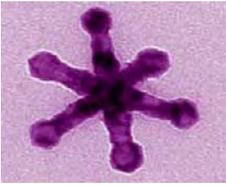


Forschungsnetzwerk
**Nanostrukturierte
Materialien**

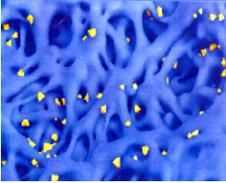
Band 3
Forschungsprofile



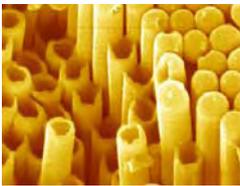
Captions of the cover figures



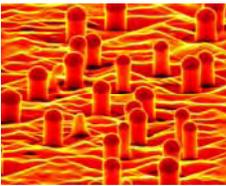
Single crystal manganese oxide multipods. The synthesis of hexapods (one example shown) is based on thermal decomposition of $\text{Mn}(\text{oleate})_2$. They are homogeneous in size. The single pods are smaller than 100nm.



Ni crystallites in porous glass taken by SEM. The Ni crystallites are yellow, the glass structure is blue. *Details: Inst. für Technische Chemie und Molekulare Chemie, Interdisziplin. Zentrum für Materialwissenschaften*



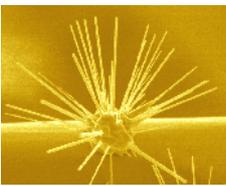
Polystyrene nanotubes (molecular weight 800000 g/mol) fabricated by wetting of porous templates. The nanotubes have wall thicknesses of 20 nm to 40 nm and lengths up to 100 μm .



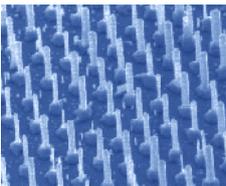
Silicon nanowires grown by molecular beam epitaxy. The growth is initiated by gold droplets (cf. caps). Typical diameters of the silicon nanowires are between 70 nm and 200 nm.



Magnetic cobalt nanodots on a reconstructed gold surface. The magnetic nanodots have a lateral separation of 7.4 nm, are 1 atom high and 4 nm in diameter. The hypothetical magnetic storage density is 10 Tbits / square inch.



ZnO nanowires grown from a gold-film-coated particle by vapor deposition. The coating of nanowires increases the surface area of the particle. The nanowires are 40 nm in diameter and 5 μm in length.



Arrays of vertically aligned and hexagonally arranged ZnO nanowires. The growth is based on nanodot gold templates (100 nm). The ZnO wire diameters can be varied from 30 nm to 250 nm.



Flower-like ZnO nanowire structures grown radially from a μm -wide and mm-long core wire. They could be applicable for random lasing. Each of the nanowires has a diameter of ~ 30 nm and a length of 10 μm .

10. Forschungsprofile – Verzeichnis (Band 3)

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Werner	98
Widdra	100

Curriculum Vitæ

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<http://www2.chemie.uni-halle.de/anorg/ak/abicht/index.html>

- 1962-1967 Studies of chemistry at Martin Luther University Halle-Wittenberg, Germany
- 1967 Diploma Thesis in organo-phosphorus chemistry under the direction of Kurt Issleib "Synthesis and reactivity of Lithium-bis(diphenylphosphino)-methanide"
- 1966-1973 Scientific co-worker at the Institute of Inorganic Chemistry at Martin Luther University
- 1971 Ph.D. Thesis in the field of carbon-metallated phosphines
- 1973-1987 Senior assistant at the University Halle
- 1980-1981 Postdoc at the Iowa State University in Ames, USA, with Professor John Verkade
- 1982 Habilitation in organometallic chemistry "o-Lithiobenzyl-diorganophosphines as building blocks" at the Martin Luther University
- 1983 Scientific stay at the Max Planck Institute of Solid State Research in Stuttgart, Germany, with Professor H. G. von Schnering
- 1987 Appointment to an Apl. Hochschuldozent of the University Halle
- 1987 Start with the organization of a materials science oriented solid-state research group at the Department of Chemistry in cooperation with the Department of Physics
- 1989 Award of the "Research Prize" of the Martin Luther University, Halle
- 1990-1993 Deputy director of the Department of Chemistry
- since 1994 Professor at the Martin Luther University Halle-Wittenberg, Germany
- since 1995 Member of the directorate of the Materials Research Center of Martin Luther University Halle-Wittenberg
- since 1996 Member of research center (SFB 418)

Forschungsthemen

Synthesis and characterization of pre-ceramic powders by various methods; nano powders; microwave assisted synthesis; surface modification of powders; synthesis, characterization and application of core-shell structures; anion substitution (O/N exchange) of perovskites (BaTiO_3); microwave sintering of ceramics.

Relevante Publikationen

K. Issleib und H.-P. Abicht

Zum Reaktionsverhalten des Lithium-bis(diphenylphosphino)-methanids und des Lithium-bis(diphenylphosphinyl)-methanids

J. Prakt. Chem. **312** (1970) 456

H.-P. Abicht und K. Issleib

Zur Metallierung von Benzylphosphinen

Z. anorg. allg. Chem. **447** (1978) 53

H.-P. Abicht, W. Hönle und H. G. von Schnering

Tetrakaliumhexaphosphid: Darstellung, Struktur und Eigenschaften von α -K₄P₆ und β -K₄P₆

Z. anorg. allg. Chem. **519** (1984) 7

St. Derling, H.-P. Abicht

Microwave Sintering of BaTiO₃-based Ceramics

J. Microwave Power and Electromag. Energy **31** (1996)(4)221-227

H.-P. Abicht, D. Völtzke, R. Schneider, J. Woltersdorf, O. Lichtenberger

Defect chemistry of the shell region of water milled BaTiO₃ powders

Mat. Chem. Phys. **55** (1998) 188-92

S. Senz, A. Graff, W. Blume, D. Hesse, H.-P. Abicht

Orientation relationship of reactively grown Ba₆Ti₁₇O₄₀ and Ba₂TiSi₂O₈ on BaTiO₃(001) determined by X-ray diffractometry

J. Amer. Ceram.Soc. **81** (1998)(5) 1317-21

M. Rössel, S. Gablenz, Th. Müller, A. Röder, H.-P. Abicht

A core-shell structured BaTiO₃ precursor – preparation, characterization and potentialities

Anal. Bioanal. Chem. **375** (2003) 310-314

L. Jäger, V. Lorenz, Th. Müller, H.-P. Abicht, M. Rössel, H. Görls

Bariumstannat-Pulver durch Hydrothermale Synthese und durch Thermolyse von Bariumzinn(IV)glykolaten. Synthese und Struktur von [Ba(C₂H₆O₂)₄][Sn(C₂H₄O₂)₃] und [Ba(C₂H₆O₂)₂][Sn(C₂H₄O₂)₃]•CH₃OH

Z. Anorg. Allg.Chem., **630** (2004)(1) 189-195

M. Rössel, H.-R. Höche, H. S. Leipner, D. Völtzke, H.-P. Abicht, O. Hollricher, J.

Müller, S. Gablenz

Raman microscopic investigations of BaTiO₃ precursors with core-shell structure

Anal. Bioanal. Chem. **380** (2004)(1) 157-62

T. Bräuniger, T. Müller, A. Pampel, H.-P. Abicht

Study of oxygen-nitrogen replacement in BaTiO₃ by ¹⁴N solid-state NMR

Cem. Mater. **17** (2005) 4114-17

Curriculum Vitæ

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Solid State Physics , Senior Research Staff,
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| 1980 - 1985 | Studies of physics at University of Bucharest, Romania. |
| 1985 | Diploma thesis in “Fabrication and properties of ferroelectric thin films for infrared detection”. |
| 20.6.1985 | Diploma “With distinction” at Bucharest University. |
| 1985 - 1988 | Staff member at Steel Plant Targoviste, Romania. |
| 1988-1990 | Research staff at Institute of Materials Physics, Bucharest, Romania |
| 1995 | PhD degree with “Summa cum laude”, at Institute of Atomic Physics, Romania |
| 1996-1998 | Max-Planck Fellowship at Max Planck Institute-Halle |
| 1998-2002 | Research Staff at Max Planck Institute-Halle |
| 2002-present | Permanent Research Staff at Max Planck Institute-Halle |

Forschungsthemen

Nanoscience & nanotechnology, ferroelectric nanostructures and ultra-thin films, Physics and engineering of complex oxide thin films, Non-volatile information storage technologies: Physics and technology of MOS devices including MFS devices and non-volatile memories. Interfaces (oxide-semiconductor, oxide-oxide) and interface properties

Relevante Publikationen

J.M. Zhang, A. Visinoiu, F. Heyroth, F. Syrowatka, M. Alexe, D. Hesse, and H.S. Leipner,
High-resolution electron energy-loss spectroscopy of BaTiO₃/SrTiO₃ multilayers.
Physical Review B **71** (2005) 064108 (7 p.).

Chu, M.-W., Szafraniak, I., Hesse, D., Alexe, M. and Gösele, U.
Elastic coupling between 90° twin walls and interfacial dislocations in epitaxial ferroelectric perovskites: A quantitative high-resolution transmission electron microscopy study.
Physical Review B **72**, 174112/1-5 (2005)

M. Alexe, C. Harnagea, and D. Hesse,
Non-conventional micro- and nanopatterning techniques for electroceramics.
In: Electroceramic-Based MEMS, Fabrication-Technology and Applications, edited by N. Setter. Springer, New York 2005. Chapter 14, pp. 361-385.

B. Mereu, C. P. Cristescu, and M. Alexe,
Chaos supported stochastic resonance in a metal-ferroelectric-semiconductor heterostructure.
Phys. Rev. E **71**, 047201 (2005)

S.K. Lee, W. Lee, M. Alexe, K. Nielsch, D. Hesse, and U. Gösele,
Well-ordered large-area arrays of epitaxial ferroelectric (Bi,La)₄Ti₃O₁₂ nanostructures fabricated by gold nanotube-membrane lithography.
Appl. Phys. Lett. **86** (2005) 152906 (3p.)

M.-W. Chu, I. Szafraniak, R. Scholz, D. Hesse, M. Alexe, and U. Gösele,
Impact of misfit dislocations on the polarization instability of epitaxial nanostructured ferroelectric perovskites.
Nature Materials **3** (2004) 87-90.

L. Pintilie and M. Alexe,
Metal-ferroelectric-metal heterostructures with Schottky contacts. I. Influence of the ferroelectric properties.
J. Appl. Phys. **98**, 124103 (2005)

T. Z. Lu, M. Alexe, R. Scholz, V. Talelaev, and M. Zacharias,
Multilevel charge storage in silicon nanocrystal multilayers.
Appl. Phys. Lett. **87**, 202110 (2005)

M. Alexe, C. Harnagea, D. Hesse, and U. Gösele,
Polarization imprint and size effects in mesoscopic ferroelectric structures.
Appl. Phys. Lett. **79** (2001) 242-244.

M. Alexe, C. Harnagea, W. Erfurth, D. Hesse, and U. Gösele,
100nm lateral size ferroelectric memory cells fabricated by electron-beam direct writing.
Appl. Phys. A **70** (2000) 247-251.

Curriculum Vitæ

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- 1991-1996 Studies of physics at Technical University Dresden, Germany
Diploma Thesis in physics " Strain measurement by means of convergent
beam electron diffraction in submicron volumes " at the TU Dresden
- Since 1997 scientific assistant at Fraunhofer IWM Halle in the research group
"Diagnostic and Estimation of Micro-Components"
- Since 2001 manager of several industry projects at Fraunhofer IWMH
- Since 2002 leader of the research-group " Semiconductor Technology/-diagnostics"

Forschungsthemen

Diagnostic at semiconductor technologies and technology optimization,
thermal failure localisation,
focused ion beam preparation techniques,
precise mechanical preparation methods,
thermo-mechanical simulation.

