/jsss-4-263-2015](#)

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

**open access - free** *Sensors*, **15**, 27021-27034 (2015), doi: [10.3390/s151027021](#)

M. Dietrich, C. Jahn, P. Lanzerath, R. Moos:

Microwave-Based Oxidation State and Soot Loading Determination on Gasoline Particulate Filters with Three-Way Catalyst Coating for Homogenously Operated Gasoline Engines

**open access - free** *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

**open access - free** *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](https://doi.org/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?

**open access - free** *Journal of Sensors and Sensor Systems*, **4**, 143-149 (2015), doi: [10.5194/jsss-4-143-2015](https://doi.org/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](https://doi.org/10.1016/j.snb.2015.01.041)

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

Pressureless sintering of luminescent CaAlSiN<sub>3</sub>:Eu ceramics

*Journal of Ceramic Science and Technology*, **6**, 63-68 (2015), doi: [10.4416/JCST2014-00047](https://doi.org/10.4416/JCST2014-00047)

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

Aerosol Codeposition of Ceramics: Mixtures of Bi<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub> and Bi<sub>2</sub>O<sub>3</sub>-V<sub>2</sub>O<sub>5</sub>

*Journal of the American Ceramic Society*, **98**, 717-723 (2015), doi: [10.1111/jace.13364](https://doi.org/10.1111/jace.13364)

R. Moos, G. Fischerauer:

Automotive Catalyst State Diagnosis Using Microwaves

**open access - free** *Oil & Gas Science and Technology*, **70**, 55-65 (2015), doi: [10.2516/ogst/2013203](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.apcatb.2014.09.059)

## 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](https://doi.org/978-3-8440-4089-0)

P. Fremerey:

In-situ-Sensorik zur Bestimmung der Schwefel- und Koksbelastung 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](https://doi.org/978-3-8440-3473-8)

Irene 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](https://doi.org/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](https://doi.org/978-3-8440-3346-5)

## 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

**open access - free** *Journal of Ceramic Science and Technology*, **5**, 317-326 (2014), doi: [10.4416/JCST2014-00029](https://doi.org/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](https://doi.org/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](https://doi.org/10.1109/TCST.2014.2305576)

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

Aerosol-deposited BaFe<sub>0.7</sub>Ta<sub>0.3</sub>O<sub>3-δ</sub> for nitrogen monoxide and temperature-independent oxygen sensing

**open access - free** *Journal of Sensors and Sensor Systems*, **3**, 223-229 (2014), doi: [10.5194/jsss-3-223-2014](https://doi.org/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](https://doi.org/10.1063/1.4896847)

M. Dietrich, D. Rauch, A. Porph, 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

**open access - free** *Sensors*, **14**, 16856-16868 (2014), doi: [10.3390/s140916856](https://doi.org/10.3390/s140916856)

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

Influence of carrier gas composition on the stress of Al<sub>2</sub>O<sub>3</sub> coatings prepared by the Aerosol Deposition Method

**open access - free** *Materials*, **7**, 5633-5642 (2014), doi: [10.3390/ma7085633](https://doi.org/10.3390/ma7085633)

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](https://doi.org/10.1016/j.snb.2014.08.019)

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

Influence of the V<sub>2</sub>O<sub>5</sub> content of the catalyst layer of a non-Nernstian NH<sub>3</sub> sensor

*Solid State Ionics*, **262**, 270-273 (2014), doi: [10.1016/j.ssi.2013.08.035](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.tsf.2014.02.084)

I. Marr, A. Groß, R. Moos:

Overview on Conductometric Solid-State Gas Dosimeters

**open access - free** *Journal of Sensors and Sensor Systems*, **3**, 29-46 (2014), doi: [10.5194/jsss-3-29-2014](https://doi.org/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](https://doi.org/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](https://doi.org/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<sub>1-x</sub>Ta<sub>x</sub>O<sub>3-δ</sub> - 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](https://doi.org/10.1016/j.snb.2013.07.106)

#### 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](https://doi.org/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](https://doi.org/978-3-8440-2912-3)

#### 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](https://doi.org/10.1533/9780857098665.2.261)

## Year 2013

### Peer Reviewed Journals - Awards

**The Best Paper Award 2013:** Details: *Sensors*, **13**, 2113-2116 (2013), doi: [10.3390/s130202113](https://doi.org/10.3390/s130202113)

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)

**open access - free** doi: [10.3390/s90301574](https://doi.org/10.3390/s90301574)

### 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  
**open access - free** *Sensors*, **13**, 16051-16064 (2013), doi: [10.3390/s131216051](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.snb.2012.12.119)

N. Izu, G. Hagen, F. Schubert, D. Schönauer-Kamin, R. Moos:  
Effect of a porous Pt/alumina cover layer for V<sub>2</sub>O<sub>5</sub>/WO<sub>3</sub>/TiO<sub>2</sub> resistive SO<sub>2</sub> sensing materials  
**open access - free** *Journal of the Ceramic Society of Japan*, **121**, 734-737 (2013), doi: [10.2109/jcersj2.121.734](https://doi.org/10.2109/jcersj2.121.734)

