

# CURRICULUM VITAE

## Dr. Christian Barthlott

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### WORK EXPERIENCE

- since 09/2010 Senior scientist at the Institute of Meteorology and Climate Research (IMK), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
- 07/2008–08/2010 Research scientist at IMK, Universität Karlsruhe/Forschungszentrum Karlsruhe, Germany (research grant as Principle Investigator by the Deutsche Forschungsgemeinschaft DFG within the Priority Program 1167 on Quantitative Precipitation Forecast)
- 07/2006–06/2008 Research scientist at IMK, Universität Karlsruhe/Forschungszentrum Karlsruhe, Germany (Deutsche Forschungsgemeinschaft DFG Priority Program 1167 on Quantitative Precipitation Forecast)
- 10/2005–06/2006 Visiting scientist at the Institut Pierre Simon Laplace/Laboratoire de Météorologie Dynamique, École Polytechnique, 91128 Palaiseau, France
- 11/2004–09/2005 Post-doctoral scientist at IMK, Universität Karlsruhe/Forschungszentrum Karlsruhe, Germany (Virtual Institute COSI-TRACKS)
- 03/2003–09/2004 Post-doctoral scientist at IMK, Universität Karlsruhe/Forschungszentrum Karlsruhe, Germany (AFO2000 project VERTIKATOR, Vertical Exchange and Orography)
- Paternity leave 2 periods totalling 4 months between 2009 and 2012

### EDUCATION

- Feb. 14, 2003 PhD (Dr. rer. nat.), Thesis title: *Coherent vortex structures in the atmospheric boundary layer*, PhD advisor: Prof. Dr. Franz Fiedler
- 10/1999–02/2003 PhD student, IMK, Universität Karlsruhe/Forschungszentrum Karlsruhe, Germany
- July 12, 1999 Diploma degree in Meteorology, Thesis title: *The turbulent kinetic energy as a function of height*
- 10/1992–07/1999 Student of Meteorology, Universität Karlsruhe, Germany
- June 19, 1991 Abitur (University-Entrance Diploma)

### PROFESSIONAL SERVICES

- 2018–2022 Guest Editor EGU inter-journal Special Issue HyMeX
- 2016–2018 Associate Editor, *Monthly Weather Review*
- 2014 Judge for the Outstanding Student Poster Award, EGU General Meeting
- 2013 External reviewer for PhD dissertation, Université de Toulouse, France
- 2009 Judge for the Outstanding Student Poster Award, ICAM
- 2009 Member of Organisation and Programme Committee 30th International Conference on Alpine Meteorology (ICAM), chair of session “Boundary-layer Processes: Turbulence”
- 2007 Coordinator of the Operations Center for the World Weather Research Programme COPS (Convective and Orographically induced Precipitation Study)

since 2006 Peer Reviewer for: *National Environment Research Council (NERC, UK), German Research Foundation (DFG), U. S. National Science Foundation (NSF), Austrian Science Fund (FWF), Journal of the Atmospheric Sciences, Journal of Geophysical Research - Atmospheres, Atmospheric Science Letters, Boundary-Layer Meteorology, Quarterly Journal of the Royal Meteorological Society, Atmospheric Chemistry and Physics, Annales Geophysicae, Natural Hazards and Earth System Sciences, Geoscientific Model Development, Atmospheric Research, Meteorologische Zeitschrift*

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## FIELD EXPERIMENTS

June/July 2023	Swabian MOSES 2023 in southwestern Germany
June/July 2021	Swabian MOSES 2021 in southwestern Germany
Oct. 29–Nov. 04, 2012	HYdrological cycle in Mediterranean EXperiment (HyMeX) in Montpellier (Operating Center), France
Sep. 10–Sep. 25, 2012	HYdrological cycle in Mediterranean EXperiment (HyMeX) in Corsica, France
June 01–Aug. 31, 2007	Convective and Orographically induced Precipitation Study (COPS) in southwestern Germany and eastern France
June 25–July 19, 2005	Convective Storm Initiation Project (CSIP) in southern England
Nov. 25–Dec. 18, 2001	ENergy and Water budget studies in the ARId area of ChiLe (ENWARICL) in La Serena, Chile

## PEER-REVIEWED PUBLICATIONS

Bibliometric Measures (Web of Science Core Collection metrics – September, 2025):  
46 items; 1865 citations; h-index: 24

