CURRICULUM VITAE

PROFESSOR DR. HANS-WERNER SCHMIDT

University Professor (W3)

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EDUCATION AND PROFESSIONAL EMPLOYMENT

since 1994	Full Professor (W3), Chair of Macromolecular Chemistry I University of Bayreuth
since 2013	Director, University of Bayreuth Graduate School
since 2016	Founding Director, Bavarian Polymer Institute (BPI) Research Institute at the Universities Bayreuth, Erlangen-Nürnberg und Würzburg
since 2015	Chairman, Focus Area Polymer- and Colloid Science at the University of Bayreuth
since 2012	Member Board of Directors, Bavarian Research Network "Solar Technologies Go Hybrid"
since 2004	Spokesman, Elite Study Program in Macromolecular Science within the Elite Network of Bayaria
since 2000	Founding member, Bayreuth Center for Colloids and Interfaces (BZKG) Research Center of the University of Bayreuth
since 1994	Director, Bayreuth Institute of Macromolecular Research (BIMF) Research Center of the University of Bayreuth (Executive Director 2002 - 2017)
2009 - 2015	Vice President, University of Bayreuth Research and Technology Transfer
1997 - 1998	Vice President, University of Bayreuth Teaching and Academic Affairs
1998 - 2010	Chairman, Collaborative Research Center 481 "Complex macromolecular and hybrid systems in internal and external fields" German Research Foundation
1989 - 1994	Assistant and Associate (tenure) Professor of Materials Materials Department, College of Engineering, University of California at Santa Barbara, California, USA

1993	Visiting Professor, Institute Charles Sadron (CNRS) Louis Pasteur University, Strasbourg, France
1989	Professoral thesis ("Habilitation"), Macromolecular Chemistry Philipps-University Marburg, Physical Chemistry Department, Marburg, Germany Topic: "Synthesis, Structure and Properties of Rod-like Aromatic Polycondensates"
1986 - 1989	Research and Teaching Associate (C1) Philipps-University Marburg, Physical Chemistry Department, Marburg, Germany
1985 - 1986	E.I. du Pont de Nemours & Company (Inc.) Experimental Station CRⅅ, Wilmington, Delaware, USA Research Area: "Novel Approaches to Aramide Films, Fibers and Coatings"
1982 - 1985	Ph.D. in Polymer Chemistry Johannes Gutenberg-University Mainz, Mainz, Germany Topic: "Synthesis, Structure and Properties of Dye-Containing Liquid Crystalline Copolymers", Advisor: Professor Helmut Ringsdorf
1983	Visiting Scientist, University of Lowell, Massachusetts Professor A. Blumstein and Professor R. Blumstein
1982	Postgraduate Certificate in Chemistry ("Diplom") Johannes Gutenberg-University Mainz, Mainz, Germany Topic: "Phase Behavior and Electric Field Effects of Mixtures of Low Molecular Mass and Polymeric Liquid Crystals", Advisor: Professor Helmut Ringsdorf
1980	Exchange Student in Polymer Chemistry Swiss Federal Institute of Technology (ETH) Zurich, Zurich, Switzerland
1976 - 1982	Academic studies in chemistry Johannes Gutenberg-University Mainz, Mainz, Germany
AWARDS AND FEL	LOWSHIPS
2010	Staudinger-Durrer Medal Department of Materials, ETH Zurich, Zurich, Switzerland
1991	Polymer Curriculum Development Award American Chemical Society Division of Polymer Chemistry and Polymeric Materials "Experimental Polymer Materials Science" (with Paul Smith)
1986	Du Pont Accomplishment Award in Recognition of the Discovery of a Novel Solution Route to Kevlar, Films, Fibers and Coatings
1982 - 1984	Award of the German Chemical Industry Fund Ph.D. Fellowship
1980	Fellowship of the German Academic Exchange Service (DAAD) Exchange Student at ETH Zurich, Zurich, Switzerland

OTHER RESPONSIBILITIES (selected by year)

Member Board of Trustees, Bayern Innovativ GmbH (since 2015)

Member Scientific Advisory Board, DWI-Leibniz-Institut für Interaktive Materialien e.V. at RWTH Aachen (since 2009)

Member Governing Board, Bavarian Research Foundation (since 2007)

Member of the Scientific Advisory Aboard the Trade Fair K, Düsseldorf (since 2013)

Member Advisory Board of Chemie Cluster Bayern (since 2006)

Member, "Arbeitskreis Innovation", Verband der Chemischen Industrie e.V. Regional Association Bavaria (since 2006)

Liaison Lecturer, Deutschen Forschungsgemeinschaft at the University of Bayreuth (since 2001)

Liaison Lecturer, Fonds der Chemischen Industrie at the University of Bayreuth (since 1999)