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

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

A. Groß, M. Kremling, I. Marr, D.J. Kubinski, J.H. Visser, H.L. Tuller, R. Moos:  
Dosimeter-type NO<sub>x</sub> sensing properties of KMnO<sub>4</sub> and its electrical conductivity during temperature programmed desorption  
**open access - free** *Sensors*, **13**, 4428-4449 (2013), doi: [10.3390/s130404428](https://doi.org/10.3390/s130404428)

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](https://doi.org/10.1016/j.snb.2013.01.022)

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](https://doi.org/10.1007/s11244-013-9980-x)

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](https://doi.org/10.1007/s11244-013-0002-9)

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), [10.1007/s11244-013-9987-3](https://doi.org/10.1007/s11244-013-9987-3)

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](https://doi.org/10.1016/j.snb.2013.03.027)

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](https://doi.org/10.1016/j.snb.2012.10.068)

A. Groß, D. Hanft, G. Beulertz, I. Marr, D. Kubinski, J. Visser, R. Moos:  
The Effect of SO<sub>2</sub> on the Sensitive Layer of a NO<sub>x</sub> Dosimeter  
*Sensors and Actuators B: Chemical*, **187**, 153-161 (2013), doi: [10.1016/j.snb.2012.10.039](https://doi.org/10.1016/j.snb.2012.10.039)

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](https://doi.org/10.1016/j.snb.2012.11.042)

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

Electrical Conductivity Study of NO<sub>x</sub> Trap Materials BaCO<sub>3</sub> and K<sub>2</sub>CO<sub>3</sub>/La-Al<sub>2</sub>O<sub>3</sub> during NO<sub>x</sub> Exposure  
*Sensors and Actuators B: Chemical*, **187**, 461-470 (2013), doi: [10.1016/j.snb.2013.01.083](https://doi.org/10.1016/j.snb.2013.01.083)

## Year 2012

### Peer Reviewed Journals

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

Determining the Total Amount of NO<sub>x</sub> 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](https://doi.org/10.1016/j.snb.2012.02.017)

A. Groß, S.R. Bishop, D.J. Yang, H.L. Tuller, R. Moos:

The Electrical Properties of NO<sub>x</sub>-storing Carbonates during NO<sub>x</sub> exposure  
*Solid State Ionics*, **225**, 317-323 (2012), doi: [10.1016/j.ssi.2012.05.009](https://doi.org/10.1016/j.ssi.2012.05.009)

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

Pulsed Polarization of Platinum Electrodes on YSZ  
*Solid State Ionics*, **225**, 371-375 (2012), doi: [10.1016/j.ssi.2012.03.020](https://doi.org/10.1016/j.ssi.2012.03.020)

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](https://doi.org/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<sub>x</sub> Sensor  
**open access - free** *Sensors*, **12**, 12329-12346 (2012), doi: [10.3390/s120912329](https://doi.org/10.3390/s120912329)

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](https://doi.org/10.1016/j.tca.2012.05.019)

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](https://doi.org/10.1142/S1793604712500221)

T. Stöcker, A. Köhler, R. Moos:

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](https://doi.org/10.1002/polb.23089)

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

Dual Mode NO<sub>x</sub> Sensor: Measuring Both the Accumulated Amount and Instantaneous Level at Low Concentrations  
**open access - free** *Sensors*, **12**, 2831-2850 (2012), doi: [10.3390/s120302831](https://doi.org/10.3390/s120302831)

### Doctoral Theses

U. Röder-Roith:

Elektrochemische Entstickung von Abgasen und direkte thermoelektrische Gassensoren: Beispiele für neuartige Anwendungen von Feststoff-Ionenleitern (Electrochemical Removal of NO<sub>x</sub> 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](https://www.isbn-international.org/product/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](https://www.isbn-international.org/product/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](https://www.isbn-international.org/product/978-3-8440-0747-3)  
doi: [10.2370/9783844007473](https://doi.org/10.2370/9783844007473)

### Open Access Conference Contributions

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](https://doi.org/10.1016/j.proeng.2012.09.084)  
**open access - free** doi: [10.1016/j.proeng.2012.09.084](https://doi.org/10.1016/j.proeng.2012.09.084)