Relevante Publikationen

E. Langer, F. Altmann, D. Katzer, W. Neumann:

Strain measurement by means of convergent beam electron diffraction in submicron volumes,

Proc. of the Int. Conf. and Exhibition, Micro Mat '97, April 16-18, 1115-1117

F. Altmann, F. D. Katzer:

Cross-sectional preparation from ICs downside for SEM and TEM failure analysis using focused ion beam etching,

Thin solid films 343-344 (1999) 609-611

A. Heilmann, F. Altmann, D. Katzer, F. Müller, Th. Sawitowski, G. Schmid:

Determination of the pore size and vertical structure of nanoporous aluminium oxide membranes,

Applied Surface Science, Vol. 144 - 145, 1999, S. 682-685

Breitenstein, F. Altmann;

Lokalisierung von Gate-Leckströmen in FETs mit Lock-in-Thermographie

Spectrum, Ausgabe 77, Oktober 1999, S. 6

Breitenstein, M. Langenkamp, F. Altmann, D. Katzer, A. Lindner, E. Eggers:

Microscopic lock in thermography investigation of leakage sites in integrated circuits,

Rev. of Scientific Instruments, 71 (2000), 4155-4160

F. Altmann:

FIB-Zielpräparation von TEM-Proben mittels Nadelmanipulationstechnik,

Praktische Metallographie 40 (2003) 175-183 (M98/2003)

F. Altmann:

Fault Localisation of ICs by Lock-in Fluorescent Microthermal Imaging (Lock-in FMI),

Tagung Quantitative Infrared Thermography QIRT, Rhode Saint Genèse, Belgium, 5.-8. Juli 2004

F. Altmann;

TEM-Zielpräparation unter REM-Beobachtung mit der Zeiss NTS Crossbeam,

Praktische Metallographie vol 42 (2005)

A. Heilmann, F. Altmann, D. Katzer, F. Müller, Th. Sawitowski, G. Schmid:

Determination of the pore size and vertical structure of nanoporous aluminium oxide membranes,

Applied Surface Science, Vol. 144 - 145, 1999, S. 682-685

S. Huth, O. Breitenstein, A. Huber, D. Danz, U. Lambert, F. Altmann:

Lock-In IR-Thermography – A novel tool for material and device characterization,

Solid State Phenomena Vols. 82-84 (2002), S. 741-746

Curriculum Vitæ

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- | | |
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| 1974-1978 | Studies of chemistry at the Martin Luther University Halle-Wittenberg, Germany |
| 1979 | Diploma Thesis "X-ray investigations on binary mixtures of liquid crystalline substances" at the Martin Luther University Halle-Wittenberg, Germany |
| 1978-1981 | Ph.D. student at the Martin Luther University Halle-Wittenberg, Germany |
| 1982 | Ph.D. Thesis "X-ray crystal structure analyses of nematogenic substituted phenyl and cyclohexyl benzoates" at the Martin Luther University Halle-Wittenberg, Germany |
| 1981-1988 | Assistant at the Martin Luther University Halle-Wittenberg, Germany |
| 1988-1989 | Postdoc at the Adam Mickiewicz University Poznan, Poland |
| since 1988 | Senior Assistant at the institute of Physical Chemistry, Martin Luther University Halle-Wittenberg, Germany |

Forschungsthemen

X-ray diffraction on liquid crystals,
X-ray structure analysis.

Relevante Publikationen

G. Dantlgraber, U. Baumeister, S. Diele, H. Kresse, B. Luehmann, H. Lang, C. Tschierske,
Evidence for a New Ferroelectric Switching Liquid Crystalline Phase Formed by a Carbosilane Based Dendrimer with Banana-Shaped Mesogenic Units.

J. Am. Chem. Soc. **124**, 14852-14853 (2002).

A. Mori, M. Yokoo, M. Hashimoto, S. Ujiie, S. Diele, U. Baumeister, C. Tschierske,
A Novel Biaxial Smectic Liquid Crystalline Phase Formed by Rod-type Molecules with a 1,3-Diazaazulene Skeleton

J. Am. Chem. Soc. **125**, 6620-6621 (2003)

X. Cheng, M. Prehm, M. K. Das, J. Kain, U. Baumeister, S. Diele, D. Leine, A. Blume, C. Tschierske,

Calamitic Bolaamphiphiles with (Semi)Perfluorinated Lateral Chains: Polyphilic Block Molecules with New Liquid Crystalline Phase Structures.

J. Am. Chem. Soc. **125**, 10977-10996 (2003).

B. Chen, X. B. Zeng, U. Baumeister, S. Diele, G. Ungar, C. Tschierske,

Liquid crystals with complex superstructures.

Angew. Chem. Int. Ed. **43** (35), 4621-4625 (2004)

B. Chen, U. Baumeister, S. Diele, M. K. Das, X. B. Zeng, G. Ungar, C. Tschierske, Chen,

A new type of square columnar liquid crystalline phases formed by facial amphiphilic triblock molecules.

J. Am. Chem. Soc. **126**, 8608-8609 (2004).

X. Cheng, M. K. Das, U. Baumeister, S. Diele, C. Tschierske,

Liquid Crystalline Bolaamphiphiles with Semiperfluorinated Lateral Chains: Competition between Layerlike and Honeycomb-Like Organization.

J. Am. Chem. Soc. **126**, 12930-12940 (2004)

C. Keith, R. A. Reddy, U. Baumeister, C. Tschierske,

Banana-Shaped Liquid Crystals with Two Oligosiloxane End-Groups: Field-Induced Switching of Supramolecular Chirality.

J. Am. Chem. Soc. **126**, 14312-14313 (2004).

B. Chen, X. Zeng, U. Baumeister, G. Goran; C. Tschierske,

Liquid Crystalline Networks Composed of Pentagonal, Square, and Triangular Cylinders.

Science **307**, 96-99 (2005).

A. G. Cook, U. Baumeister, C. Tschierske,

Supramolecular Dendrimers: Unusual mesophases of ionic liquid crystals derived from protonation of DAB dendrimers with facial amphiphilic carboxylic acids

J. Mater. Chem. **15**, 1708 - 1721 (2005).

D. Kardas, M. Prehm, U. Baumeister, D. Pocięcha, R. A. Reddy, G. H. Mehl, C. Tschierske,

End functionalised liquid crystalline bent core molecules and first DAB derived dendrimers with banana shaped mesogenic units

J. Mater. Chem. **15**, 1722 -1733 (2005).

Curriculum Vitæ

Horst Beige

(Prof. Dr.)



Professor of Experimental Physics

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Martin-Luther-University Halle-Wittenberg
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- 1965-1970 Studies of physics at Martin-Luther-University Halle-Wittenberg, Germany
- 1972 Ph.D Thesis in solid state physics (“Elastic nonlinearity of paraelectric barium titanate crystals”)
- 1975 Postdoc at the Moscow State University, Russia
- 1981 Habilitation in solid state physics (“Elastic, dielectric and electromechanical nonlinearities near structural phase transitions”)
- 1982 Lectures in Experimental Physics
- 1987 Professor at the Martin-Luther-University Halle-Wittenberg
- 1991-1998 Member of the research center (SFB 185, Nonlinear dynamics)
- since 2003 Member of the European Steering Committee on Ferroelectricity Meetings
- since 2003 Speaker of the Section Dielectric Solids of the German Physical Society

Forschungsthemen

Linear and nonlinear elastic, dielectric and electromechanical properties of polar crystals, ceramics, thin films, functionally graded materials and composites;
study of structural phase transitions.

Relevante Publikationen

R. Steinhausen, T. Hauke, H. Beige, W. Watzka, U. Lange, D. Sporn, S. Gebhardt, A. Schönecker
Properties of fine scale piezoelectric PZT fibers with different Zr content
J. Eur. Ceram. Soc. 2001, 21, 1459

R. Steinhausen, T. Hauke, H. Beige, S. Seifert, U. Lange, D. Sporn, S. Gebhardt, A. Schönecker:
Characterization and modeling of ferroelectric thin films and 1-3 composites Bol. Soc.
Exp. Esp. Vidr., 2002, 41, 158

R. Steinhausen, T. Hauke, W. Seifert, H. Beige, U. Lange, D. Sporn, S. Gebhardt, A. Schönecker:
A new method for the determination of elastic properties of thin piezoelectric PTZ fibers
Ferroelectrics, 2002, 268, 53

V. Mueller, Y. Shchur, H. Beige, S. Mattauch, J. Glinnemann, G. Heger:
Dielectric dispersion due to weak domain wall pinning in RbH_2PO_4
Phys. Rev. B 65, 2002, 134 102

S. Gebhardt, A. Schönecker, R. Steinhausen, W. Seifert, H. Beige:
Quasistatic and dynamic properties of 1-3 composites made by the soft molding
J. Eur. Ceram. Soc., 2003, 23, 153

U. Straube, H. Beige, V. Müller:
Determination of elastic properties of crystals near phase transitions with pulsed ultrasound and mechanical resonance
Sol. Stat. Phen., 2003, 89, 372

B. Vodopivec, C. Filipic, A. Levstik, J. Holc, Z. Kutnjak, H. Beige
Dielectric properties of partially disordered Lanthanum modified lead zirconate titanate relaxor ferroelectrics
Phys. Rev. B 69, 2004, 224 208

S. Seifert, D. Sporn, T. Hauke, G. Müller, H. Beige:
Dielectric and electromechanical properties of sol-gel prepared PZT thin films on metallic substrates
J. Eur. Ceram. Soc., 2004, 24, 2553

L. Geske, V. Lorenz, T. Müller, L. Jäger, H. Beige, H.-P. Abicht, V. Mueller:
Dielectric and electromechanical characterisation of fine-grain $\text{BaTi}_{0,95}\text{Sn}_{0,05}\text{O}_3$ ceramics intered from glycolate-precursor powder
J. Eur. Ceram. Soc., 2005, 25, 2537

C. Pietschke, A. Kouvatov, R. Steinhausen:
Polarization kinetics of electrically connected electroconductive ferroelectric multilayer structures
J. Eur. Ceram. Soc., 2005, 25, 2547

Curriculum Vitæ

Mario Beiner

(PD Dr.)



Assistant Professor, Polymer Physics Group

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- 1986-1991 Studies of Physics at the Technical University Merseburg, Germany
- 1991 Diploma Thesis in Polymer Physics "Physical aging in amorphous polymers studied by ultrasound" at the Technical University Merseburg
- 1991-1992 Research Fellow, Department of Macromolecular Chemistry, TU Merseburg
- 1992-1995 Ph.D. Student at the Martin-Luther-University Halle-Wittenberg
- 10/1995 Ph.D. Thesis in Polymer Physics "Coarse and fine structure of the dynamic glass transition in polymers", Department of Physics, Martin-Luther-University Halle-Wittenberg
- 1996-1997 Postdoc at the Max-Planck-Institute for Polymer Research Mainz & FORTH Heraklion, Greece
- 1997-1998 Research Fellow, Department of Physics, Martin-Luther-University Halle-Wittenberg
- 1999-2002 Lecturer, Department of Physics, Martin-Luther-University Halle-Wittenberg
- 01/2000-05/2000 Visiting Scientist at the Department of Materials Science and Engineering, Mc Master University Hamilton, Canada
- 01/2003 Habilitation and Venia Legendi in Experimental Physics, "Glass transition and dynamic heterogeneities: Investigations in the crossover region and on nanophase-separated polymers", Faculty of Science and Engineering, Martin-Luther-University Halle-Wittenberg
- since 2003 Member of the Research Center SFB 418
- since 2003 Assistant Professor (C2), Department of Physics, Martin-Luther-University Halle-Wittenberg

Forschungsthemen

Relaxation behavior of nanostructured polymers; Nanophase separation in side chain polymers; Crystallization in small domains and self-assembled confinements; Glass transition and dynamic heterogeneities; Physical aging in complex systems; Heterogeneities in polymeric networks; Influence of thermodynamic parameters on the phase separation in polymer blends and block copolymers; Shear and dielectric spectroscopy; Heat capacity spectroscopy; DSC/TMDSC; Scattering techniques.

Relevante Publikationen

E. Hempel, H. Budde, S. Höring, M. Beiner

On the crystallization behavior of frustrated alkyl groups in poly(n-octadecylmethacrylate)
J. Non-Cryst. Solids (2006), in press

E. Hempel, H. Budde, S. Höring, M. Beiner;

Side chain crystallization in microphase-separated poly(styrene-*block*-octadecylmethacrylate) copolymers

Thermochim. Acta **432/2**, 131-138 (2005)

K.L. Ngai, M. Beiner

Secondary Relaxation of the Johari-Goldstein kind in alkyl nanodomains

Macromolecules **37**, 8123-8129 (2004)

S. Hiller, O. Pascui, H. Budde, O. Kabisch, D. Reichert, M. Beiner

Nanophase separation in side chain polymers: New evidence from structure and dynamics

New J. Physics **6**, 10 [1-16] (2004)

M. Beiner, H. Huth

Nanophase separation and hindered glass transition in side-chain polymers

Nature Materials **2**, 595-599 (2003)

O. Pascui, M. Beiner, D. Reichert

Identification of slow dynamic processes in poly(n-hexyl methacrylate) by solid-state 1D-MAS exchange NMR

Macromolecules **36**, 3992-4003 (2003)

S. Correzzi, M. Beiner, H. Huth, K. Schröter, S. Capaccioli, R. Casalini, D. Fioretto, E. Donth

Two crossover regions in the dynamics of glass forming epoxy resins

J. Chem. Phys. **117**, 2435-2448 (2002)

M. Beiner, O. Kabisch, S. Reichl, H. Huth

Structural and dynamic nanoheterogeneities in higher poly(n-alkyl methacrylates)

J. Non-Cryst. Solids **307-310**, 658-666 (2002)

M. Beiner

Relaxation in poly(n-alkyl methacrylate)s: Crossover region and nanophase separation

Macromol. Rap. Comm. **22**, 869-895 (2001)

M. Beiner, S. Kahle, S. Abens, E. Hempel, S. Höring, M. Meissner, E. Donth

Low-temperature heat capacity, glass-transition cooperativity, and glass-structure vault breakdown in a series of poly(n-alkyl methacrylate)s

Macromolecules **34**, 5927-5935 (2001)

M. Beiner, H. Huth, K. Schröter

Crossover region of dynamic glass transition: General trends and individual aspects

J. Non-Cryst. Solids **279**, 126-135 (2001)

H. Huth, M. Beiner, E. Donth

Temperature dependence of glass-transition cooperativity from heat-capacity spectroscopy: Two post-Adam-Gibbs variants

Phys. Rev. B **61**, 15092-15101 (2000)

Curriculum Vitæ

Alfred Blume

(Prof. Dr.)