### 2025

- ▷ Saleeby, S., S. van den Heever, P. Marinescu, M. Oue, A. Barrett, C. Barthlott, R. Cherian, J. Fan, A. Fridlind, M. Heikenfeld, C. Hoose, T. Matsui, A. Miltenberger, J. Quaas, J. Shpund, P. Stier, B. Vie, B. White, Y. Zhang: *Model Intercomparison of the Impacts of Varying Cloud Droplet Nucleating Aerosols on the Lifecycle and Microphysics of Isolated Deep Convection*, J. Atmos. Sci., DOI:10.1175/JAS-D-24-0181.1, in press.
- ▷ Handwerker, J., C. Barthlott, H. Zhang, A. Wieser, U. Weber, S. Vorogushyn, F. Vogel, T. Steinert, C. Schuetze, M. Schrön, L. Samaniego, H. Saathoff, M. Reich, H. Reich, O. Rakovec, A. Oertel, N. D. Nallasamy, H. Najafi, M. Morsy, O. Möhler, M. Mohannazadeh, Y. Li, S. Landmark, M. Kunz, P. Knippertz, M. Kohler, J. Keller, M. Kaniyodical, E. Hünn, M. Hervo, S. Hammoudeh, A. Güntner, K. Goergen, G. Geppert, B. Fichtelmann, P. Dietrich, G. Dick, E. Borg, A. Böhmländer, A. Belleflamme, M. Bauckholt: *From initiation of convective storms to their impact – the Swabian MOSES 2023 campaign in southwestern Germany*, Front. Earth Sci. 13:1555755, DOI:10.3389/feart.2025.1555755
- ▷ Tonn, M., C. Barthlott, M. Kunz and C. Hoose: *Impact of wind shear on aerosol–cloud interactions and convective precipitation*, Front. Environ. Sci. 13:1566365, DOI:10.3389/fenvs.2025.1566365

### 2024

- ▷ Barthlott, C., B. Czajka, M. Kunz, H. Saathoff, H. Zhang, A. Böhmländer, P. Gasch, J. Handwerker, M. Kohler, J. Wilhelm, A. Wieser and C. Hoose: *The Impact of Aerosols and Model Grid Spacing on a Supercell Storm from Swabian MOSES 2021*, Q. J. R. Meteorol. Soc. 150, 2005–2027, DOI:10.1002/qj.4687

### 2022

- ▷ Barthlott, C., A. Zarbo, T. Matsunobu, C. Keil: *Impacts of combined microphysical and land-surface uncertainties on convective clouds and precipitation in different weather regimes*, Atmos. Chem. Phys., 22, 10841–10860, DOI:10.5194/acp-22-10841-2022
- ▷ Barthlott, C., A. Zarbo, T. Matsunobu, C. Keil: *Importance of aerosols and shape of the cloud droplet size distribution for convective clouds and precipitation*, Atmos. Chem. Phys., 22, 2153–2172, DOI:10.5194/acp-22-2153-202
- ▷ Baur, F., C. Keil, and Barthlott, C.: *Combined effects of soil moisture and microphysical perturbations on convective clouds and precipitation for a locally forced case over Central Europe*, Q. J. R. Meteorol. Soc. 148, 2132–2146, DOI:10.1002/qj.4295
- ▷ Matsunobu, T., C. Keil, and Barthlott, C.: *The impact of microphysical uncertainty conditional on initial and boundary condition uncertainty during different synoptic control*, Weather Clim. Dynam. 3, 1273–1289, DOI:10.5194/wcd-3-1273-2022

### 2021

- ▷ Marinescu, P., S. van den Heever, M. Heikenfeld, A. Barrett, C. Barthlott, C. Hoose, J. Fan, A. Fridlind, T. Matsui, A. Miltenberger, P. Stier, B. Vie, B. White, Y. Zhang: *Impacts of varying concentrations of cloud condensation nuclei on deep convective cloud updrafts – A multimodel assessment*, J. Atmos. Sci. 78 (4), 1147–1172, DOI:10.1175/JAS-D-20-0200.1

