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# Articles and Theses on Powder Aerosol Deposition Method (PAD), a.k.a. ADM

## Progress reports in Advanced Materials

M. Linz, F. Bühner, D. Paulus, L. Hennerici, Y. Guo, V. Mereacre, U. Mansfeld, M. Seipenbusch, J. Kita, R. Moos:
Revealing the Deposition Mechanism of the Powder Aerosol Deposition Method Using Ceramic Oxide Core-Shell Particles
**open access - free** *Advanced Materials*, **36**, 2308294 (2024), doi: 10.1002/adma.202308294

J. Exner, T. Nazarenus, D. Hanft, J. Kita, R. Moos:
What Happens during Thermal Post-Treatment of Powder Aerosol Deposited Functional Ceramic Films? Explanations Based on an Experiment-Enhanced Literature Survey
**open access - free** *Advanced Materials*, **32**, 1908104 (2020), doi: 10.1002/adma.201908104

## Overview articles

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

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

## Regular peer-reviewed articles

D. Paulus, J. Kita, R. Moos:
Relaxation behavior of intrinsic compressive stress in powder aerosol co-deposited films: Rethinking PAD films as nanomaterials
*Ceramics International*, **49**, 38375-38381 (2023), doi: 10.1016/j.ceramint.2023.09.065

S. Biberger, N. Leupold, C. Witt, C. Greve, P. Markus, P. Ramming, D. Lukas, K. Schötz, F.-J. Kahle, C. Zhu, G. Papastavrou, A. Köhler, E.M. Herzig, R. Moos, F. Panzer:
First of Their Kind: Solar Cells with a Dry-Processed Perovskite Absorber Layer via Powder Aerosol Deposition and Hot-Pressing
**open access - free** *Solar RRL*, **7**, 2300261 (2023), doi: 10.1002/solr.202300261

T. Nazarenus, J. Schneider, L. Hennerici, R. Moos, J. Kita:
Energy estimation of the post-treatment process for powder aerosol deposited solid electrolyte films
*Functional Materials Letters*, **16**, 2350014 (2023), doi: 10.1142/S1793604723500145

M. Sozak, T. Nazarenus, J. Exner, J. Kita, R. Moos:
Room temperature manufacture of dense NaSICON solid electrolyte films for all-solid-state-sodium batteries
**open access - free** *Journal of Materials Science*, **58**, 10108-10119 (2023), doi: 10.1007/s10853-023-08642-w

U. Eckstein, J. Exner, A. Bencan Golob, K. Ziberna, G. Drazic, H. Ursic, H. Wittkämper, C. Papp, J. Kita, R. Moos, K.G. Webber, N.H. Khansur:
Temperature-dependent dielectric anomalies in powder aerosol deposited ferroelectric ceramic films
**open access - free** *Journal of Materiomics*, **8**, 1239-1250 (2022), doi: 10.1016/j.jmat.2022.05.001

T. Nazarenus, K. Schlesier, F. Lebeda, M. Retsch, R. Moos:
Microstrain release decouples electronic and thermal conductivity in powder aerosol deposited films
*Materials Letters*, **322**, 132461 (2022), doi: 10.1016/j.matlet.2022.132461

R. Werner, J.S. Matejka, D. Schönauer-Kamin, R. Moos:
From Thermoelectric Powder Directly to Thermoelectric Generators: Flexible $Bi_2Te_3$ Films on Polymer Sheets Prepared by the Powder Aerosol Deposition Method at Room Temperature
**open access - free** *Energy Technology*, **10**, 2101091 (2022), doi: 10.1002/ente.202101091

M. Linz, J. Exner, T. Nazarenus, J. Kita, R. Moos:
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**open access - free** *Open Ceramics*, **10**, 100253 (2022), doi: 10.1016/j.oceram.2022.100253

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Posttreatment of powder aerosol deposited oxide ceramic films by high power LED
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T. Nazarenus, Y. Sun, J. Exner, J. Kita, R. Moos:
Powder Aerosol Deposition as a Method to Produce Garnet-Type Solid Ceramic Electrolytes: A Study on Electrochemical Film Properties and Industrial Application
**open access - free** *Energy Technology*, **9**, 2100211 (2021), doi: 10.1002/ente.202100211