Professor of Physical Chemistry

Martin Luther University Halle-Wittenberg
Institute of Physical Chemistry
Mühlpforte 1
06108 Halle (Saale)

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<http://phys.chemie.uni-halle.de/>

- 1966-1971 Study of chemistry, University of Tübingen and University of Freiburg, Germany
- 1971 Diploma thesis in Physical Chemistry, University of Freiburg
- 1976 Dr. rer. nat. in Physical Chemistry, University of Freiburg
- 1980-81 Post-Doc (Research grant of the Deutsche Forschungsgemeinschaft) at the Massachusetts Institute of Technology, Cambridge, Mass., USA
- 1983 Habilitation in Physical Chemistry, University of Freiburg
- 1976 – 83 Senior Research Assistant (Habilitation), University of Freiburg
- 1983-88 Privatdozent, University of Freiburg
- 1988 Professor of Physical Chemistry, University of Kaiserslautern
- 1996-97 Group leader research group "Liquid-crystalline systems" of the Max Planck Society at the Institute of Physical Chemistry, Martin Luther University Halle-Wittenberg
- 1997 Professor of Physical Chemistry, Martin Luther University Halle-Wittenberg
- 1998 Director of Institute of Physical Chemistry, Martin Luther University Halle-Wittenberg
- 2003 Dean of Department of Chemistry, Martin Luther University Halle-Wittenberg
- 2003 Annual Prize of the European Society of Applied Physical Chemistry
- 2004 Member of the Senate of the Martin Luther University Halle-Wittenberg

Forschungsthemen

Self-assembly of amphiphilic molecules: micelles, nanofibers and nanoparticles, lyotropic phases, monomolecular films at interfaces, biological model membranes.

Structure and dynamics of amphiphilic molecules: x-ray scattering on lyotropic systems, thermodynamic investigations with calorimetric methods (DSC, ITC), spectroscopic investigations using NMR-, FT-IR-, Raman-spectroscopy, FT-IR-reflection spectroscopy at interfaces, kinetics of phase transitions in lyotropic systems (stopped-flow-technique, pressure jump methods with UV-Vis, IR, light scattering and NMR detection).

Relevante Publikationen

A. Blume

A comparative study of the phase transition of phospholipid bilayers and monolayers
Biochim. Biophys. Acta **557**, 32-44 (1979)

A. Blume, D.M. Rice, R.J. Wittebort, R.G. Griffin

Molecular dynamics and conformation in the gel and liquid-crystalline phases of phosphatidylethanolamine bilayers
Biochemistry **21**, 6220-6230 (1982)

A. Blume

Apparent molar heat capacities of phospholipids in aqueous dispersion. Effects of chain length and head group structure
Biochemistry **22**, 5436-5442 (1983)

K. Elamrani, A. Blume

Effect of the lipid phase transition on the kinetics of H⁺/OH⁻-diffusion across phosphatidic acid bilayers
Biochim. Biophys. Acta **727**, 22-30 (1983)

A. Blume, W. Hübner, G. Messner

Fourier transform infrared spectroscopy of ¹³C=O labeled phospholipids. Hydrogen bonding to carbonyl groups
Biochemistry **27**, 8239-8249 (1988)

M. Jansen, A. Blume

A comparative study of diffusive and osmotic water permeation across bilayers composed of phospholipids with different head groups and fatty acyl chains
Biophys. J. **68**, 997-1008 (1995)

S. Paula, W. Süs, J. Tuchtenhagen, A. Blume

Thermodynamics of micelle formation as a function of temperature: A high sensitivity titration calorimetry study
J. Phys. Chem. **99**, 11742-11751 (1995)

P.R. Majhi, A. Blume

Temperature-induced micelle-vesicle transitions in phospholipid-surfactant mixtures
J. Phys. Chem. B **106**, 10753-10763 (2002)

K. Köhler, G. Förster, A. Hauser, B. Dobner, U.F. Heiser, F. Ziethe, W. Richter, F. Steiniger, M. Drechsler, A. Blume

Self assembly stress in a bipolar phosphocholine-water system: The formation of nanofibers and hydrogels
Angew. Chem. **116**, 247-249 (2004); Angew. Chem. Int. Ed. **43**, 245-247 (2004)

K. Köhler, G. Förster, A. Hauser, B. Dobner, U.F. Heiser, F. Ziethe, W. Richter, F. Steiniger, M. Drechsler, A. Blume

Temperature dependent characterization of a symmetric long-chain bolaamphiphile with phosphocholine headgroups in water: From hydrogel to nanoparticles
J. Am. Chem. Soc. **125**, 16804-16813 (2004)

Curriculum Vitæ

Otwin Breitenstein

(PD Dr.)



Max Planck Institute of Microstructure Physics
Weinberg 2
06120 Halle (Saale)

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Fax: 0345-5511223
E-Mail: breiten@mpi-halle.mpg.de
www.mpi-halle.mpg.de/~solar/

- 1971-1976 Study of physics at Leipzig University, Germany
- 1976 Diploma thesis in physics at Leipzig University: "Approximation methods for the solution of problems of local statistics in doped and mixed semiconductors"
- 1976-1980 Ph.D. student at Leipzig University
- 1980 Ph.D. in physics at Leipzig University, thesis title: "Use and extension of Deep Level Transient Spectroscopy (DLTS) for the investigation of factors influencing the efficiency of GaP:N luminescence diodes"
- 1980-1992 Scientific staff member at Institute of Solid State Physics and Electron Microscopy in Halle, Germany. Working on Scanning-DLTS
- 1982 Gustav Herz Award of the Physical Society of the GDR for development of Scanning-DLTS
- 1991 Habilitation at Leipzig University, thesis title: "Development and use of scanning electron microscopic transient spectroscopy (Scanning-DLTS) for investigating point defect inhomogeneities in semiconductors"
- since 1992 Scientific staff member at Max Planck Institute of Microstructure Physics, Halle, Germany
- 1994-1995 6 months working stay at NTT research laboratory in Atsugi, Japan. Research topic: UHV STM on GaAs (110) cleaved faces
- 2003 3 month working stay at UNSW Sydney, Australia. Research topic: Investigation of the physical nature of shunts in solar cells

Forschungsthemen

Investigation of loss mechanisms in silicon solar cells, especially of inhomogeneities of the I-V characteristic (shunts), by lock-in thermography and other techniques. Electrical measurements on semiconductor nanowires. About 50 publications in refereed journals, 100 at international conferences, and 20 patent applications.

Relevante Publikationen

Breitenstein, O.; Heydenreich, J.

Scanning Deep Level Transient Spectroscopy (SDLTS)

Review paper: Scanning 7, 273-289 (1985).

Breitenstein, O.; Heydenreich, J.; Heiser, T.; Mesli, A.

On the spatial resolution of local DLTS investigations using focused electron or laser beam excitation

Optik 92, 74-82 (1992)

Breitenstein, O., Eberhardt, W., Iwig, K.

Imaging the Local Forward Current Density of Solar Cells by Dynamical Precision Contact Thermography

First World Conference on Photovoltaic Energy Conversion (WCPEC), Hawaii 1994, Proceedings pp. 1633-1636

Konovalov I. E., Breitenstein O., and Iwig K.

Local Current - Voltage Curves Measured Thermally (LIVT): A New Technique of Characterizing PV Cells

9th Int. Photovoltaic Science and Engineering Conference (PVSEC-9), Miyazaki 11/1996, Technical Digest pp. 523 - 524

O. Breitenstein, M. Langenkamp, O. Lang, and A. Schirmmacher

Shunts due to laser scribing of solar cells evaluated by highly sensitive lock-in thermography

Solar Energy Materials and Solar Cells **65** (2000) 55-62

O. Breitenstein, M. Langenkamp, P. Rakotoniaina, and J. Zettner

The Imaging of Shunts in Solar Cells by Infrared Lock-in Thermography

Proc. 17th European Photovoltaic Solar Energy Conference and Exhibition, Munich 10/2001, ed. B. McNelis, W. Palz, H.A. Ossenbrink, P. Helm, WIP Munich and ETA-Florence, 2002, pp. 1499-1502

O. Breitenstein, J.P. Rakotoniaina, M.H. Al Rifai

Quantitative Evaluation of Shunts in Solar Cells by Lock-in Thermography

Progress in Photovoltaics: Res. Appl. **11** (2003) 515-526

Breitenstein, O., Langenkamp, M.

Lock-in Thermography - Basics and Applications to Functional Diagnostics of Electronic Components

Springer (Heidelberg / Berlin) 2003, ISBN 3-540-43439-9

O. Breitenstein, J.P. Rakotoniaina, M.H. Al Rifai, M. Werner

Shunt Types in Crystalline Silicon Solar Cells

Prog. Photovolt: Res. Appl. **12** (2004) pp. 529-538

O. Breitenstein, J.P. Rakotoniaina

Electrothermal simulation of a defect in a solar cell

J. Appl. Phys. **97** (2005) 074905.

Curriculum Vitæ

Patrick Bruno

(Prof. Dr.)



Director of the Theory Department
Max Planck Institute of Microstructure Physics
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- 1983-1987 Physics Studies at the “École Normale Supérieure”, Saint-Cloud (France) and the Université Pierre et Marie Curie, Paris (France)
- 1986 “Agrégation de Physique” (Rank: 1st)
- 1986 “Diplôme d’Études Approfondies” in Solid State Physics, Université Pierre et Marie Curie, Paris (France)
- 1986-1989 Ph.D. Thesis at the Institut d’Électronique Fondamentale, Université Paris-Sud, Orsay (France); title: “*Anisotropie magnétique et hystérésis du cobalt à l’échelle du plan atomique: théorie et expérience*”
- 1989-1991 Postdoc at the Institut für Angewandte Physik, Universität Regensburg; Alexander von Humboldt Fellow
- 1991-1998 „Chargé de Recherche au CNRS“ at the „Institut d’Électronique Fondamentale, Université Paris-Sud, Orsay (France)
- 1994 Recipient of the “CNRS Bronze Medal”
- 05-11/1997 Research fellowship from the Japan Society for the Promotion of Science, Nagoya University (Japan)
- since 1998 Scientific Member and Director at the Max Planck Institute of Microstructure Physics, Halle
- since 1999 Honorary Professor of Theoretical Physics at the Martin Luther University Halle-Wittenberg
- 2000-2001 Managing Director of the Max Planck Institute of Microstructure Physics, Halle
- 08-10/2002 Visiting scientist at the Kavli Institute of Theoretical Physics, University of California at Santa Barbara (USA)
- 04-06/2005 Invited professorship at the Institut de Physique des Nanostructures de l’École Polytechnique Fédérale de Lausanne (Switzerland)

Forschungsthemen

Theoretical solid state physic, magnetism, nanostructures, spintronics, exotic stuff.

Relevante Publikationen

P. Bruno

Tight-binding approach to the orbital moment and magnetocrystalline anisotropy of transition-metal monolayers

Phys. Rev. B **39**, 865-868 (1989)

P. Bruno and C. Chappert

Oscillatory coupling between ferromagnetic films separated by a non-magnetic metal spacer

Phys. Rev. Lett. **67**, 1602-1605 (1991)

P. Bruno

Theory of interlayer exchange coupling

Phys. Rev. B **52**, 411-439 (1995)

P. Bruno

Magnetic scanning tunnelling microscopy with a nonmagnetic two-terminal tip

Phys. Rev. Lett. **79**, 4593-4596 (1997)

P. Bruno

Geometrically constrained magnetic wall

Phys. Rev. Lett. **83**, 2425-2428 (1999)

M. Pajda, J. Kudrnovský, I. Turek, V. Drchal, and P. Bruno

Oscillatory Curie temperature of two-dimensional ferromagnets

Phys. Rev. Lett. **85**, 5424-5427 (2000)

P. Bruno

Absence of spontaneous magnetic order at nonzero temperature in one- and two-dimensional Heisenberg and X systems with long-range interactions

Phys. Rev. Lett. **87**, 137203/1-4 (2001)

P. Bruno

Long-range magnetic interaction due to the Casimir Effect

Phys. Rev. Lett. **88**, 240401/1-4 (2002)

P. Bruno, V. K. Dugaev, and M. Taillefumier

Topological Hall effect and Berry phase in magnetic nanostructures

Phys. Rev. Lett. **93**, 096806/1-4 (2004)

V. S. Stepanyuk, L. Niebergall, W. Hergert, and P. Bruno

Ab initio study of mirages and magnetic interactions in quantum corrals

Phys. Rev. Lett. **94**, 187201/1-4 (2005)

Curriculum Vitæ

Angelika Chassé

(PD Dr.)