2020

- ▷ Barthlott, C., and A.I. Barrett: *Large impact of tiny model domain shifts for the Pentecost 2014 mesoscale convective system over Germany*, Weather Clim. Dynam. 1, 207–224, DOI:10.5194/wcd-1-207-2020

2019

- ▷ Schneider, L., C. Barthlott, C. Hoose, A.I. Barrett: *Relative impact of aerosol, soil moisture and orography perturbations on deep convection*, Atmos. Chem. Phys. 19, 12343–12359, DOI:10.5194/acp-19-12343-2019
- ▷ Keil, C., F. Baur, K. Bachmann, S. Rasp, L. Schneider, C. Barthlott: *Relative contribution of soil moisture, boundary layer and microphysical perturbations on convective predictability in different weather regimes*, Q. J. R. Meteorol. Soc. 145, 3102–3115, DOI:10.1002/qj.3607

2018

- ▷ Barthlott, C. and C. Hoose: *Aerosol effects on clouds and precipitation over central Europe in different weather regimes*, J. Atmos. Sci. 75, 4247–4264, DOI:10.1175/JAS-D-18-0110.1
- ▷ Sullivan, S. C., C. Barthlott, J. Crosier, I. Zhukov, A. Nenes, and C. Hoose: *The effect of secondary ice production parameterization on the simulation of a cold frontal rainband*, Atmos. Chem. Phys., 18, 16461–16480, DOI:10.5194/acp-18-16461-2018
- ▷ Hoose, C., M. Karrer, and C. Barthlott: *Cloud top phase distributions of simulated deep convective clouds*, J. Geophys. Res. 123, 10,464–10,476, DOI:10.1029/2018JD028381
- ▷ Kirshbaum, D., B. Adler, N. Kalthoff, C. Barthlott, and S. Serafin: *Moist Orographic Convection: Physical Mechanisms and Links to Surface-Exchange Processes*, Atmosphere 9, DOI:10.3390/atmos9030080
- ▷ Schneider, L., C. Barthlott, A. Barrett, and C. Hoose: *The precipitation response to variable terrain forcing over low-mountain ranges in different weather regimes*, Q. J. R. Meteorol. Soc. 144, 970–989, DOI:10.1002/qj.3250

2017

- ▷ Barthlott, C., B. Mühr, and C. Hoose: *Sensitivity of the 2014 Pentecost storms over Germany to different model grids and microphysics schemes*, Q. J. R. Meteorol. Soc. 143, 1485–1503, DOI:10.1002/qj.3019
- ▷ Hande, L., C. Hoose, and C. Barthlott: *Aerosol and Droplet Dependent Contact Freezing: Parameterization Development and Case Study*, J. Atmos. Sci. 74, 2229–2245, DOI:10.1175/JAS-D-16-0313.1
- ▷ Macke, A., P. Seifert, H. Baars, C. Barthlott, C. Beekmans, A. Behrendt, B. Bohn, M. Brueck, J. Bühl, S. Crewell, T. Damian, H. Deneke, S. Düsing, A. Foth, P. Di Girolamo, E. Hammann, R. Heinze, A. Hirsikko, J. Kalisch, N. Kalthoff, S. Kinne, M. Kohler, U. Löhnert, B. L. Madhavan, V. Maurer, S. K. Muppa, J. Schween, I. Serikov, H. Siebert, C. Simmer, F. Späth, S. Steinke, K. Träumner, S. Trömel, B. Wehner, A. Wieser, V. Wulfmeyer, and X. Xie: *The HD(CP)<sup>2</sup> Observational Prototype Experiment (HOPE) – an overview*, Atmos. Chem. Phys., 17, 4887–4914, DOI:10.5194/acp-17-4887-2017
- ▷ Heinze, R., A. Dipankar, C. Carbajal Henken, C. Moseley, O. Sourdeval, S. Trömel, X. Xie, P. Adamidis, F. Ament, H. Baars, C. Barthlott, A. Behrendt, U. Blahak, S. Bley, S. Brdar, M. Brueck, S. Crewell, H. Deneke, P. Di Girolamo, R. Evaristo, J. Fischer, C. Frank, P. Friederichs, T. Göcke, T. Gorges, L. Hande, M. Hanke, A. Hansen, H.-C. Hege, C. Hoose, T. Jahns, N. Kalthoff, D. Klocke, S. Kneifel, P. Knippertz, A. Kuhn, T. van Laar, A. Macke, V. Maurer, B. Mayer, C. I. Meyer, S. K. Muppa, R. A. J. Neggers, E. Orlandi, F. Pantillon, B. Pospichal, N. Röber, L. Scheck, A. Seifert, P. Seifert, F. Senf, P. Siligam, C. Simmer, S. Steinke, B. Stevens, K. Wapler, M. Weniger, V. Wulfmeyer, G. Zängl, D. Zhang, and J. Quaas: *Large-eddy simulations over Germany using ICON: a comprehensive evaluation*, Q. J. R. Meteorol. Soc. 143, 69–100, DOI:10.1002/qj.2947.

