

Curriculum Vitae of Dr. rer. nat. habil. Detlef Bahnemann

"Photocatalysis and Nanotechnology" (Head), Institut fuer Technische Chemie, Gottfried Wilhelm Leibniz Universitaet Hannover, Callinstrasse 3, D-30167 Hannover, GERMANY, Tel.: +49-511-762-5560, Fax: +49-511-762-2774, e-mail: bahnemann@iftc.uni-hannover.de

and

Laboratory "Photoactive Nanocomposite Materials" (Director) Saint-Petersburg State University, Ulyanovskaya str. 1, Peterhof, Saint-Petersburg, 198504 RUSSIA, e-mail: detlef.bahnemann@spbu.ru,

Born: April 20th 1953 in Berlin, Germany

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| Oct. 1972 - July 1977 | Study of Chemistry at the Technical University Berlin. Recipient of a scholarship of the Studienstiftung des Deutschen Volkes. |
| Oct. 1976 - June 1977 | Study of Biochemistry at the Brunel University, Uxbridge, UK |
| July 1, 1977 | Diploma in Chemistry, Technical University Berlin (<i>With Honors</i>), Diploma Thesis: <i>The Oxidation of Cyclic Organic Sulfur Compounds by Hydroxyl Radicals</i> (Supervisor: Prof. K.-D. Asmus) |
| Nov. 1977 - June 1981 | Research Scientist at the Hahn-Meitner-Institute Berlin with Prof. K.-D. Asmus, research areas: radiation chemistry, free radical chemistry |
| July 3, 1981 | Ph.D. in Chemistry, Technical University Berlin (<i>With Honors</i>), title of thesis: <i>Formation and Properties of Phenothiazine Radical Cations. A Pulse Radiolysis and Stopped-Flow Study</i> (Supervisor: Prof. K.-D. Asmus) |
| July - Aug. 1981 | Post Doctoral DFG-fellowship at the Hahn-Meitner-Institute Berlin |
| Sept. 1981 – Feb. 1988 | Senior Scientist at the Hahn-Meitner-Institute Berlin with Prof. A. Henglein, research areas: particulate photoelectrochemistry and photochemistry, initiating research in photocatalysis employing nano-scale metal and semiconductor particles. |
| 1982 - 1988 | Lecturer for Physical Chemistry, Radiation Chemistry and Chemistry for Physicists at the Technical University Berlin |
| March 1985 - Apr. 1987 | Visiting Associate at the California Institute of Technology, Pasadena (USA) with Prof. M. R. Hoffmann in the Department of Environmental Engineering. Working on free radical processes in the environment and on photocatalysis for pollution control. |
| March 1988 – Apr. 2002 | Department Head of the Photochemistry and Thin Film Technology Department at the Institute for Solar Energy Research in Hannover/Germany. In charge of the Photocatalysis Research Group. |
| since May 2002 | Head of Photocatalysis and Nanotechnology Research Unit at the Institute of Technical Chemistry, Leibniz University of Hannover. Supervisor of Ph.D. and master theses. |

Dr. Detlef Bahnemann: Curriculum Vitae

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| April 2012 | Habilitation in the field of Technical Chemistry at the Leibniz University of Hannover. |
| since January 2014 | Director of Megagrant Laboratory "Photoactive Nanocomposite Materials" at St. Petersburg State University (Russia). |
| since July 2014 | Supernumerary Professor in the Faculty of Natural Sciences at the Leibniz University of Hannover. |
| since November 2020 | Distinguished Professor at Shaanxi University of Science & Technology, Xi'an (Peoples Republic of China). |

Author of more than 500 publications in refereed journals and in books and more than 100 other publications with a current Hirsch-Factor (h-Index) of 85 (papers have been cited more than 47,000 times altogether) according to Scopus and Web of Science. According to Google Scholar Citations the current Hirsch-Factor (h-Index) is 100 and the papers have been cited more than 63,000 times altogether. Presented more than 400 lectures at scientific meetings, in various universities, research institutes and at industrial research and development centres (approx. 50% invited keynote and plenary lectures). Editor of 5 Scientific Books.

Most Important Publications:

1. D. Bahnemann, A. Henglein, L. Spanhel, "Detection of the Intermediates of Colloidal TiO₂-catalyzed Photoreactions", *Faraday Discuss. Chem. Soc.* 78 (1984) 151-163
2. D. W. Bahnemann, C. Kormann, M. R. Hoffmann, "Preparation and Characterization of Quantum Size Zinc Oxide: A Detailed Spectroscopic Study", *J. Phys. Chem.* 91 (1987) 3789-3798
3. C. Kormann, D. W. Bahnemann, M. R. Hoffmann, "Preparation and Characterization of Quantum-Size Titanium Dioxide (TiO₂)", *J. Phys. Chem.* 92 (1988) 5196-5201
4. M. R. Hoffmann, S. T. Martin, W. Choi, D. W. Bahnemann, "Environmental Applications of Semiconductor Photocatalysis", *Chem. Rev.* 95 (1995) 69-96
5. C. Wang, R. Pagel, J. K. Dohrmann, D. W. Bahnemann, "Antenna Mechanism and Deaggregation Concept: Novel Mechanistic Principles for Photocatalysis", *C. R. Chimie* 9 (2006) 761-773
6. T. A. Kandiel, A. Feldhoff, L. Robben, R. Dillert, D. W. Bahnemann, "Tailored Titanium Dioxide Nanomaterials: Anatase Nanoparticles and Brookite Nanorods as Highly Active Photocatalysts", *Chem. Mater.* 22 (2010) 2050-2060
7. H. H. Mohamed, R. Dillert, D. W. Bahnemann, "TiO₂ Nanoparticles as Electron Pools: Single- and Multi-Step Electron Transfer Processes", *J. Photochem. Photobiol., A: Chemistry* 245 (2012) 9-17
8. A. Hakki, R. Dillert, D. W. Bahnemann, "Factors Affecting the Selectivity of the Photocatalytic Conversion of Nitroaromatic Compounds over TiO₂ to Valuable Nitrogen-Containing Organic Compounds", *Phys. Chem. Chem. Phys.* 15 (2013) 2992-3002
9. J. H. Pan, X. Z. Wang, Q. Huang, C. Shen, Z. Y. Koh, Q. Wang, A. Engel, D. W. Bahnemann, "Large-scale Synthesis of Urchin-like Mesoporous TiO₂ Hollow Spheres by Targeted Etching and Their Photoelectrochemical Properties", *Adv. Funct. Mater.* 24 (2014) 95-104
10. J. Schneider, M. Matsuoka, M. Takeuchi, J. Zhang, Y. Horiuchi, M. Anpo, D. W. Bahnemann, "Understanding TiO₂ Photocatalysis: Mechanisms and Materials", *Chem. Rev.* 114 (2014) 9919-9986

Dr. Detlef Bahnemann: Curriculum Vitae

Honors:

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| 2002 | Honorary Professorship at the Robert Gordon University in Aberdeen/Scotland (United Kingdom). |
| 2011 | Erudite Professorship, Mahatma Gandhi University, Kottayam (India). |
| 2012 | DeTao Master of Photocatalysis, Nanomaterials and Energy Applications (China). |
| 2013 | Guest Professorship at the Tianjin University in Tianjin (China). |
| 2014 | Honorary Professorship at Xinjiang Technical Institute of Physics & Chemistry, Chinese Academy of Science (China). |
| 2015 | Visiting Professor under Academic Icon Programme to the Department of Civil Engineering, Faculty of Engineering, University Malaya in Kuala Lumpur (Malaysia) |
| 2015 | Visiting Research Professor in the School of Chemistry and Chemical Engineering, Queens University Belfast (United Kingdom) |
| 2016 | Visiting Professor in the Chemistry Department, College of Science, University of Dammam (Saudi Arabia) |
| 2017 | Medal "To the Memory of Academician N. M. Emanuel" presented by the Russian Academy of Sciences and M. V. Lomonosov Moscow State University (Russian Federation) |
| 2019 | Visiting Research Professor in the School of Chemistry and Chemical Engineering, Queens University Belfast (United Kingdom) |
| 2020 | Visiting Scholar in the School of Chemistry and Chemical Engineering, Queens University Belfast (United Kingdom) |
| 2021 | Fellow of the European Academy of Sciences (EURASC) |

Amongst various other activities, Dr. Bahnemann has been elected and is currently active as:

- Chairman of the *German DIN-Standardisation-Committee „Photocatalysis“ (NMP 293)*
- Member of the *European CEN-Standardisation-Committee „Photocatalysis“ (CEN/TC 389)*
- Member of the *International ISO-Standardisation-Committee „Photocatalysis“ (ISO/TC 206)*

- Associate Editor of the Journal *Catalysis Letters*
- Associate Editor of the Journal *Photochem*
- Section Editor-in-Chief “Photocatalysis” of the Journal *Catalysts*
- Executive Editorial Board Member of the Journal *J Phys Energy*
- Member of the Editorial Board of *Topics in Catalysis*
- Member of the Editorial Board of the *Journal of Photochemistry & Photobiology, A: Chemistry*

Dr. Detlef Bahnemann: Curriculum Vitae

- Member of the Editorial Board of the *International Journal of Photoenergy*
 - Member of the Editorial Board of the *Journal of Photocatalysis*
 - Member of the Editorial Board of *Chemistry*
 - Member of the Editorial Board of *Nanomaterials*
 - Member of the Editorial Board of the *Review Journal of Chemistry*
 - Member of the Editorial Board of *Nano Hybrids and Composites*
 - Member of the Editorial Board of *Materials Science for Energy Technologies*
 - Editor of the *International Journal of Materials Technology and Innovation*
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- Member of the International Scientific Committees of the following Conference Series:
International Conferences on Oxidation Technologies for Water and Wastewater Treatment
International Conferences on Photochemical Conversion and Storage of Solar Energy (IPS)
International Conferences on Semiconductor Photochemistry
International Conferences on TiO₂ Photocatalytic Purification and Treatment of Water and Air
European Meetings on Solar-chemistry and Photocatalysis: Environmental Applications