Lecturer and Scientist in Theoretical Physics

Martin Luther University Halle-Wittenberg
Department of Physics, Theoretical Group
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- 1975 – 1980 Studies of physics at University of Halle (Germany)
- 1980 Physics diploma, University Halle (Germany)
- 1980- 1984 Ph.D student in physics at University Halle (Germany)
- 1984 Ph.D thesis in Theoretical Physics on “Theory and calculation of angular resolved photoemission spectra”; Dr.rer.nat. degree with “*magna cum laude*”
- 1984- 1988 Research assistant (non-permanent), Physics Department, University Halle
- Since 1988 Lecturer and scientist (permanent), Physics Department, University Halle
- 1995, 97 98 Stays at Lawrence Berkeley National Laboratory (Groups of Prof. Fadley and Prof. Van Hove), Berkeley (USA)
- 1997 Stay at University of Chiba, Faculty of Chemistry (Group Prof. Fujikawa), Chiba (Japan)
- 2000 *venia legendi* for Theoretical Physics (Habilitation), University Halle

Forschungsthemen

Electronic and real structure of solids and nano-structures,
magnetism of thin solid films,
atomic and magnetic properties of oxidic interfaces (DFG-FOR404)

Relevante Publikationen

A. Chassé, W. Kuch, M. Kotsugi, Xingyu Gao, F. Offi, S. Imada, S. Suga, H. Daimon, and J. Kirschner

Magnetism-induced symmetry breaking in photoelectron diffraction patterns

Phys. Rev. B **71** (2005) 014444.

A. Chassé

Multiple-scattering cluster model of photoelectron diffraction in magnetic solids

J. Electr. Spectr. Relat. Phenom. **137-140** (2004) 73-78.

A. Chassé

Induced circular dichroism and spin polarization in the angular distribution of photoelectrons by optical properties of adsorbate systems

Surf. Science **546** (2003) 57.

A. Chassé, H.A. Dürr, G. van der Laan, Yu. Kucherenko, and A.N. Yaresko

Magnetic circular dichroism in $L_3M_{2,3}M_{2,3}$ Auger emission from Fe and Co metal due to symmetry-breaking interactions

Phys. Rev B **68** (2003) 2144.

A. Chassé

Optical properties in photoelectron diffraction theory

J. Electr. Spectr. Relat. Phenom. **125** (2002) 47-56.

A. Chassé, L. Niebergall, and Yu. Kucherenko

Low-energy Auger electron diffraction: Influence of multiple scattering and angular momentum

Surf. Science **501** (2002) 244-252.

A. Chassé and L. Niebergall

Influence of optical properties on the spin polarization of $Cu3p$ photoelectrons

Surf. Rev. Lett. **9** (2002) 1173-1177.

T. Okuda, A. Harasawa, T. Kinoshita, K. Nakayama, T. Fujikawa, and A. Chassé

Spin arrangement of the Mn/Fe(001) system investigated by spin polarized photoelectron diffraction

Surf. Rev. Lett. **9** (2002) 901-906.

P. Rennert, A. Chassé, and L. Niebergall

Influence of magnetism on the peak rotation of core-level photoelectrons

Surf. Science **454-456** (2000) 870.

M. Heiler, Chassé, K.-M. Schindler, M. Hollering, and H. Neddermeyer

Electronic and geometric structure of thin CoO(100) films studied by ARUPS and AED

Surf. Science **454-456** (2000) 309.

Curriculum Vitæ

Silke H. Christiansen (PD Dr.)



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www.mpi-halle.mpg.de/database/view.php?&id=407&sname=C

- 1985-1990 Materials Science at University Erlangen-Nürnberg, Germany
1991 Diploma Thesis in Materials Science "Strukturelle Charakterisierung von Hochtemperatursupraleitern (Einkristallen und Volumenmaterial) des Bi-Sr-Ca-Cu-O-Systems " at the University Erlangen-Nürnberg
1992-1997 Ph.D. student at the Materials Science department at the University Erlangen-Nürnberg
Ph.D. Thesis: "The interaction square in heteroepitaxy: strain-topology-defects-composition",
1997 Grant of the Bayrische Forschungsförderung for a 6 months research stay at the Applied Physics Department, Columbia University, New York, USA; Prof. James S. Im
1998-2000 Research Assistant at the Materials Science department at the University Erlangen-Nürnberg
2001 Habilitation: "Current and future silicon based thin-film structures for electronic applications: epitaxy and crystalline deposition on amorphous substrates"
2000-2001 Feodor Lynen Fellowship of the Alexander-von-Humboldt foundation at the Department: Electronic Materials and Structures - Silicon Technology division of the T.J. Watson Research Center, IBM, USA
2001-2002 Research Staff member at the T.J. Watson Research Center, IBM, Yorktown Heights, NY, USA
2002 Chairman of the Supervisory board "phones4U"
11/2002-06/2005 Research Staff member and Group leader at the Max-Planck-Institute for Microstructure Physics, Halle, Germany
since 07/2005 Junior Research Group Leader (tenure track option) in the Excellence Initiative 'Nanostructured Materials' of the State of Saxony-Anhalt
since 2001 PD at the Materials Science department at the University Erlangen-Nürnberg

Forschungsthemen

Growth and characterization of semiconductor nanostructures for electronic applications, integration of semiconductor nanostructures in novel device concepts, guided self-assembly of nanostructures, epitaxial thin films and structures, interdisciplinary approaches in nanotechnology, advanced lithographic and electron microscopy techniques.

Relevante Publikationen

S.H. Christiansen, M. Albrecht, H.P. Strunk, H.J. Maier

The strained state of Ge(Si)- islands - finite element calculations and comparison to convergent beam electron diffraction measurements

Appl. Phys. Lett. **64**, 3617 (1994)

S.H. Christiansen, M. Albrecht, H.P. Strunk

Selforganization phenomena in heteroepitaxial growth

Comp. Mat. Sci. **7**, 213 (1996)

M. Albrecht, S.H. Christiansen, H.P. Strunk

Misfit grainlets: point strain sources for strain relaxation

Appl. Phys. Lett. **70**, 952 (1997)

G. Andrae, J. Bergmann, F. Falk, E. Ose, N.D. Sinh, M. Nerding, S.H. Christiansen, H.P. Strunk

A new technology for crystalline silicon thin film solar cells on glass, based on laser crystallization

Conf. Record of the 20th IEEE Photovoltaic Specialist Conference, **217** (2000)

S.H. Christiansen, M. Nerding, J. Krinke, H. P. Strunk, P. Lengsfeld, N.H. Nickel

The nature of grain boundaries in laser crystallized polycrystalline silicon thin films

J. Appl. Phys. **89**, 5348 (2001)

A. Hoffmann, A. Heiman, S.H. Christiansen

Nucleation and growth of nano-crystalline diamond films on a preferentially oriented vertical basal plane graphitic substrate

J. Appl. Phys. **89**, 5769 (2001)

G. Andrae, J. Bergmann, F. Falk, E. Ose, N.D. Sinh, M. Nerding, S.H. Christiansen, H.P. Strunk

Single crystalline regions of silicon on glass for thin film transistors

Solid State Phenomena **80-81**, 337 (2001)

P.M. Mooney, J.L. Jordan-Sweet, S. Christiansen

Scanning X-Ray microtopographs of misfit dislocations at SiGe/Si interfaces

Appl. Phys. Lett. **79**, 2363 (2001)

J. Cai, P.M. Mooney, S.H. Christiansen, H. Chen, J.O. Chu, J.A. Ott

Strain relaxation and threading dislocation density in helium implanted and annealed Si_{1-x}Ge_x/Si(001) heterostructures

J. Appl. Phys. **95(10)**, 5347 (2004)

S.H. Christiansen, U. Gösele

Wafer bonding: from advanced substrate engineering to future integration of 3D nanostructures

Proceedings of the IEEE, invited special issue submitted (2005)

Curriculum Vitæ

Martin Diestelhorst

(Dr.)



Research associate in Solid State Physics

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- | | |
|-------------|---|
| 1975 – 1980 | Studies of physics at Martin-Luther-University Halle-Wittenberg, Germany |
| 1980 | Diploma thesis in solid state physics on “Nonlinear elastic, electromechanical and dielectric properties in the vicinity of structural phase transitions” |
| 1980 – 1984 | Scientific assistant at the Department of Physics, Martin-Luther-University Halle-Wittenberg, |
| 1984 | Doctoral thesis in solid state physics on “Nonlinearities of TGS-crystals with defects”. |
| since 1984 | Research associate in Solid State Physics at the Department of Physics, Martin-Luther-University Halle-Wittenberg |
| 1985 | Dr.rer.nat. degree at Martin-Luther-University Halle-Wittenberg. |
| 1991-1998 | Member of the Sonderforschungsbereich SFB 185 (Nonlinear Dynamics) |
| 1992-1997 | Project leader “Small signal amplification in a nonlinear series resonance circuit with TGS-capacitor near a period-doubling bifurcation” Ministry of Science and Technology (BMBF) |

Forschungsthemen

Nonlinear dynamics, especially bifurcations and chaos in nonlinear resonators and stochastic resonance; investigation of nonlinear elastic, electromechanical, dielectric and pyroelectric properties of ferroelectrics (bulk materials and thin films) by methods derived from nonlinear dynamics; switching properties of ferroelectrics; phase transitions, especially ferroelectric phase transitions

Relevante Publikationen

M. Diestelhorst

Chaos and stochastic resonance in ferroelectrics – two effects related to switching

Ferroelectrics **316**, 65-70 (2005)

B. Mereu, M. Alexe, M. Diestelhorst, C. P. Cristescu, C. Stan

Investigations on the dynamics of a metal-ferroelectric-semiconductor heterostructure

Journal of Optoelectronic and Advanced Materials **7**, 691-695 (2005)

M. Diestelhorst

Application of small-signal amplification in a series resonance circuit with TGS-capacitor as pyroelectric detector

in St. Boccaletti, B. J. Gluckman, J. Kurths, L. M. Pecora, R. Meucci, O. Yordanov (eds.):
Experimental Chaos, Melville, New York, 2004, 39-44

M. Diestelhorst, K. Drozhdin

Stochastic resonance and domain switching

Ferroelectrics **291**, 217-224 (2003)

R. P. Kapsch, H. Kantz, R. Hegger, M. Diestelhorst

Determination of the dynamical properties of ferroelectrics using nonlinear time series analysis

International Journal of Bifurcation and Chaos **11**, 1019-1034 (2001)

M. Diestelhorst, K. Drozhdin

Stochastic resonance in ferroelectric triglycine sulfate

Ferroelectrics **238**, 589-596 (2000)

M. Diestelhorst

Method and device for converting infra-red radiation into electric signals with high amplification

US Patent 6023062 (2000);

Verfahren und Einrichtung zur Umwandlung von Infrarotstrahlung in elektrische Signale mit hochwirksamem Verstärkerprinzip

Patent DE 19625461 A1 (1998)

M. Diestelhorst, R. P. Kapsch, H. Beige

Nonlinear amplification effects in a periodically perturbed period-doubling series resonance circuit

International Journal of Bifurcation and Chaos **9**, 243-250 (1999)

M. Diestelhorst, R. Hegger, L. Jaeger, H. Kantz, R. P. Kapsch

Experimental verification of noise induced attractor deformation

Physical Review Letters **82**, 2274-2277 (1999)

R. Hegger, H. Kantz, F. Schmüser, R. P. Kapsch, H. Beige

Dynamical properties of a ferroelectric capacitor observed through nonlinear time series analysis

Chaos **8**, 727-736 (1998)

Curriculum Vitæ

Bodo Dobner

(Prof. Dr.)



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<http://pc.pharmazie.uni-halle.de/mitarbeiter/>

- 1971-1975: Study of chemistry, University of Leipzig, Germany
1975 Diploma thesis in Solid State Chemistry, University of Leipzig
1979 Dr.rer.nat. in Organic Chemistry, University of Halle
1990 Habilitation in Pharmaceutical Chemistry, University of Halle
- 1978-1981: Assistant, University of Leipzig
1981-1990: Senior Research Assistant (Habilitation), University of Halle
1991-1992: Privatdozent, University of Leipzig
1993-1998: Privatdozent, University of Halle
1999 Apl.Professor of Pharmaceutical Chemistry, University of Halle

Forschungsthemen

Synthesis and characterisation of lipids: chain modified, branched phospholipids, cluster-glycolipids, bipolar phospholipids and glykolipids.