2016

- ▷ Barthlott, C., B. Adler, N. Kalthoff, J. Handwerker, M. Kohler, A. Wieser: *The role of Corsica in initiating nocturnal offshore convection*, Q. J. R. Meteorol. Soc. 142 (Suppl 1), 222–237, DOI:10.1002/qj.2415.
- ▷ Barthlott, C. and S. Davolio: *Mechanisms initiating heavy precipitation over Italy during the HyMeX Special Observation Period 1: A numerical case study using two mesoscale models*, Q. J. R. Meteorol. Soc. 142 (Suppl 1), 238–258, DOI:10.1002/qj.2630.

2015

- ▷ Barthlott, C. and C. Hoose: *Spatial and temporal variability of clouds and precipitation over Germany: multiscale simulations across the "gray zone"*, Atmos. Chem. Phys., 15, 12361–12384, DOI:10.5194/acp-15-12361-2015.
- ▷ Ehmele, F., C. Barthlott, and U. Corsmeier: *The influence of Sardinia on Corsican rainfall in the western Mediterranean Sea: A numerical sensitivity study*, Atmos. Res. 153, 451–464, DOI:10.1016/j.atmosres.2014.10.004.

2014

- ▷ Metzger, J., C. Barthlott, N. Kalthoff: *Impact of upstream flow conditions on the initiation of moist convection over the island of Corsica*, Atmos. Res. 145–146, 279–296, DOI:10.1016/j.atmosres.2014.04.011.

2013

- ▷ Barthlott, C. and D. Kirshbaum: *Sensitivity of deep convection to terrain forcing over Mediterranean islands*, Q. J. R. Meteorol. Soc. 139, 1762–1779, DOI:10.1002/qj.2089.

