

Scientific Curriculum Vitae

Dr.-Ing. Björn Corzilius

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Current Position:

Emmy Noether Research Group Leader

Date of birth: July 30th, 1979
Place of birth: Dieburg, Germany
Nationality: German
Marital status: married
Children: 1 son (2 years of age)

Languages spoken: German (native)
English (fluent)
French (basic)



Institute address:

Institut für Physikalische und Theoretische Chemie
Institut für Biophysikalische Chemie
Biomolekulares Magnetresonanzzentrum (BMRZ)
Goethe-Universität Frankfurt am Main
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60438 Frankfurt am Main
Germany

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EDUCATION

Ph.D. (Dr.-Ing.) in Physical Chemistry

2008

Technical University Darmstadt

Darmstadt, Germany

Dissertation: Electromagnetic Properties of Single-Walled Carbon Nanotubes Investigated by
Microwave Absorption

Final Grade: with distinction (summa cum laude)

Diploma (Dipl.-Ing.) in Physical Chemistry

2005

Technical University Darmstadt

Darmstadt, Germany

Thesis: Präparation und EPR-Untersuchung von endohedral paramagnetisch dotierten
Fulleren-Peapods N@C₆₀@SWNT und N@C₇₀@SWNT

Final Grade: Very good

HONOURS AND AWARDS

Regitze R. Vold Memorial Prize 10 th Alpine Conference on Solid-state NMR (Groupement AMPERE & ISMAR)	2017
Felix-Bloch-Lecture Magnetic Resonance Division of the German Chemical Society (GDCh)	2016
Emmy Noether Fellowship Deutsche Forschungsgemeinschaft	2012
Research Fellowship Deutsche Forschungsgemeinschaft Host: Prof. Dr. Robert G. Griffin, Massachusetts Institute of Technology	2009
Alarich-Weiss-Preis Fachbereich Chemie, Technische Universität Darmstadt	2006
Dr.-Anton-Keller-Preis Fachbereich Chemie, Technische Universität Darmstadt	2002
Buchpreis des Fonds der Chemischen Industrie Fonds der Chemischen Industrie	1999

GRANTS RECEIVED

DFG Research Grant CO802/4-1 <i>DNP approach for structural determination of large protein-RNA complexes by solid-state NMR</i> Deutsche Forschungsgemeinschaft	2018
CRC 902: Molecular mechanisms in RNA-based regulation (2nd period) Principal investigator of subproject A10: <i>RNA structure elucidation using site-specific dynamic nuclear polarization in the solid state.</i> Deutsche Forschungsgemeinschaft	2015
Nachwuchswissenschaftler/innen im Fokus Goethe-Universität Frankfurt am Main	2013
Emmy Noether Fellowship CO802/2-1 <i>Investigation of site-specific dynamic nuclear polarization on biomolecules</i> Deutsche Forschungsgemeinschaft	2012
Research Fellowship CO802/1-1 Deutsche Forschungsgemeinschaft	2009

RESEARCH EXPERIENCE

Goethe University Frankfurt Emmy Noether Research Group Leader	Frankfurt am Main, Germany since 2013
Massachusetts Institute of Technology Postdoctoral Fellow and Associate, Advisor: Prof. Robert G. Griffin	Cambridge, MA 2009–2013
Technical University Darmstadt Doctoral Researcher, Advisor: Prof. Klaus-Peter Dinse	Darmstadt, Germany 2005–2008
Technical University Darmstadt Graduate Researcher (Diploma thesis), Advisor: Prof. Klaus-Peter Dinse	Darmstadt, Germany 2004–2005

TEACHING EXPERIENCE

Goethe University Frankfurt Faculty Member Institute of Physical and Theoretical Chemistry	Frankfurt am Main, Germany since 2013
Technical University Darmstadt Teaching Assistant Eduard Zintl Institute for Inorganic and Physical Chemistry	Darmstadt, Germany 2005–2008

ENGAGEMENT IN SCIENTIFIC COMMUNITY

Professional Associations

- Gesellschaft Deutscher Chemiker (GDCh)
- Deutsche Bunsengesellschaft für Physikalische Chemie
- GDCh Fachgruppe Magnetische Resonanzspektroskopie
- International EPR Society

Editorial Duties

Co-editor of *High Frequency Dynamic Nuclear Polarization NMR*, to be published 2018 by Wylie as part of the renowned series *Encyclopedia of Magnetic Resonance (eMagRes)*.