Synthesis, physicochemical and biological characterisation of compounds for gene transfection: cationic lipids, liposome preparations, DNA-lipid complexation.

Synthesis of biological active heterocycles : pyrimidines, thieno[2.3-d]pyrimidines

Relevante Publikationen

Heiser, U. F., Dobner, B.

Novel bipolar phospholipids with different headgroups

Chem. Commun. 2025-2026 (1996)

Heiser, U. F., Dobner, B.

Copper-catalysed coupling of undec-10-enylmagnesium bromide with ω -functionalised haloalkanes as a key reaction for the synthesis of novel bipolar phospholipids with different head groups and chain length.

J. Chem. Soc., Perkin Trans.1, 809-815 (1997)

Heiser, U. F., Wolf, R., Dobner, B.

Simple and high yield synthesis of 10,10'-dimethyldotriacontan-1,1'-diol as a building block for branched bola compounds. Preparation of 10,10'-dimethyldotriacontan-1,1'-diyl-bis(2-trimethylammonioethylphosphat) and the corresponding unbranched equivalent.

Chem. Phys. Lipids **90**, 25-30 (1997)

Schmidt, M., Dobner, B., Nuhn, P.

Synthesis of Polyfunctional Pentaerythritol-Derivatives Using a Novel Protective Group Strategy for the Preparation of Cluster-Glycolipids.

Synlett 1157-1159 (2000)

Pohle, W., Selle, C., Rettig, W., Heiser, U. F., Dobner, B., Wartewig, S.

Phase transitions and hydrogen bonding in a bipolar phosphocholine evidenced by calorimetry and vibrational spectroscopy.

Arch. Biochem. Biophys. **396**, 151-161 (2001)

Schmidt, M., Dobner, B., Nuhn, P.

Synthesis of Glycolipid Clusters with Pentaerythritol Cores and Different Ethyleneoxy-Spaced Mannose Residues as Terminal Carbohydrates.

Eur. J. Org. Chem. 669-674 (2002)

Bringezu, F., Dobner, B., Brezesinski, G.

Generic Phase Behavior of Branched-chain Phospholipid Monolayers.

Chemistry- Eur. J. **8**, 3203-3210 (2002)

Köhler, K., Förster, G., Hauser, A., Dobner, B., Heiser, U. F., Ziethe, F., Richter, W., Steininger, F., Drechsler, M., Stettin, H., Blume, A.

Self Assembly Stress in a Bipolar Phosphocholine-Water System: The Formation of Nanofibers and Hydrogels.

Angew. Chem. **116**, 247-249 (2004), *Angew. Chem. Int. Ed.* **43**, 245-247 (2004)

Köhler, K., Förster, G., Hauser, A., Dobner, B., Heiser, U. F., Ziethe, F., Richter, W., Steininger, F., Drechsler, M., Stettin, H., Blume, A.

Temperature-Dependent Behavior of a Symmetric Long-Chain Bolaamphiphile with Phosphocholine Headgroups in Water: From Hydrogel to Nanoparticles.

J. Amer. Chem. Soc. **125**, 16804-16813 (2004)

Köhler, K., Meister, A., Förster, G., Dobner, B., Drescher, S., Ziethe, F., Richter, W., Steininger, F., Drechsler, M., Hauser, G., Blume, A.

Conformation and Thermal Behavior of a pH-Sensitive Bolaform Hydrogelator.

Soft Matter **2**, 77-86 (2006)

Curriculum Vitæ

Manfred Dubiel

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Lecturer of Experimental Physics

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www.physik.uni-halle.de/Fachgruppen/Glas/mitarbeiter/Dubiel/dubiel.htm

- 1970-1974 Studies of Physics at Martin Luther University of Halle-Wittenberg, Germany
- 1974-1977 Ph.D. student at the Martin Luther University of Halle-Wittenberg
- 1977 Ph.D. Thesis in solid state physics "Aggregation of point defects in doped NaCl crystals"
- 1977-1987 Scientific assistant at the Department of Physics of Martin Luther University of Halle-Wittenberg
- 1987 Visiting scientist at the Institute of Solid State Physics and Electron Microscopy (IFE), Halle, of the Academy of Sciences, Berlin
- 1987 Dr. sc. nat. degree at Martin Luther University of Halle-Wittenberg (Thesis on the "Structure of fluorophosphates, fluoroaluminate and borosilicate glasses")
- since 1987 Lecturer of Experimental Physics; activities in teaching and research work at the Department of Physics
- 1992 Acknowledgement of habilitation in Experimental Physics
- since 1994 Research staff member of group of "Glass physics" at the Department of Physics
- since 1995 Member of the commission "Physics and Chemistry of Glasses" of the "German Glass Society"
- since 1996 Project leader and member of the Coordinated Science Project "Structure and dynamics of nanoscopic inhomogeneities in condensed matter" at Martin Luther University of Halle-Wittenberg (SFB 418)

Forschungsthemen

Atomic structure and properties of nanoparticles and glasses, conductivity and dynamics of ionic glasses, X-ray absorption spectroscopy, valence state of polyvalent ions, diffusion and redox processes in glasses

Relevante Publikationen

B. Mohr, M. Dubiel, H. Hofmeister

Formation of silver particles and periodic precipitate layers in silicate glass induced by thermally assisted hydrogen permeation

J. Physics: Condens. Matter **13**, 525-536 (2001)

W. Cai, H. Hofmeister, M. Dubiel

Importance of lattice contraction in surface plasmon resonance shift for free and embedded silver particles

Eur. Phys. J. D **13**, 245-253 (2001)

X. C. Yang, W. Riehemann, M. Dubiel, H. Hofmeister

Nanoscaled ceramic powders produced by laser ablation

Materials Science and Eng. **B95**, 299-307 (2002)

X. C. Yang, M. Dubiel, S. Brunsch, H. Hofmeister

X-ray absorption spectroscopy analysis of formation and structure of Ag nanoparticles in soda-lime silicate glasses

J. Non-Cryst. Solids **328**, 123-136 (2003)

M. Dubiel, B. Rohling, M. Fütting

AC conductivity and ion transport in K⁺-for-Na⁺ ion-exchanged glasses – exchange experiments below and above the glass transition temperature

J. Non-Cryst. Solids **331**, 11-19 (2003)

H. Hofmeister, M. Dubiel, H. Graener, J.-C. Pivin

Structural characteristics of metal nanoparticles in glass upon irradiation-assisted processing

Radiation Eff. and Def. in Solids **158**, 49-54 (2003)

A. Schütz, D. Ehrt, M. Dubiel, X. C. Yang, B. Mosel, H. Eckert

A multi-method characterization of borosilicate glasses doped with 1 up to 10 mol% of Fe, Ti and Sb

Glass Science and Technol. **77**, 295-305 (2004)

H. Hofmeister, G. L. Tan, M. Dubiel

Shape and internal structure of silver nanoparticles embedded in glass

J. Materials Research **20**, 1551-1562 (2005)

M. Dubiel, X. C. Yang, R. Schneider, H. Hofmeister, K.-D. Schicke

Structure of silver nanoparticles in glasses and of nanoparticles-glass interfaces

Phys. Chem. Glasses **46**, 148-152 (2005)

H. Hofmeister, M. Dubiel, G. L. Tan, K.-D. Schicke

Configuration of twins in glass-embedded silver nanoparticles of various origin

Phys. Status Sol. (a) **1-9**, 2221-2229 (2005)

Curriculum Vitæ

Dirk Enke

(PD Dr.)



Lecturer of Industrial Chemistry
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- 1989-1993 Studies of chemistry at the TH Leuna-Merseburg, Germany
- 1994 Diploma Thesis in industrial chemistry "Alkoxylation of the silica surface" at the Martin Luther University Halle-Wittenberg, Germany
- 1994-1998 Ph.D. student at the Martin Luther University Halle-Wittenberg, Germany
- 1998 Ph.D. Thesis in industrial chemistry "Mesoporous molecular sieves on the basis of porous glasses" at the Martin Luther University Halle-Wittenberg
- 1999-2005 Assistant Professor at the Martin Luther University Halle-Wittenberg
- 2005 Habilitation in industrial chemistry "About the application oriented characterization of catalyst supports" at the Martin Luther University Halle-Wittenberg
- 2005 Lecturer of industrial chemistry at the Martin Luther University Halle-Wittenberg
- 2005 Consultant of the ChemiePark Institut Bitterfeld

Forschungsthemen

Preparation, characterization and modification of nanoporous solids, application in adsorption, catalysis and solid phase biochemistry, nanoporous glasses, sol-gel chemistry, nanoporous monoliths with hierarchical pore structures (membranes, tubes, caps), relations between texture and transport properties in nanoporous solids, optical chemosensors, heterogeneous catalysis (dry reforming, microwaves, solid superacids).

Relevante Publikationen

D. Enke, K. Otto, F. Janowski, W. Heyer, W. Schwieger, W. Gille
Two phase systems: Mesoporous silica inside Controlled Pore Glasses
Journal of Materials Science 2001, **36**, 2349.

W. Gille, D. Enke, F. Janowski
Stereological Analysis of porous glasses by use of Small-Angle Scattering
Journal of Porous Materials 2001, **8**, 179.

W. Gille, O. Kabisch, S. Reichl, D. Enke, D. Fürst, F. Janowski
Characterization of porous glasses via small-angle scattering and other methods
Microporous and Mesoporous Materials 2002, **54**, 145.

W. Gille, D. Enke, F. Janowski
Pore Size Distribution and Chord Length Distribution of Porous VYCOR Glass (PVG)
Journal of Porous Materials 2002, **9**, 211.

F. Janowski, D. Enke, in: Handbook of Porous Solids, F. Schüth, K.S.W. Sing, J. Weitkamp (Editors),
Porous Glasses
Volume 3, Wiley-VCH, Weinheim, 2002, 1432.

G. Walter, R. Kranold, D. Enke, G. Goerigk
Small-angle X-ray scattering characterization of porous glasses
Journal of Applied Crystallography 2003, **36**, 592.

W. Gille, D. Enke, F. Janowski
Application of small-angle scattering for the identification of small amounts of platinum supported on porous silica
Journal of Physics and Chemistry of Solids 2003, **64**, 2209

W. Gille, D. Enke, F. Janowski, T. Hahn
About the realistic porosity of porous glasses
Journal of Porous Materials 2003, **10**, 179.

W. Gille, D. Enke, F. Janowski
Platinum dispersion analysis depending on the pore geometry of the support
Catalysis Letters 2004, **1-2**, 13.

D. Enke, F. Friedel, T. Hahn, F. Janowski, in:
Characterization of Porous Solids VII, P. Llewellyn (Editor),
Studies in Surface Science and Catalysis,
Transport Properties of Catalyst Supports Derived from a Catalytic Test Reaction
Elsevier, Amsterdam, 2006, 455.

Curriculum Vitæ

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- 1984-1989 Physikstudium an der Martin-Luther-Universität Halle-Wittenberg
- 1989 Diplomarbeit “Automatische Meßwerterfassung und Verarbeitung zur thermischen Prozeßcharakterisierung von Kristallzüchtungsverfahren
- 1989-1994 wissenschaftlicher Assistent an der Martin-Luther-Universität Halle-Wittenberg, Fachbereich Biochemie/Biotechnologie
- 1993 Dissertation “Entwicklung neuer Durchflußtitrationsverfahren und deren Anwendung in der Bioprozeßanalytik“
- 1994-1995 wissenschaftlicher Mitarbeiter bei der GNF e.V.
- 1995-1999 wissenschaftlicher Mitarbeiter am Institut für Biotechnologie der MLU Halle
- 1999-2002 wissenschaftlicher Mitarbeiter am Institut für Technische Biochemie e.V. Halle an der Martin-Luther-Universität Halle-Wittenberg
- 2002-2003 wissenschaftlicher Mitarbeiter in der Bioservice GmbH Halle
- seit 2003 wissenschaftlicher Mitarbeiter am Interdisziplinären Zentrum für Materialwissenschaften der Martin-Luther-Universität Halle-Wittenberg

Forschungsthemen

Lithographische Techniken,
Prozesse zur Nanostrukturierung,
Sensorentwicklung.

Relevante Publikationen

Hong Jin Fan, Bodo Fuhrmann, Roland Scholz, Andreas Berger, Armin Dadgar, Alois Krost, Margit Zacharias.