2011

- ▷ Barthlott, C. and N. Kalthoff: *A numerical sensitivity study on the impact of soil moisture on convection-related parameters and convective precipitation over complex terrain*, J. Atmos. Sci. 68, 2971–2987, DOI:10.1175/JAS-D-11-027.1.
- ▷ Barthlott, C., C. Hauck, G. Schädler, N. Kalthoff, C. Kottmeier: *Soil moisture impacts on convective indices and precipitation over complex terrain*, Meteorol. Z. 20, 185–197, DOI:10.1127/0941-2948/2011/0216.
- ▷ Barthlott, C., R. Burton, D. Kirshbaum, K. Hanley, E. Richard, J.-P. Chaboureau, J. Trentmann, B. Kern, H.-S. Bauer, T. Schwitalla, C. Keil, Y. Seity, A. Gadian, A. Blyth, S. Mobbs, C. Flamant, J. Handwerker: *Initiation of deep convection at marginal instability in an ensemble of mesoscale models: A case study from COPS*, Q. J. R. Meteorol. Soc. 137 (S1), 118–136, DOI:10.1002/qj.707.
- ▷ Hauck, C., C. Barthlott, L. Krauss, N. Kalthoff: *Soil moisture variability and its influence on convective precipitation over complex terrain*, Q. J. R. Meteorol. Soc. 137 (S1), 42–56, DOI:10.1002/qj.766.
- ▷ Corsmeier, U., N. Kalthoff, C. Barthlott, A. Behrendt, P. DiGirolamo, M. Dorninger, F. Aoshima, J. Handwerker, C. Kottmeier, H. Mahlke, St. Mobbs, G. Vaughan, J. Wickert, V. Wulfmeyer: *Driving processes for deep convection over complex terrain: A multi-scale analysis of observations from COPS IOP 9c*, Q. J. R. Meteorol. Soc. 137 (S1), 137–155, DOI:10.1002/qj.754.
- ▷ Wulfmeyer, V., A. Behrendt, C. Kottmeier, U. Corsmeier, C. Barthlott, G. C. Craig, M. Hagen, D. Althausen, F. Aoshima, M. Arpagaus, H.-S. Bauer, L. Bennett, A. Blyth, C. Brandau, C. Champollion, S. Crewell, G. Dick, P. Di Girolamo, M. Dorninger, Y. Dufournet, R. Eigenmann, R. Engelmann, C. Flamant, T. Foken, T. Gorgas, M. Grzeschik, J. Handwerker, C. Hauck, H. Höller, W. Junkermann, N. Kalthoff, C. Kiemle, S. Klink, M. König, L. Krauss, C. N. Long, F. Madonna, S. Mobbs, B. Neininger, S. Pal, G. Peters, G. Pigeon, E. Richard, M. W. Rotach, H. Russchenberg, T. Schwitalla, V. Smith, R. Steinacker, J. Trentmann, D. Turner, J. van Baelen, S. Vogt, H. Volkert, T. Weckwerth, H. Wernli, A. Wieser, M. Wirth: *The Convective and Orographically induced Precipitation Study (COPS): The scientific strategy, the field phase, and first highlights*, Q. J. R. Meteorol. Soc. 137 (S1), 3–30, DOI:10.1002/qj.752.
- ▷ Richard, E., J.-P. Chaboureau, C. Flamant, C. Champollion, M. Hagen, K. Schmidt, C. Kiemle, U. Corsmeier, C. Barthlott: *Forecasting Summer convection over the Black Forest: a case study from the COPS experiment*, Q. J. R. Meteorol. Soc. 137 (S1), 101–117, DOI:10.1002/qj.710.
- ▷ Kalthoff, N., M. Kohler, C. Barthlott, S. Mobbs, U. Corsmeier, B. Adler, K. Träumner, T. Foken, R. Eigenmann, L. Krauss, S. Khodayar, P. Di Girolamo: *The dependence of convection-related parameters on surface and boundary-layer conditions over complex terrain*, Q. J. R. Meteorol. Soc. 137 (S1), 70–80, DOI:10.1002/qj.686.

2010

- ▷ Barthlott, C., J. W. Schipper, N. Kalthoff, B. Adler, C. Kottmeier, A. Blyth, S. Mobbs: *Model representation of boundary-layer convergence triggering deep convection over complex terrain: A case study from COPS*, Atmos. Res. 95, 172–185, doi:10.1016/j.atmosres.2009.09.010.

2009

- ▷ Fesquet, C., S. Dupont, P. Drobinski, T. Dubos, and C. Barthlott: *Impact of terrain heterogeneity on coherent structure properties: Numerical approach*, Boundary-Layer Meteorol. 133, 71–92, doi:10.1007/-s10546-009-9412-4.
- ▷ Fesquet, C., P. Drobinski, C. Barthlott, and T. Dubos: *Impact of terrain heterogeneity on near-surface turbulence structure*, Atmos. Res. 94, 254–269, doi:10.1016/j.atmosres.2009.06.003.
- ▷ Kalthoff, N., B. Adler, C. Barthlott, U. Corsmeier, S. Mobbs, S. Crewell, K. Träumner, C. Kottmeier, A. Wieser, V. Smith, P. Di Girolamo: *The impact of convergence zones on the initiation of deep convection: A case study from COPS*, Atmos. Res. 93, 680–694, doi: 10.1016/j.atmosres.2009.02.010.
- ▷ Groenemeijer, P., C. Barthlott, A. Behrendt, H.-D. Betz, U. Corsmeier, J. Handwerker, M. Kohler, C. Kottmeier, H. Mahlke, S. Pal, M. Radlach, J. Trentmann, A. Wieser, and V. Wulfmeyer: *Observations of kinematics and thermodynamic structure surrounding a convective storm cluster over a low mountain range*, Mon. Weather Rev. 137, 585–602, doi: 10.1175/2008MWR2562.1.
- ▷ Richard, E., C. Flamant, F. Bouttier, J. Van Baelen, C. Champollion, S. Argence, J. Arnault, C. Barthlott, A. Behrendt, P. Bosser, P. Brousseau, J.-P. Chaboureau, U. Corsmeier, J. Cuesta, P. Di Girolamo, M. Hagen, C. Kottmeier, P. Limnaios, F. Masson, G. Pigeon, Y. Pointin, F. Tridon, Y. Seity, V. Wulfmeyer: *La campagne COPS: genèse et cycle de vie de la convection en région montagneuse*, La Météorologie 64, 32–42, doi: 10.4267/2042/23632.