J. Exner, M. Linz, J. Kita, R. Moos:
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**open access - free** *International Journal of Applied Ceramic Technology*, **18**, 2178-2196 (2021), doi: 10.1111/ijac.13841

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Discontinuous Powder Aerosol Deposition: An Approach to Prepare Films Using Smallest Powder Quantities
**open access - free** *Coatings*, **11**, 844 (2021), doi: 10.3390/coatings11070844

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Investigation of the Powder Aerosol Deposition Method Using Shadowgraph Imaging
**open access - free** *Materials*, **14**, 2502 (2021), doi: 10.3390/ma14102502

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Powder Treatment for Increased Thickness of Iron Coatings Produced by the Powder Aerosol Deposition Method and Formation of Iron–Alumina Multilayer Structures
**open access - free** *Journal of Thermal Spray Technology*, **30**, 480-487 (2021), doi: 10.1007/s11666-020-01098-3

T. Nazarenus, J. Kita, R. Moos, J. Exner:
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**open access - free** *Advanced Materials Interfaces*, **7**, 2001114 (2020), doi: 10.1002/admi.202001114

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Dense Y-doped ion conducting perovskite films of $BaZrO_3$, $BaSnO_3$, and $BaCeO_3$ for SOFC applications produced by powder aerosol deposition at room temperature
*International Journal of Hydrogen Energy*, **45**, 10000-10016 (2020), doi: 10.1016/j.ijhydene.2020.01.164

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*Journal of Materials Science*, **54**, 13619-13634 (2019), doi: 10.1007/s10853-019-03844-7

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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
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Oxygen partial pressure dependency of the electrical conductivity of aerosol deposited alumina films between 650 °C and 900 °C
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Manufacturing Dense Thick Films of Lunar Regolith Simulant EAC-1 at Room Temperature
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*Journal of the European Ceramic Society*, **39**, 592-600 (2019), doi: 10.1016/j.jeurceramsoc.2018.08.008

M. Schubert, C. Münch, S. Schuurman, V. Poulain, J. Kita, R. Moos:
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**open access - free** *Sensors*, **18**, 3982 (2018), doi: 10.3390/s18113982

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Influence of high temperature annealing on the dielectric properties of alumina films prepared by the aerosol deposition method
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J. Exner, M. Schubert, D. Hanft, T. Stöcker, P. Fuierer, R. Moos:
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Aerosol-deposited $BaFe_{0.7}Ta_{0.3}O_{3-\delta}$ for nitrogen monoxide and temperature-independent oxygen sensing
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*Sensors and Actuators B: Chemical*, **139**, 394-399 (2009), doi: 10.1016/j.snb.2009.03.011

## Doctoral Theses

N. Leupold:
Aerosolbasierte Kaltabscheidung von Halogenidperowskiten: vom Pulver zur Solarzelle
(Powder aerosol deposition of halide perovskites: from the powder to solar cells)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 22, Shaker-Verlag, Düren (2024), ISBN 978-3-8440-9480-0

T. Nazarenus:
Aerosolbasierte Kaltabscheidung zur industriellen Produktion von oxidkeramischen Festelektrolyten für metallische Lithiumakkumulatoren
(Powder aerosol deposition for the industrial production of oxide ceramic solid electrolytes for metallic lithium accumulators)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 21, Shaker-Verlag, Düren (2023), ISBN: 978-3-8440-9142-7

M. Schubert:
Aerosolbasierte Kaltabscheidung für die Herstellung von schichtbasierten NTC-Thermistorbauteilen
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Aerosolbasierte Kaltabscheidung Lithium-Ionen leitender Festelektrolytschichten mit Granatstruktur
(Powder aerosol-based deposition of lithium ion conducting solid electrolyte layers with garnet structure)
In: R. Moos, G. Fischerauer (Hrsg.), Bayreuther Beiträge zu Materialien und Prozessen, Bd. 14, Shaker-Verlag, Düren (2019), ISBN: 978-3-8440-7044-6

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Die aerosolbasierte Kaltabscheidung von Aluminiumoxid: Verfahren, Hintergründe, Anwendungen
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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)
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