Vapor-transport-deposition growth of ZnO nanostructures: switch between *c*-axial wires and *a*-axial belts by indium doping,

Nanotechnology, 2006, in press

A. Rahm, M. Lorenz, T. Nobis, G. Zimmermann, M. Grundmann, B. Fuhrmann, F. Syrowatka.

Pulsed Laser deposition and Characterization of ZnO nanowires with regular lateral arrangement.

Applied Physics A, 2005, in press

Hongjin Fan, Bodo Fuhrmann, Roland Scholz, Frank Syrowatka, Armin Dadgar, Alois Krost, Margit Zacharias.

Well-ordered ZnO nanowire arrays on GaN substrate fabricated via nanosphere lithography.

Journal of Crystal growth, **287**, 2006, 34-38

B. Fuhrmann, H.S. Leipner, H.-R.Höche, L. Schubert, P. Werner, U. Gösele.

Ordered Arrays of Silicon Nanowires Produced by Nanosphere Lithography and Molecular Beam Epitaxy.

Nano Letters **5**(12), 2005, 2524-2527

Fuhrmann, B.; Spohn, U.

The gradient controlled micro flow-through titration. A new way towards process-stable online analysis.

Initiativen zum Umweltschutz (2002), **41** 445-451.

Janasek, D.; Fuhrmann, B.; Spohn, U.

Contributions to the selective determination of hydrogen peroxide by chemiluminometric and amperometric detection.

Initiativen zum Umweltschutz (2002), **41** 489-493

He, Z. K.; Fuhrmann, B.; Spohn, U.

Calibrationless Determination of Creatinine and Ammonia by Coulometric Flow Titration.

Analytical Biochemistry (2000), **283**(2), 166-174

He, Z. K.; Fuhrmann, B.; Spohn, U.

Precise and sensitive determination of nitrite by coulometric backtitration under flow conditions

Fresenius' Journal of Analytical Chemistry (2000), **367**(3), 264-269

He, Z. K.; Fuhrmann, B.; Spohn, U.,

Coulometric microflow titrations with chemiluminescent and amperometric detection of the equivalence points - basic investigations and bromimetric titration of low concentration solutions of arsenite.,

Analytica Chimica Acta (2000), **407**(1-2), 203-212.

He, Z. K.; Fuhrmann, B.; Spohn, U.,

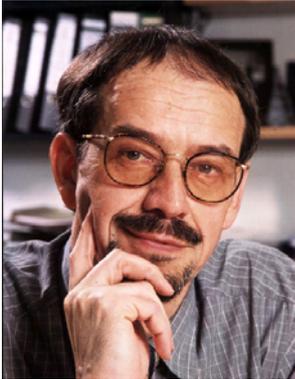
Coulometric microflow titrations with chemiluminescent and amperometric equivalence point detection. Bromimetric titration of low concentrations of hydrazine and ammonium.,

Analytica Chimica Acta (2000), **409**(1-2), 83-91

Curriculum Vitæ

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(Prof. Dr.)



Director at MPI of Microstructure Physics
Weinberg 2, 06120 Halle

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- 1973 Diploma in Physics, University of Stuttgart, Germany
- 1975 Ph. D. in Physics, Max Planck Institute for Metallurgy and University of Stuttgart, Stuttgart, Germany
- 1975-1976 Postdoc, MPI for Metallurgy, Stuttgart, Germany
- 1976-1977 Senior Scientist, Atomic Energy Board, Pretoria, South Africa
- 1977-1983 Tenured Research Scientist, MPI for Metallurgy, Stuttgart, Germany
- 1980-1981 Visiting Scientist, IBM Watson Research Center, NY, USA
- 06/1983 Visiting Scientist, Dept. of Materials Science, Cornell University, USA
- 1984- 09/1985 Research Engineer, Siemens Corporation, Munich, Germany
- 10/1985-06/1998 Full Professor of Materials Science (since 1993 J. B. Duke Prof. of Materials Science), Duke University, Durham, NC, USA
- 09-12/1991 Visiting Scientist, NTT LSI Laboratories, Atsugi, Japan
- 06/1988 Visiting Scientist, Department of Materials Science, M.I.T., USA
- Since 06/1993 Director at MPI of Microstructure Physics, Halle, Germany
- Since 07/1998 Adjunct Professor of Materials Science, Duke University, Durham, NC, USA
- 09-12/2003 Visiting Scientist, Harvard University, Cambridge, USA

Forschungsthemen

Defects and diffusion processes in silicon and other semiconductors; science and technology of semiconductor wafer bonding; quantum effects in porous silicon; self-limited fabrication of nanostructures; semiconductor nanowires; quantum dots; ferroelectric thin films; photonic crystals and silicon photonics; nanoporous materials. Publications in this area have been cited more than 10,000 times.

Fellow of the American Physical Society (2000), Fellow of the Institute of Physics (UK) (2001), Member of Leopoldina Academy (Germany) (2002). Materials Research Society (Director of the MRS Board, 2003-2005).

Relevante Publikationen

V. Lehmann and U. Gösele

Porous silicon formation: A quantum wire effect

Applied Physics Letters 58, 856-858 (1991)

M. Grundmann, J. Christen, N. N. Ledentsov, J. Böhrer, D. Bimberg, S. S. Ruvimov, P. Wener, U. Richter, U. Gösele, J. heydenreich, V. M. Ustinov, A. Yu. Egorov, A. E. Zhukov, P. S. Kop'ev, and Zh. I. Alferov

Ultranarrow luminescence lines from single quantum dots

Phys. Rev. Lett. 74, 4043-4046 (1995)

O. F. Jessensky, Müller, and U. Gösele

Self-organized formation of hexagonal pore arrays in anodic alumina

Applied Physics Letters 72, 1173-1175 (1998)

Q.-Y. Tong and U. Gösele

Semiconductor wafer bonding: Science and technology

Wiley, New York (1999)

K. Nielsch G. Müller, A. P. Li, and U. Gösele

Uniform nickel deposition into ordered alumina pores by pulsed electrodeposition

Adv. Mat. 12, 582-586 (2000)

H. N. Lee, D. Hesse, N. D. Zakharov, and U. Gösele

Ferroelectric $\text{Bi}_{3.25}\text{La}_{0.75}\text{Ti}_3\text{O}_{12}$ films of uniform a-axis orientation on silicon substrates

Science 296, 2006-2009 (2002)

M. Steinhart, J. H. Wendorff, A. Greiner, R. B. Wehrspohn, K. Nielsch, J. Schilling, J. Choi, and U. Gösele

Polymer nanotubes by wetting of ordered porous templates

Science 296, 1997 (2002)

M.-W. Chu, I. Szafraniak, R. Scholz, C. Harnagea, D. Hesse, M. Alexe, and U. Gösele

Impact of misfit dislocations on the polarization instability of epitaxial nanostructured ferroelectric perovskites

Nature Materials 3, 87-90 (2004)

V. Schmidt, St. Senz, and U. Gösele

Diameter dependent growth direction of epitaxial silicon nanowires

Nano Letters 5, 931-935 (2005)

W. Lee, R. Scholz, K. Nielsch, and U. Gösele

A template-based electrochemical method for the synthesis of multisegmented metallic nanotubes

Angew. Chem. Int. Ed. (2005), in press

Curriculum Vitæ

Heinrich Graener

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- | | |
|-------------------|--|
| 1972-1978 | Studies of physics at Ruhr – Universitaet Bochum, Germany |
| 1978 | Diploma Thesis in experimental physics at the Ruhr – Universitaet Bochum |
| 1979-1982 | Ph.D. student at the Universitaet Bayreuth |
| 1982 | Ph.D. Thesis in experimental physics "Time Resolved Investigations of the Ultrafast Population Relaxation of ($v=1$) and ($v=2$) C-H Vibrational States in Liquids" at the Universitaet Bayreuth |
| 1982 -1995 | Assistant Professor at the Universitaet Bayreuth,
Member of research centre (SFB 213) |
| 1992 | Habilitation in experimental physics "Picosecond Infrared Double Resonance Spectroscopy – Ultrafast Relaxation Processes and new insight in Hydrogen Bonded Systems" at the Universitaet Bayreuth |
| since August 1995 | Professor at the Martin Luther University Halle-Wittenberg, Germany |
| since 1996 | Member of research center (SFB 418) |
| since 1998 | Dean of Physics Faculty |

Forschungsthemen

Generation and application of ultrashort laser pulses;
population dynamics of small molecules;
structure and dynamics of liquids;
photonic systems;
nonlinear optics;
metal nanoparticle doped glasses – interaction with high intensity laser fields and high electric voltage;
material modification by ultrashort laser pulses.

Relevante Publikationen

H. Graener, A. Laubereau and J.W. Nibler

Picosecond CARS spectroscopy of molecules in free jet expansions

Optics Letters **9** 165-167 (1984)

H. Graener, R. Dohlus and A. Laubereau

Infrared double-resonance spectroscopy of bromoform with picosecond pulses

Chem. Phys. Lett. **140**, 306-310 (1987)

H. Graener, T.-Q. Ye and A. Laubereau

Ultrafast dynamics of hydrogen bonds, directly observed by time-resolved infrared spectroscopy

J. Chem. Phys. **90**, 3413-3416 (1989)

H. Graener, G. Seifert and A. Laubereau

Direct observation of rotational relaxation times by time - resolved infrared spectroscopy

Chem. Phys. Lett. **172**, 435-439 (1990)

H. Graener, G. Seifert and A. Laubereau

A new spectroscopy of water using tunable picosecond pulses in the infrared

Phys. Rev. Lett. **66**, 2092-2095 (1991)

H. Graener, R. Zürl, and M. Hofmann

Vibrational relaxation of liquid chloroform

J. Phys. Chem. **B 101**, 1745-1749 (1997)

M. Kaempfe, T. Rainer, K.-J. Berg, G. Seifert, H. Graener

Ultrashort laser pulse induced deformation of silver nanoparticles in glass

Appl. Phys. Lett. **74**, 1200-1202 (1999); erratum: *ibid.* **77**, U1 (2000)

G. Seifert, T. Patzlaff, H. Graener

Size dependent ultrafast cooling of water droplets in microemulsions by picosecond infrared spectroscopy

Phys. Rev. Lett. **88**, 147402/1-4 (2002)

A. Podlipensky, J. Lange, G. Seifert, H. Graener, I. Cravetsky

Second harmonic generation from ellipsoidal Ag nanoparticles embedded in silica glass

Opt. Lett. **28**, 716-718 (2003)

A. Podlipensky, A. Abdolvand, G. Seifert, H. Graener, O. Deparis, P. G. Kazansky

Dissolution of silver nanoparticles in glass matrix induced by an intense DC electric field

J. Phys. Chem. **B 108**, 17699-17702 (2004)

Curriculum Vitæ

Wolfgang Grellmann (Prof. Dr.)



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|------------|--|
| 1968-1974 | Studies of physics at the Martin Luther University Halle-Wittenberg |
| 1974 | Diploma thesis in physics "Influence of X-ray on the thermic part of the yield stress of Ca-doped NaCl-single crystals" at the Martin Luther University Halle-Wittenberg |
| 1974-1978 | Ph.D. student at the Martin Luther University Halle-Wittenberg |
| 1978 | Ph.D. thesis in physics "Determination of micro hardness on glasses and ceramics" at the Martin Luther University Halle-Wittenberg |
| 1977-1987 | Scientific assistant at the TH Leuna-Merseburg |
| 1984-1985 | Postdoc at the Technical University of Prague (CTU), supervisor Professor Zilvar, Czech Republic |
| 1986 | Habilitation in material science "Evaluation of crack resistance behaviour of polymers with fracture mechanical values" at the TH Leuna-Merseburg |
| 1995 | Assistant professor for "Fracture mechanics of polymers and composites" and head of professorship "Materials testing/materials diagnostics" at the Department of Engineering Sciences at the Martin Luther University Halle-Wittenberg |
| 1994-1999 | Project leader at the Innovation Center "New Polymer Materials" |
| since 1993 | Special assessor for DFG- and HBFVG-projects, assessor of ministry of culture "Saxonia-Anhalt", expert of "Grant Agency of the Czech Republic" |
| since 2001 | Manager of the "Polymer Service GmbH Merseburg"
Institute of Applied Research at the Martin Luther University Halle-Wittenberg |
| since 2005 | Expert of the "Industrie- und Handelskammer Halle-Dessau" at the area Polymer testing, polymer diagnostic and assessment of damage |
| 2002-2005 | Project leader in the transfer-initiative "Optimization of stiffness/strength/toughness of polymers" |

Forschungsthemen

Material testing, polymer diagnostics, technical fracture mechanics, polymer blends, nanostructured polymers, polymer testing in medicine and pharmacy, morphology–crack resistance-properties, assessment of damage