- ▷ Trentmann, J., C. Keil, M. Salzmann, C. Barthlott, H.-S. Bauer, M. Lawrence, D. Leuenberger, H. Wernli, V. Wulfmeyer, U. Corsmeier, and C. Kottmeier: *Multi-model simulations of a convective situation in low-mountain terrain in central Europe*, Meteorol. Atmos. Phys. 103, 95–103, doi: 10.1007/s00703-008-0323-6.

2008

- ▷ Kottmeier, C., N. Kalthoff, C. Barthlott, U. Corsmeier, J. Van Baelen, A. Behrendt, R. Behrendt, A. Blyth, R. Coulter, S. Crewell, P. Di Girolamo, M. Dorninger, C. Flamant, Th. Foken, M. Hagen, C. Hauck, H. Höller, H. Konow, M. Kunz, H. Mahlke, S. Mobbs, E. Richard, R. Steinacker, T. Weckwerth, A. Wieser, and V. Wulfmeyer: *Mechanisms initiating deep convection over complex terrain during COPS*, Meteorol. Z. 17, 931–948, doi: 10.1127/0941-2948/2008/0348.
- ▷ Dubos, T., C. Barthlott, and P. Drobinski: *Emergence and secondary instability of Ekman layer rolls*, J. Atmos. Sci. 65, 2326–2342, doi: 10.1175/2007JAS2550.1.

2007

- ▷ Barthlott, C., P. Drobinski, C. Fesquet, T. Dubos, and C. Pietras: *Long-term study of coherent structures in the atmospheric surface layer*, Boundary-Layer Meteorol. 125, 1–24, doi:10.1007/s10546-007-9190-9.
- ▷ Browning, K., A. Blyth, P. Clark, U. Corsmeier, C. Morcrette, J. Agnew, S.P. Ballard, D. Bamber, C. Barthlott, L. Bennett, K. Bennett, K. Beswick, M. Bitter, K. Bozier, B. Brooks, C. Collier, F. Davies, B. Deny, M.A. Dixon, T. Feuerle, R. Forbes, C. Gaffard, M. Gray, R. Hankers, T. Hewison, N. Kalthoff, S. Khodayar, M. Kohler, C. Kottmeier, S. Kraut, M. Kunz, D. Ladd, H.W. Lean, J. Lenfant, Z. Li, J. Marsham, J. McGregor, S. Mobbs, J. Nicol, E. Norton, D. Parker, F. Perry, M. Ramatschi, H. Ricketts, N. Roberts, A. Russell, H. Schulz, E. Slack, G. Vaughan, J. Waight, D.P. Wareing, R. Watson, A. Webb, and A. Wieser: *The convective storm initiation project*, Bull. Amer. Meteorol. Soc. 88 Issue 12, 1939–1955, doi:10.1175/BAMS-88-12-1939.

2006

- ▷ Barthlott, C., U. Corsmeier, C. Meißner, F. Braun, and C. Kottmeier: *The influence of mesoscale circulation systems on triggering convective cells over complex terrain*, Atmos. Res. 81, 150–175, doi:10.1016/j.atmosres.2005.11.010.

2003

- ▷ Barthlott, C. and F. Fiedler: *Turbulence structure in the wake region of a meteorological tower*, Boundary-Layer Meteorol. 108, 175–190, doi:10.1023/A:1023012820710.
- ▷ Barthlott, C., N. Kalthoff, and F. Fiedler: *Influence of high-frequency radiation on turbulence measurements on a 200 m tower*, Meteorol. Z., Vol. 12, No. 2, 67–71, doi:10.1127/0941-2948/2003/0012-0067.
- ▷ Barthlott, C.: *Coherent vortex structures in the atmospheric boundary layer*, Scientific reports of the Institute for Meteorology and Climate Research No. 33, University of Karlsruhe, <http://publikationen.bibliothek.kit.edu/2292003>.