Liaison lecturer, German Academic Scholarship Foundation at the University of Bayreuth (since 1996) – (leading 2003 – 2009)

Liaison lecturer of the Bavarian EliteAcademy (since 1998)

Member of Senate, University of Bayreuth (1998 – 1999 and 2007 – 2009 and since 2015 as Director of the University of Bayreuth Graduate School)

Member of Department Executive Committee, Faculty of Biology, Chemistry and Earth Science at the University of Bayreuth (1995 – 1997)

Spokesman, Science Section Chemistry at the University of Bayreuth (1996 – 1997)

Member Executive Board, Science Section Macromolecular Chemistry of the Gesellschaft Deutscher Chemiker (2001 – 2009)

Member Editorial Advisory Board, International Journal of Polymeric Materials (since 2000)

CONFERENCE ORGANISATION (including joint organisations)

Polymer Discussion Meeting 2012 - "Challenges and Prospects of Polymer Chemistry"

1. Bonner Humboldt-Preisträger-Forum - "Frontiers in Macromolecular Science" (2011)

Bayreuth Polymer Symposium – BPS – "International Symposium on Functional and Structural Polymeric Materials" (2017, 2015, 2013, 2011, 2009, 2007, 2005, 2003, 2001, 1999, 1997, 1995)

Light-Harvesting Processes – "An Interdisciplinary Conference on Novel Concepts of Light-Harvesting Phenomena and Related Topics" (2011, 2009, 2007)

Member of Program Committee of the Division of Polymer Chemistry, American Chemical Society (1989 - 1999)

Organization of ACS-Symposium, Division of Polymer Chemistry – "Liquid Crystalline Polymers" (1996) "Macroscopic Order in Polymeric Systems" (1993), "Rigid Rod and Ordered Networks" (1993)

Functional polymers with applications in optics, display technology, information storage and photovoltaics

The rapid progress in the field of communication and storage technology requires the development of special polymers with specific properties. Therefore, important topics are the synthesis, characterization and application of charge transport and emitting materials for organic light-emitting diodes, materials for charge separation for the application in organic solar cells, supramolecular dyes, polymers for data storage, photo addressable polymers, polymer electret materials and new materials for high-resolution photolithography.

Polymer additives

The property profile and processing of polymers are decisively influenced by additives since most polymers are not fully operational without additives. We are dealing with the production of additives including nucleating agents and processing aids for technical thermoplastic resins and the controlled release of active components from polymers. In order to achieve the desired functions, we are applying concepts of supramolecular chemistry and liquid crystal research.

Combinatorial chemistry and methodology in materials science

Combinatorial chemistry and methodology is an efficient strategy for the efficient design and development of advanced device superstructures, materials and combination thereof. In this context, we analyze the application of combinatorial methodology for the assembly of organic light-emitting diodes, solar cells and for the optimization of complex additive combinations and formulations.

Polymers in the field of biopolymers and cosmetics

Bio-relevant macromolecular systems are of increasing significance. Therefore, we are working on synthetic lipids with polyethylene glycol segments containing specific groups for the interaction with natural proteins. Such bioconjugates find application in non-viral gene therapy for example. In addition, we are synthesizing low molecular weight and polymer gelation agents which are suitable for cosmetic applications.

Polymer processing and test specimen fabrication

A dedicated laboratory for polymer processing and test specimen fabrication, where small amounts of polymer are processed into test specimens, fibers, films and coatings is affiliated to the department.

(September 2017)

Publications in refereed journals: 250

Patents and Patent Applications: 46

SELECTED PUBLICATIONS (complete list of publications at www.macro1.de)