Relevante Publikationen

W. Grellmann, S. Seidler (Hrsg.)

Kunststoffprüfung

Carl Hanser Verlag München Wien 2005

W. Grellmann, S. Seidler (Eds.)

Deformation and fracture behaviour of polymers

Springer-Verlag Berlin Heidelberg 2001

W. Grellmann, S. Seidler (Eds.)

Deformation und Bruchverhalten von Kunststoffen

Springer-Verlag Berlin Heidelberg 1998

W. Grellmann, S. Seidler, K. Jung, I. Kotter

Crack-resistance behaviour of polypropylene copolymers

J. of Applied Polymer Science **79**, 2317-2325 (2001)

W. Grellmann, R. Lach, S. Seidler

Geometry-independent fracture mechanics values of polymers

International Journal of Fracture, Letters in Fracture and Micromechanics **118**, L9-L14 (2002)

R. Adhikari, R. Lach, G.H. Michler, R. Weidisch, W. Grellmann, K. Knoll

Morphology and crack resistance behavior of binary block copolymer blends

Polymer **43/6**, 1943-1947 (2002)

K. Reincke, R. Lach, W. Grellmann, G. Heinrich

Toughness optimization of SBR elastomers – Use of fracture mechanics methods for characterization

Macromolecular Materials and Engineering **288**, 181-189 (2003)

W. Grellmann, K. Reincke

Quality improvement of elastomers. Use of instrumented notched tensile-impact testing for assessment of toughness

Materialprüfung **46**, 168-175 (2004)

R. Lach, R. Adhikari, R. Weidisch, T.A. Huy, G.H. Michler, W. Grellmann, K. Knoll

Fracture toughness behavior of binary styrene-butadiene block copolymer blends

Journal of Materials Science **39**, 1283-1295 (2004)

K. Reincke, G. Heinrich, W. Grellmann

Investigation of mechanical and fracture mechanical properties of elastomers filled with precipitated silica and nanofiller based upon layered silicates

Rubber Chemistry and Technology **77**, 662-677 (2004)

Curriculum Vitæ

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<http://www.ep3.uni-halle.de>

- 1990 – 1996 Studies of physics at the Johann Wolfgang Goethe University Frankfurt, Germany.
- 1995 Diploma thesis in physics on “Scanning force microscopy in micro hardness testing” at the Fraunhofer Institut für Werkstoffmechanik/Halle, Germany.
- 18.6.1996 Diploma at Frankfurt, Germany.
- 1996 – 2001 Research staff member at the Surface Science Group Prof. Dr. Neddermeyer, Physics Department, University Halle, Germany.
- 2000 Doctoral thesis in surface science on “Surface physical investigations on single- and polycrystalline BaTiO₃”.
- 5.7.2000 Dr.rer.nat. degree with “Summa cum laude”, at the Martin Luther University Halle-Wittenberg.
- 2002-2006 Research staff member at the Surface Science Group Prof. Dr. Widdra, Physics Department, University Halle, Germany.
- since 2005 Assistant researcher

Forschungsthemen

Atomic and electronic structure of oxide surfaces,
growth and physical properties of thin oxide films,
scanning tunneling/force microscopy and spectroscopy.

Relevante Publikationen

- Hagendorf, Ch.; R. Shantyr; H. Neddermeyer; W. Widdra,
„Pressure-dependent Ni-O phase transitions and Ni oxide formation on Pt(111): An in-situ STM study at elevated temperatures”.
Phys.Chem.Chem.Phys. (2006) (accepted)
- Doege, T.; Hagendorf, Ch.; Neddermeyer, H.,
„Scanning tunneling microscopy, scanning tunneling spectroscopy and tunneling current-induced light emission on donor-doped BaTiO₃ ceramics“.
Surf. Sci. **566 – 568** (2004) p. 1211 - 1216
- Shantyr, R.; Hagendorf, Ch.; Neddermeyer, H.,
„Scanning tunneling microscopy and spectroscopy studies on structural and electronic properties of thin films of Co oxides and oxide precursor states on Ag(001)“.
Surf. Sci. **566 – 568** (2004) p. 68 - 73
- Shantyr, R.; Hagendorf, Ch.; Neddermeyer, H.,
„Electronic properties of Co oxides and oxide precursor states on Ag(100) by using scanning tunneling microscopy and spectroscopy“.
Thin Solid Films **464 – 465** (2004) p. 65 – 75
- Kindlein, A.; Schindler, K.-M.; Hagendorf, Ch.; Langhammer, H. T.; Abicht, H.P.; Neddermeyer, H.,
„Surface Physical studies of barium titanate ceramics“.
Surf. Sci. **532 – 535** (2003) p. 501 – 507
- Hagendorf, Ch.; Shantyr, R.; Meinel, K.; Schindler, K.-M.; Neddermeyer, H.,
„Scanning tunneling microscopy and spectroscopy investigation of the atomic and electronic structure of CoO islands on Ag(001)“.
Surf. Sci. **532 – 535** (2003) p. 346 - 350
- Hildebrandt, S.; Hagendorf, Ch.; Doege, T.; Jecksties, Ch.; Kulla, R.; Neddermeyer, H.; Uttich, Th.,
„Real time study of the initial stages of oxidation of Ni(111) between 400 and 470K“.
J. Vac. Sci. Technol. A **18**(3) (2000) p. 1010-1015
- Hagendorf, Ch.; Schindler, K.-M.; Doege, T.; Neddermeyer, H.,
„Surface physical studies of poly- and single-crystalline BaTiO₃“.
Appl. Surf. Sci. **142** (1999) p. 106–113
- Hagendorf, Ch.; Schindler, K.-M.; Doege, T.; Neddermeyer, H.,
„A scanning tunneling microscopy, X-ray photoelectron spectroscopy and low-energy electron diffraction investigation of the BaTiO₃(111) surface“.
Surf. Sci. **436** (1999) p. 121–130
- Hagendorf, Ch.; Schindler, K.-M.; Doege, T.; Neddermeyer, H.,
„An STM, XPS and LEED investigation of the BaTiO₃(111) surface“.
Surf. Sci. **402 – 404** (1998) p. 581– 585

Curriculum Vitæ

Michael Hanke

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Department of Physics

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- 1991-1997 Studies of physics at Humboldt-University Berlin, Germany
Diploma Thesis in physics " Extremely asymmetric x-ray geometries for the investigation of weakly distorted thin layers" at the HU Berlin
- 1997-2002 Ph.D. student at the HU Berlin
- 2002 Ph.D. in physics (summa cum laude), HU Berlin, Thesis title: "Diffuse x-ray scattering at self-organized semiconductor island structures"
- 09/2003-11/2003 Wissenschaftlicher Assistent (C1) at the Martin-Luther-University Halle-Wittenberg with Prof. Dr. H.-R.Höche
- 12/2003-10/2004 Postdoc at the National Institute of Standards and Technology, Gaithersburg (USA) in the framework of a DFG Forschungsstipendium
- Since 11/2004 Wissenschaftlicher Assistent (C1) at the Martin-Luther-University Halle-Wittenberg with Prof. Dr. H.-R.Höche

Forschungsthemen

Self-organization at low-dimensional structures,
x-ray scattering techniques,
application of synchrotron radiation in materials research,
numerical finite element simulations on the quasi-static and dynamic behavior at the nanometer scale.

Relevante Publikationen

M.Hanke, T.Boeck, A.-K.Gerlitzke, F.Syrowatka, F.Heyroth
Dedicated fabrication of silicon-based ensembles of dot molecules with a specific and unique number of dots

Appl. Phys. Lett. **88**, in print (2006), issue 13-feb-06

M.Hanke, T.Boeck, A.-K.Gerlitzke, F.Syrowatka, F.Heyroth
Unidirectional self-assembly of SiGe Stranski-Krastanow islands on Si(113)

Appl. Phys. Lett. **86**, 223109 (2005)

M.Hanke, T.Boeck, A.-K.Gerlitzke, F.Syrowatka, F.Heyroth, R.Köhler
Size, shape and ordering of LPE-SiGe/Si(001) islands grown under far non-equilibrium growth conditions

Appl. Phys. Lett. **86**, 142101 (2005), cover image

M.Hanke, D.Grigoriev, M.Schmidbauer, P.Schäfer, R.Köhler, R.L.Sellin, U.W.Pohl, D.Bimberg,
Vertical composition gradient in InGaAs/GaAs alloy quantum dots as revealed by high resolution x-ray diffraction

Appl. Phys. Lett. **85**, 3062 (2004)

M.Hanke, M.Schmidbauer, R.Köhler, F.Syrowatka, A.-K.Gerlitzke, T.Boeck
Equilibrium shape of SiGe Stranski-Krastanow islands on silicon grown by liquid phase epitaxy

Appl. Phys. Lett. **84**, 5228 (2004)

M.Hanke, H.Raidt, R.Köhler, H.Wawra
Island chain formation during liquid phase epitaxy of SiGe on silicon

Appl. Phys. Lett. **83**, 4927 (2003)

M.Hanke, M.Schmidbauer, D.Grigoriev, H.Raidt, P.Schäfer, R.Köhler, A.-K.Gerlitzke, H.Wawra
SiGe/Si(001) Stranski-Krastanov islands by liquid-phase epitaxy: Diffuse x-ray scattering versus growth observations

Phys. Rev. B **69**, 075317 (2004)

M.Hanke, M.Schmidbauer, R.Köhler
Lateral correlation of SiGe Stranski-Krastanow islands on silicon as probed by high resolution x-ray diffraction

Jour. Appl. Phys. **96**, 1959 (2004)

M.Hanke, M.Schmidbauer, D.Grigoriev, R.Köhler
Aspect ratio of LPE-SiGe/Si(001) islands as probed by high resolution x-ray diffraction

Jour. Appl. Phys. **96**, 1447 (2004)

M.Hanke, M.Schmidbauer, R.Köhler, H.Kirmse, M.Pristovsek
Lateral short range ordering of step bunches in MOCVD grown InGaAs/GaAs superlattices

Jour. Appl. Phys. **95**, 1736 (2004)

Curriculum Vitæ

Andreas Heilmann

(PD Dr.)



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- 1978-1982 Study in Physics and Mathematics (Technical University Karl-Marx-Stadt)
- 1982 Graduation in mathematics and physics, Diploma Thesis: “Development of a high temperature cuvette for in situ investigations of gas phase boron reactions on metal surfaces with FTIR spectroscopy”
- 1982-1984 Military service
- 1984-1992 PhD Student and Scientist at the Technical University Karl-Marx-Stadt/Chemnitz
- 1988 PhD Thesis in Experimental Physics
“Deposition, electrical and optical properties of plasma polymer silver composite films” at the Technical University Karl-Marx-Stadt
- 1989,1990 Visiting scientist at the University of Oulu and at the Helsinki University, Finland
- 1992-1995 Grant for Habilitation from the Deutsche Forschungsgemeinschaft
- 1994, 1995 Visiting Assistant Professor at Stanford University, California
- 1996-1997 Grant from the Deutsche Akademie der Naturforscher Leopoldina for a Position as Visiting Scientist at I. Physical Institute at the RWTH Aachen
- 1997 Habilitation in Experimental Physics: “Plasma polymer metal composite thin films: nanostructure, modifications of the nanostructure, electronic and optical properties” at the Technical University Chemnitz
- 1997 Scientist at the University-GH Essen, Institute for Anorganical Chemistry
- 1997-1999 Scientist at the Fraunhofer Institute of Mechanics of Materials Halle (Saale)
- since 1999 Head Biological Materials at the Fraunhofer Institute of Mechanics of Materials
- since 2002 Member of research center (SFB 418)
- since 2002 Co-Coordinator of VW-project “Protein and biocolloid separation by surface-modified thin ceramic nanoporous membranes with tunable pore size”

Forschungsthemen

Nanostructure and optical properties of nanocomposite materials, nanoporous aluminum oxide membranes, optical computations, biocompatible coatings and surfaces, new visualization techniques for biological surfaces and biomaterials, Force measurements of motor proteins, thin film for biosensor applications.

Project acquisition and leadership of various projects founded from industry.

