

Selection of automotive-related papers

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)

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)

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 NH₃ Storage on Automotive SCR Catalysts and the Radio-Frequency-Based Response

Topics in Catalysis, **62**, 172-178 (2019), doi: [10.1007/s11244-019-01140-x](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_x Storage Level of NO_x 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_x 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. 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 NH₃-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)

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)

G. Hagen, C. Spannbauer, 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](https://doi.org/10.3390/s18103531)

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)

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

Oxygen transport paths in screen-printed Pt-Al₂O₃ 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)

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)

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

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

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

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)

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](https://doi.org/10.5194/jsss-6-395-2017)

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

Radio-Frequency-Controlled Urea Dosing for NH₃-SCR Catalysts: NH₃ Storage Influence to Catalyst Performance under Transient Conditions

open access - free *Sensors*, **17**, 2746 (2017), doi: [10.3390/s17122746](https://doi.org/10.3390/s17122746)

- M. Dietrich, C. Steiner, G. Hagen, R. Moos:
Radio-Frequency-Based Urea Dosing Control for Diesel Engines with Ammonia SCR Catalysts
2017 SAE World Congress, April 4-6, 2017, Detroit, Michigan, USA, *SAE paper* 2017-01-0945 (2017), doi: [10.4271/2017-01-0945](https://doi.org/10.4271/2017-01-0945)
SAE International Journal of Engines, **10**, 1638-1645 (2017), doi: [10.4271/2017-01-0945](https://doi.org/10.4271/2017-01-0945)
- J. Exner, G. Albrecht, D. Schönauer-Kamin, J. Kita, R. Moos:
Pulsed Polarization-Based NO_x Sensors of YSZ Films Produced by the Aerosol Deposition Method and by Screen-Printing
open access - free *Sensors*, **17**, 1715 (2017), doi: [10.3390/s17081715](https://doi.org/10.3390/s17081715)
- M. Dietrich, G. Hagen, W. Reitmeier, K. Burger, M. Hien, P. Grass, D. Kubinski, J. Visser, R. Moos:
Radio-Frequency-Based NH₃-Selective Catalytic Reduction Catalyst Control: Studies on Temperature Dependency and Humidity Influences
open access - free *Sensors*, **17**, 1615 (2017), doi: [10.3390/s17071615](https://doi.org/10.3390/s17071615)
- 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
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- M. Schütt, M. Gallinger, R. Moos:
Particulate Filter Substrates with SCR-Functionality Manufactured by Co-extrusion of Ceramic Substrate and SCR Active Material
Topics in Catalysis, **60**, 204-208 (2017), doi: [10.1007/s11244-016-0598-7](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)
- 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)
- 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 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](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)
- 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
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- G. Hagen, R. Werner, M. Feulner, A. Müller, R. Moos:
Grundlegende Betrachtungen zu kapazitiven Rußsensoren
open access - free *Sensoren und Messsysteme* 2016, 10.5.-11.5.2016, Nürnberg, p. 173-176, doi: [10.5162/sensoren2016/3.2.2](https://doi.org/10.5162/sensoren2016/3.2.2)
- 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)
- T. Simons, P. Chen, D. Rauch, R. Moos, U. Simon:
Sensing Catalytic Conversion: Simultaneous DRIFT and Impedance Spectroscopy for *in situ* Monitoring of DeNO_x-SCR on Zeolites
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- S. Fischer, D. Schönauer-Kamin, R. Pohle, M. Fleischer, R. Moos:
Influence of operation temperature variations on NO measurements in low concentrations when applying the pulsed polarization technique to thimble-type lambda probes
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- 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

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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

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

Capacitive Soot Sensor

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

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

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R. Moos:

Microwave-Based Catalyst State Diagnosis - State of the Art and Future Perspectives

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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)

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A mixed potential based sensor that measures directly catalyst conversion - A novel approach for catalyst on-board diagnostics

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SI-Engine Control With Microwave-Assisted Direct Observation of Oxygen Storage Level in Three-Way Catalysts

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Überblick über den Stand der Abgassensoren

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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

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NO Detection by Pulsed Polarization of Lambda Probes - Influence of the Reference Atmosphere
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Overview: Status of the microwave-based automotive catalyst state diagnosis
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Sensors and Actuators B: Chemical, **148**, 624-629 (2010), doi: [10.1016/j.snb.2010.05.060](https://doi.org/10.1016/j.snb.2010.05.060)

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