- Mesoscale Polarization by Geometric Frustration in Columnar Supramolecular Crystals C.S. Zehe, J.A. Hill, N.P. Funnell, K. Kreger, K.P. van der Zwan, A.L. Goodwin, H.-W. Schmidt, J. Senker Angew. Chem. Int. Ed., 56, 4432–4437 (2017)
- Writing with Fluid: Structuring Hydrogels with Micrometer Precision by AFM in Combination with Nanofluidics
 N. Helfricht, A. Mark, M. Behr, A. Bernet, H.-W. Schmidt, G. Papastavrou Small 13, 1700962 (2017)
- Pathway complexity in the enantioselective self-assembly of functional carbonyl-bridged triarylamine trisamides
 A. T. Haedler, S. C. J. Meskers, R. H. Zha, M. Kivala, H.-W. Schmidt, E. W. Meijer
 J. Am. Chem. Soc. 138, 10539-10545 (2016)
- Athermal azobenzene-based nanoimprint lithography
 C. Probst, C. Meichner, K. Kreger, L. Kador, C. Neuber, H.-W. Schmidt Adv. Mater. 28, 2624-2628 (2016)
- Tailoring Supramolecular Nanofibers for Air Filtration Applications
 D. Weiss, D. Skrybeck, H. Misslitz, D. Nardini, A. Kern, K. Kreger, H.-W. Schmidt ACS Appl. Mater. Interfaces, 8, 14885–14892 (2016)
- Long-range energy transport in single supramolecular nanofibres at room temperature A. T. Haedler, K. Kreger, A. Issac, B. Wittmann, M. Kivala, N. Hammer, J. Köhler, H.-W. Schmidt, R. Hildner Nature 523, 196-199 (2015)
- Theoretical investigation of macrodipoles in supramolecular columnar stackings R. Q. Albuquerque, A. Timme, R. Kress, J. Senker, H.-W. Schmidt Chem. Eur. J. 19, 1647-1657 (2013)
- Stable holographic gratings with small-molecular trisazobenzene derivatives
 K. Kreger, P. Wolfer, H. Audorff, L. Kador, N. Stingelin-Stutzmann, P. Smith, H.-W. Schmidt
 J. Am. Chem. Soc. 132, 509-516 (2010)
- Polymer blends with azobenzene-containing block copolymers as stable rewritable volume holographic media
 M. Häckel, L. Kador, D. Kropp, H.-W. Schmidt Adv. Mater. 19, 227-231 (2007)
- "Designer" nucleating agents for polypropylene M. Blomenhofer, S. Ganzleben, D. Hanft, H.-W. Schmidt, M. Kristiansen, P. Smith, K. Stoll, D. Mäder, K. Hoffmann Macromolecules 38, 3688-3695 (2005)

(complete list of patens at www.macro1.de)

- Thermoplastic moulding compound based on vinylaromatic copolymers for 3d printing Baumann, Stephanie; Eisentraeger, Frank; Meiners, Josef; Niessner, Norbert; Schmidt, Hans-Werner (INEOS Styrolution Europe GmbH) PCT Int. Appl. (2017), WO 2017158075 A1 20170921
- Thermally conductive polymer resin composition based on styrenics with low density Schulz, Tobias; Niessner, Norbert; Michels, Gisbert; Schmidt, Hans-Werner; Kolb, Tristan (INEOS Styrolution Europe GmbH) PCT Int. Appl. (2017), WO 2017060344 A1 20170413
- Polyethylene compositions with improved optical properties Hill, Martin; Bensason, Selim; Schmidt, Hans-Werner; Smith, Paul; Aksel, Seda (Dow Global Technologies LLC, USA) PCT Int. Appl. (2016), WO 2016105610 A1 20160630
- Polyamide molding compositions comprising novel urea compounds for improved optical properties Gabriel, Claus; Schmidt, Hans-Werner; Richter, Florian; Park, Hye Jin; Xalter, Rainer (BASF SE, Germany) PCT Int. Appl. (2013), WO 2013139802 A1 20130926 U.S. Pat. Appl. Publ. (2013), US 20130251929 A1 20130926
- 5. *PEG-based embedding medium for histology* Schmidt, Hans-Werner; Bernet, Andreas Ger. Offen. (2011), DE 102009035019 A1 20110210 PCT Int. Appl. (2011), WO 2011012337 A1 20110203
- Additives to improve the electret behavior of polycarbonates Jenninger, Werner; Wagner, Joachim; Schmidt, Hans-Werner.; Erhard, Dominik. (Bayer Materialscience AG, Germany) Eur. Pat. Appl. (2010), EP 2159222 A1 20100303
- 7. Polymer networks comprising active ingredients, process for their production, and their use Terrenoire, Alexandre; Leininger, Hartmut; Bullock, James; Qureshi, Mohammed Shoaib; Schmidt, Hans-Werner; Giesa, Reiner; Ranft, Meik; Lafuente Cerda, Oscar(BASF SE, Germany) PCT Int. Appl. (2009), WO 2009016112 A2 20090205
- Hybrid solar cells with thermal deposited semiconductive oxide layer Nelles, Gabrielle; Yasuda, Akio; Schmidt, Hans-Werner; Thelakkat, Mukundan; Schmitz, Christoph U.S. Pat. Appl. Publ. (2006), US 2006008580 A1 20060112, US 2005-32326
- Resin compositions with reduced haze containing amide compounds as nucleating agents Schmidt, Hans-Werner; Blomenhofer, Markus; Stoll, Klaus; Meier, Hans-Rudolf (Ciba Specialty Chemicals Holding Inc., Switz.) PCT Int. Appl. (2004), WO 2004072168 A2 20040826
- Polypropylene resin compositions, trimesic acid derivatives and their preparation Schmidt, Hans-Werner; Smith, Paul; Blomenhofer, Markus (Ciba Specialty Chemicals Holding Inc., Switz.) PCT Int. Appl. (2002), WO 2002046300 A2 20020613