## Year 2011

#### Peer Reviewed Journals

- 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](https://doi.org/10.1016/j.sna.2011.01.025)
- N. Izu, G. Hagen, D. Schönauer, U. Röder-Roith, R. Moos:  
Planar potentiometric SO<sub>2</sub> gas sensor for high temperatures using NASICON electrolyte combined with V<sub>2</sub>O<sub>5</sub>/WO<sub>3</sub>/TiO<sub>2</sub> + Au or Pt electrode  
**free** *Journal of the Ceramic Society of Japan*, **119**, 687-691 (2011), doi: [10.2109/jcersj2.119.687](https://doi.org/10.2109/jcersj2.119.687)
- P. Fremerey, S. Reiß, A. Geupel, G. Fischerauer, R. Moos:  
Determination of the NO<sub>x</sub> Loading of an Automotive Lean NO<sub>x</sub> Trap by Directly Monitoring the Electrical Properties of the Catalyst Material Itself  
**open access - free** *Sensors*, **11**, 8261-8280 (2011), doi: [10.3390/s110908261](https://doi.org/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](https://doi.org/10.1016/j.cep.2011.07.002)
- I. Marr, S. Reiß, G. Hagen, R. Moos:  
Planar Zeolite Film-Based Potentiometric Gas Sensors Manufactured by a Combined Thick-Film and Electroplating Technique  
**open access - free** *Sensors*, **11**, 7736-7748 (2011), doi: [10.3390/s110807736](https://doi.org/10.3390/s110807736)
- M. Hämmerle, K. Hilgert, M.A. Horn, R. Moos:  
Analysis of volatile alcohols in apple juices by an electrochemical biosensor measuring in the headspace above the liquid  
*Sensors and Actuators B: Chemical*, **158**, 313-318 (2011), doi: [10.1016/j.snb.2011.06.026](https://doi.org/10.1016/j.snb.2011.06.026)
- D. Schönauer, T. Nieder, K. Wiesner, M. Fleischer, R. Moos:  
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](https://doi.org/10.1016/j.ssi.2010.03.028)
- U. Röder-Roith, F. Rettig, K. Sahner, T. Röder, J. Janek, R. Moos:  
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](https://doi.org/10.1016/j.ssi.2010.05.044)
- P.A. Fuierer, R. Maier, U. Röder-Roith, R. Moos:  
Processing Issues Related to the Bi-dimensional Ionic Conductivity of BIMEVOX Ceramics  
*Journal of Materials Science*, **46**, 5447-545 (2011), doi: [10.1007/s10853-011-5486-8](https://doi.org/10.1007/s10853-011-5486-8)
- D. Ortolino, J. Kita, R. Wurm, E. Blum, K. Beart, R. Moos:  
Investigation of the short-time high-current behavior of vias manufactured in hybrid thick-film technology  
*Microelectronics Reliability*, **34**, 1257-263 (2011), doi: [10.1016/j.microrel.2011.02.025](https://doi.org/10.1016/j.microrel.2011.02.025)
- D. Schönauer, I. Sichert, R. Moos:  
Vanadia doped tungsten-titania SCR catalysts as functional materials for exhaust gas sensor applications  
*Sensors and Actuators B: Chemical*, **155**, 199-205 (2011), doi: [10.1016/j.snb.2010.11.046](https://doi.org/10.1016/j.snb.2010.11.046)
- S. Reiß, D. Schönauer, G. Hagen, G. Fischerauer, R. Moos:  
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*Chemical Engineering and Technology*, **34**, 791-796 (2011), doi: [10.1002/ceat.201000546](https://doi.org/10.1002/ceat.201000546)
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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](https://doi.org/978-3-8322-9931-6)

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Plattform zur Eliminierung der Sauerstoffabhängigkeit von Hochtemperaturgassensoren  
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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](https://doi.org/978-3-8322-9870-8)

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Direct Monitoring of organic vapours with amperometric enzyme gas sensors  
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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)  
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Enzymbasierter Gassensor zur selektiven, direkten und kontinuierlichen Detektion von Formaldehyd  
(Enzyme-based gas sensor for the selective, direct and continuous detection of formaldehyde)  
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An initial physics-based model for the impedance spectrum of a hydrocarbon sensor with a zeolite/Cr<sub>2</sub>O<sub>3</sub> interface  
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Development of LTCC-Materials and their Applications - an Overview  
*Informacije MIDEM - Journal of Microelectronics Electronic Components and Materials*, **38**, 219-224 (2008)  
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Textured PMN-PT and PMN-PZT  
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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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Amperometric Enzyme-based Biosensor for Direct Detection of Formaldehyde in the Gas Phase: Dependence on Electrolyte Composition  
*Electroanalysis*, **20**, 410-417 (2008), doi: [10.1002/elan.200704069](https://doi.org/10.1002/elan.200704069)

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*Sensors*, **8**, 1351-1365 (2008)  
**open access - free** doi: [10.3390/s8031351](https://doi.org/10.3390/s8031351)

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Direkte thermoelektrische Gassensoren (Direct thermoelectric gas sensors)

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](#)

T. Richter:

Piezoelektrische Einkristalle und texturierte Piezokeramik im System  $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3\text{-PbZrO}_3$

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ISBN: [978-3-8322-7128-2](#)

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G. Hagen, A. Schulz, M. Knörr, R. Moos:

Four-Wire Impedance Spectroscopy on Planar Zeolite/Chromium Oxide Based Hydrocarbon Gas Sensors

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Synthesis, Structure, and Electric Conductivity of Ferrous Tainiolite and its Oxidative Conversion into Coarse-Grained Swellable Smectite

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(\*) Work was conducted (mostly between 1995 and 2001) at DaimlerChrysler AG, Research and Technology, Friedrichshafen, Germany

(\*\*) Work was conducted between 1990 and 1995 at Institut für Technologie der Elektrotechnik (head Prof. K.H. Härdtl; now Institut für Werkstoffe der Elektrotechnik, head Prof. Ellen Ivers-Tiffée), Universität Karlsruhe (TH), Germany