Organized Conferences

Co-chair of COST action TD1103 *Summer School on Nuclear Spin Hyperpolarisation Techniques*, Southampton, UK, 2015.

SELECTED PUBLICATIONS (full list available)

List of ten most important peer-reviewed journal articles (chronologically ordered)

J. J. Wittmann, T. V. Can, M. Eckardt, W. Harneit, R. G. Griffin, and B. Corzilius: High-precision measurement of the electron spin g factor of trapped atomic nitrogen in the endohedral fullerene $N@C_{60}$, *J. Magn. Reson.* **290**, 12–17 (2018).

A. S. Lilly Thankamony, J. J. Wittmann, M. Kaushik, and B. Corzilius*: Dynamic nuclear polarization for sensitivity enhancement in modern solid-state NMR, *Prog. Nucl. Magn. Reson. Spectrosc.* **102–103**, 120–195 (2017).

M. Kaushik, M. Qj, A. Godt,* and B. Corzilius*: Bis-Gadolinium Complexes for Solid Effect and Cross Effect Dynamic Nuclear Polarization, *Angew. Chem.* **134**, 4359–4363 (2017); *Angew. Chem. Int. Ed.* **56**, 4295–4299 (2017).

D. Daube, V. Aladin, J. Heiliger, J. J. Wittmann, D. Barthelmes, C. Bengs, H. Schwalbe, and B. Corzilius*: Heteronuclear Cross-relaxation under Solid-state Dynamic Nuclear Polarization, *J. Am. Chem. Soc.* **138**, 16572 (2016).

M. Kaushik, T. Bahrenberg, T. V. Can, M. A. Caporini, R. Silvers, J. Heiliger, A. A. Smith, H. Schwalbe, R. G. Griffin, and B. Corzilius*: Gd(III) and Mn(II) Complexes for Dynamic Nuclear Polarization: Small Molecular Chelate Polarizing Agents and Applications with Site-directed Spin Labeling of Proteins, *Phys. Chem. Chem. Phys.* **18**, 27205–27218 (2016).

B. Corzilius*: Theory of Solid Effect and Cross Effect Dynamic Nuclear Polarization with Half-integer High-spin Metal Polarizing Agents in Rotating Solids, *Phys. Chem. Chem. Phys.* **18**, 27190–27204 (2016).

P. Wenk, M. Kaushik, D. Richter, M. Vogel, B. Suess, and B. Corzilius*: Dynamic Nuclear Polarization of Nucleic Acid with Endogenously Bound Manganese, *J. Biomol. NMR* **63**, 97–109 (2015).

K. K. Frederick, V. K. Michaelis, B. Corzilius, T.-C. Ong, A. C. Jacavone, R. G. Griffin, and S. Lindquist: Sensitivity Enhanced NMR Reveals Alterations in Protein Structure by Cellular Milieus, *Cell* **163**, 620–628 (2015).

B. Corzilius, V. K. Michaelis, S. A. Penzel, E. Ravera, A. A. Smith, C. Luchinat, and R. G. Griffin: Dynamic Nuclear Polarization of 1H , ^{13}C , and ^{59}Co in a Tris(ethylenediamine)cobalt(III) Crystalline Lattice Doped with Cr(III), *J. Am. Chem. Soc.* **136**, 11716–11727 (2014).

B. Corzilius, A. A. Smith, A. B. Barnes, C. Luchinat, I. Bertini, and R. G. Griffin: High-Field Dynamic Nuclear Polarization with High-Spin Transition Metal Ions, *J. Am. Chem. Soc.* **133**, 5648–5651 (2011).

Patents

T. M. Swager, R. G. Griffin, O. Haze, B. Corzilius, and A. A. Smith. Radical Polarizing Agents for Dynamic Nuclear Polarization, U.S. Patent 8,715,621, filed March 15, 2012, and issued May 6, 2014.

BIBLIOMETRICS (as of 03/08/18)

43 peer-reviewed journal articles (10 corresponding authorships, 15 first or shared first authorships)

2 invited review articles or book chapters (corresponding or sole authorship)

4 non peer-reviewed invited articles (including 2 first and 2 corresponding authorships)

1 patent (issued as US patent and filed internationally)

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