Relevante Publikationen

A. Heilmann

Polymer films with embedded metal nanoparticles (Book)

Springer Heidelberg 2002

A. Heilmann, G. Kampfrath, V. Hopfe

Optical properties of plasma polymer silver composite films and their simulation by means of effective medium theories

Journal of Physics D: Applied Physics **21**, 986-994 (1988)

J. Werner, A. Heilmann, F. Müller

Electron beam induced coalescence in plasma polymer silver composite films

Applied Physics Letters **66**, 3436-3438 (1995)

A. Heilmann, M. Quinten, J. Werner

Optical response of thin plasma polymer films with nonspherical silver nanoparticles

European Journal of Physics B **3**, 455-461(1998)

A. Heilmann, P. Jutzi, A. Klipp, U. Kreibig, R. Neuendorf, T. Sawitowski, G. Schmid

Photoluminescent Siloxenes in Nanoporous Aluminium Oxide

Advanced Materials **10**, 398-401 (1998)

M. Kaempfe, H. Graener, A. Kiesow, A. Heilmann

Formation of metal particle nanowires induced by ultrashort laser pulses

Applied Physics Letters **79**, 1876-1878 (2001)

A. Heilmann, N. Teuscher, A. Kiesow, D. Janasek, U. Spohn

Nanoporous aluminum oxide as novel support material for enzyme biosensors

Journal of Nanoscience and Nanotechnology **3**, 375-379 (2003)

A. Kiesow, J.E. Morris, C. Radehaus, A. Heilmann

Switching behavior of plasma polymer films containing silver nanoparticles

Journal of Applied Physics **94**, 6988-6990 (2003)

A. Kiesow, S. Strohark, K. Löschner, A. Heilmann, A. Abdolvand, G. Seifert

Generation of wavelength-dependent, periodic line pattern in metal nanoparticle-containing polymer films by fs-laser irradiation

Applied Physics Letters **86**, 153111 (2005)

P.M. Fechner, S. Wartewig, A. Kiesow, A. Heilmann, P. Kleinebudde, R.H.H. Neubert

Interaction of water with different cellulose ethers: A Raman spectroscopy and environmental scanning microscopy study

Journal of Pharmacy and Pharmacology **57**, 689-698 (2005)

Curriculum Vitæ

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- 1972-1977 Studies of physics at Martin Luther University Halle-Wittenberg, Germany
- 1977 Diploma Thesis in theoretical physics ("Bandstructure of transition metals and transition metal compounds in comparison to x-ray spectra") at the Martin Luther University Halle-Wittenberg
- 1977-80 Scientific coworker (Theory Group) at Department of Physics Martin Luther University Halle-Wittenberg
- 1982 Ph.D. Thesis in theoretical physics "Calculation of angle resolved x-ray photoelectron spectra of Cu and ferromagnetic Ni in dependence on temperature, photon energy and spin polarization" at the Martin Luther University Halle-Wittenberg
- 1980-1984 Scientific coworker (Experimental Physics) at the Department of Physics Martin Luther University Halle-Wittenberg: scanning electron microscopy of semiconducting materials
- since 1984 Scientific coworker (Theory Group) at Department of Physics Martin Luther University Halle-Wittenberg
- 1989 Habilitation "Contribution to a quantitative scanning electron microscopy of optoelectronic semiconducting materials"
- 1994 3 months at Nagoya university (group of Prof. S. Maekawa)
- 1996 apl Prof. of Computational Physics
- Since 2000 Member of Research group "Oxidic interfaces" (FOR404)

Forschungsthemen

Solid state theory, Nanoscience, electronic and magnetic properties of metallic nanostructures, physics of correlated electrons, simulation of growth processes, properties of photonic crystals, history of physics.

Relevante Publikationen

V. S. Stepanyuk, L. Niebergall, W. Hergert, and P. Bruno

Ab initio study of mirages and magnetic interactions in quantum corrals

Phys. Rev. Lett. **94**, 187201 (2005)

M. Lüders, A. Ernst, M. Däne, Z. Szotek, A. Svane, D. Ködderitzsch, W. Hergert,
B. L. Györfy, and W. M. Temmerman

Self-interaction correction in multiple scattering theory

Phys. Rev. **B 71**, 205109 (2005)

R. Hillebrand, W. Hergert

Scaling properties of a tetragonal photonic crystal design having a large complete bandgap

Photonics and Nanostructures – Fundamentals and Applications **2**, 33 (2004)

D. Ködderitzsch, W. Hergert, Z. Szotek, and W. M. Temmerman

Vacancy-induced half-metallicity in MnO and NiO

Phys. Rev. **B 68**, 125114 (2003)

R. Hillebrand, St. Senz, W. Hergert, U. Gösele

Macroporous-silicon-based three-dimensional photonic crystal with a large complete band gap

Journal of Applied Physics **94**, 2758 (2003)

S. Pick, V. S. Stepanyuk, A. N. Baranov, W. Hergert, and P. Bruno

Effect of atomic relaxations on magnetic properties of adatoms and small clusters

Phys. Rev. **B 68**, 104410 (2003)

D. Ködderitzsch, W. Hergert, W. M. Temmerman, Z. Szotek, A. Ernst, and H. Winter

Exchange interactions in NiO and at the NiO(100) surface

Phys. Rev. **B 66**, 064434 (2002)

O. V. Lysenko, V. S. Stepanyuk, W. Hergert, and J. Kirschner

Mesoscopic Relaxation in Homoepitaxial Metal Growth

Phys. Rev. Lett. **89**, 126102 (2002)

N. Baranov, V. S. Stepanyuk, W. Hergert, A. A. Katsnelson, A. Settels, R. Zeller, and
P. H. Dederichs

Full-potential KKR calculations for MgO and divalent impurities in MgO

Phys. Rev. **B 66**, 155117 (2002)

D. I. Bazhanov, W. Hergert, V. S. Stepanyuk, A. A. Katsnelson, P. Rennert, K. Kokko, and C.
Demangeat

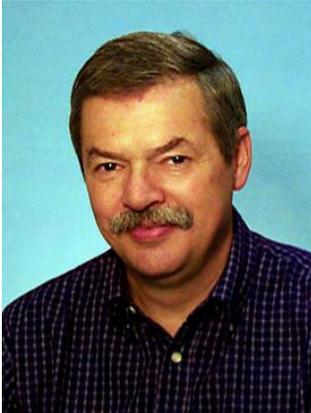
One-dimensional magnetism of Rh chains on the Ag(001) surface

Phys. Rev. **B 62**, 6415-6420 (2000)

Curriculum Vitæ

Dietrich Hesse

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Lecturer in Solid State Physics,
Martin Luther University Halle-Wittenberg,

Group Head, Nanoengineering of Functional Oxides,
Max Planck Institute of Microstructure Physics
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- 1967 - 1973 Studies of solid state physics at Moscow State University, Russia.
1973 Diploma thesis in low-temperature solid state physics on “The dispersion law of electronic holes in BiSb alloys with narrow band gap”.
Diploma “With distinction” at Moscow State University.
- 22.1.1973 Research staff member at Institute of Solid State Physics and Electron Microscopy (IFE), Halle (Saale), of the Academy of Sciences, Berlin.
- 1973 - 1991 Doctoral thesis in solid state physics on “Growth of single-crystal spinel films by solid state reactions”.
- 1985 Dr.rer.nat. degree with “Summa cum laude”, at Martin Luther University Halle-Wittenberg.
- 12.6.1985 Leibniz Silver Medal Award of the Academy of Sciences, Berlin.
Head of Research Group on Solid State Reactions at IFE.
- 1989 Leader of a sequence of research projects on high- T_C superconducting films
1990 and on ferroelectric nanostructures granted by the German Federal
1991 - 2003 Ministry of Science and Technology (BMBF)
Project leader and member-delegate of the Coordinated Science Project
“Solids far from equilibrium” at Georg August University, Göttingen.
- 1992 - 1998 Research staff member and (since 1993) Head of Research Group at
Max Planck Institute of Microstructure Physics, Halle (Saale)
- since 1992 Project leader and member of the Coordinated Science Project “Structure and dynamics of nanoscopic inhomogeneities in condensed matter” at Martin
since 1996 Luther University Halle-Wittenberg
Habilitation in solid state physics, and lectureship at Faculty of Mathematics,
13.1.1998 Science and Technology, Martin Luther University Halle-Wittenberg.
Call onto a Professorship on Microstructure Analytics at Aachen University of
30.8.1998 Technology (RWTH), declined in January, 1999.
Member of the Section on Chemistry, Physics and Technology of the
since 2001 Scientific Council of the Max Planck Society.

Forschungsthemen

Solid state reactions on the nanometer scale; thin films, superlattices, and nanostructures of complex oxides, in particular of ferroelectrics; transmission electron microscopy.

Relevante Publikationen

J.M. Zhang, A. Visinoiu, F. Heyroth, F. Syrowatka, M. Alexe, D. Hesse, and H.S. Leipner
High-resolution electron energy-loss spectroscopy of aTiO₃/SrTiO₃ multilayers
Physical Review B 71 (2005) 064108 (7 p.)

C. Korte, B. Franz, and D. Hesse
Electric field driven solid state reactions – reaction kinetics and the influence of grain boundaries on the interface morphology in the system MgO/MgIn₂O₄/In₂O₃
Phys.Chem.Chem.Phys. 7 (2005) 413-420

M. Alexe, C. Harnagea, and D. Hesse
Non-conventional micro- and nanopatterning techniques for electroceramics
In: Electroceramic-Based MEMS, Fabrication-Technology and Applications, edited by N. Setter.
Springer, New York 2005. Chapter 14, pp. 361-385

D.H. Bao, S.K. Lee, X.H. Zhu, M. Alexe, and D. Hesse
Growth, structure, and properties of all-epitaxial ferroelectric (Bi,La)₄Ti₃O₁₂/Pb(Zr_{0.4}Ti_{0.6})O₃/ (Bi,La)₄Ti₃O₁₂ tri-layered thin films on SrRuO₃-covered SrTiO₃(011) substrates
Appl. Phys. Lett. 86 (2005) 082906 (3p.)

S.K. Lee, W. Lee, M. Alexe, K. Nielsch, D. Hesse, and U. Gösele
Well-ordered large-area arrays of epitaxial ferroelectric (Bi,La)₄Ti₃O₁₂ nanostructures fabricated by gold nanotube-membrane lithography
Appl. Phys. Lett. 86 (2005) 152906 (3p.)

M.-W. Chu, I. Szafraniak, R. Scholz, D. Hesse, M. Alexe, and U. Gösele
Impact of misfit dislocations on the polarization instability of epitaxial nanostructured ferroelectric perovskites
Nature Materials 3 (2004) 87-90

H.N. Lee, D. Hesse, N. Zakharov, and U. Gösele
Ferroelectric Bi_{3.25}La_{0.75}Ti₃O₁₂ films of uniform *a*-axis orientation on silicon substrates
Science 296 (2002) 2006-2009

H.N. Lee and D. Hesse
Anisotropic ferroelectric properties of epitaxially twinned Bi_{3.25}La_{0.75}Ti₃O₁₂ thin films grown with three different orientations
Appl. Phys. Lett. 80 (2002) 1040-1042

M. Alexe, C. Harnagea, D. Hesse, and U. Gösele
Polarization imprint and size effects in mesoscopic ferroelectric structures
Appl. Phys. Lett. 79 (2001) 242-244

M.Alexe, C.Harnagea, D.Hesse, and U.Gösele
Patterning and switching of nano-size ferroelectric memory cells
Appl. Phys. Lett. 75 (1999) 1793-1795

Curriculum Vitæ

Christian Hübner

(Prof. Dr.)



Junior Professor for Experimental Physics (Biophysics)
Department of Physics
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- 1989-1994 Studies of physics at MLU Halle, Germany
- 1983 Diploma Thesis in solid-state physics "TEM studies of the development of the defect structure during one-component sintering of metals" at the MLU Halle
- 1994-1998 Ph.D. student at the MLU Halle
- 1998 Ph.D. Thesis in solid-state physics "Defect generation by dislocation motion" at the MLU Halle
- 1998-2001 Postdoc at the Swiss Federal Institute of Technology, Zurich, Switzerland, with Prof. Urs Wild
- 2001-2003 Research Assistant at the University Mainz, Germany, with Prof. Thomas Basché
- 2003-recent Junior Professor for Experimental Physics (Biophysics) at the MLU Halle

Forschungsthemen

Single molecule spectroscopy,
nano optics, confined geometries,
protein folding,
enzymatic activity,
conformational dynamics of proteins,
protein-protein interactions.

Relevante Publikationen

M. Prummer, C.G. Hübner, B. Sick, B. Hecht, A. Renn, U.P. Wild

Single-molecule identification by spectrally and time resolved fluorescence detection

Anal. Chem. **72**, 443-447 (2000)

C.G. Hübner, A. Renn, I. Renge, U.P. Wild

Direct observation of the triplet lifetime quenching of single dye molecules by molecular oxygen

J. Chem. Phys. **115**, 9619-9622 (2001)

W. Tragesinger, C.G. Hübner, B. Hecht, U.P. Wild

Continuous real-time measurement of fluorescence lifetimes

Rev. Sci. Instrum. **73**, 3122-3124 (2002)

C.G. Hübner, G. Zumofen, A. Renn, A. Herrmann, K. Müllen, T. Basché

Photon antibunching and collective effects in the fluorescence of single bichromophoric molecules

Phys. Rev. Lett. **91**, 093903 (2003)

M. Haase, C.G. Hübner, E. Reuther, A. Herrmann, K. Müllen, T. Basché

Exponential and power-law kinetics in single-molecule fluorescence intermittency

J. Phys. Chem. B **108**, 10445-10450 (2004)

C.G. Hübner, V. Ksenofontov, F. Nolde, K. Müllen, T. Basché

Three-dimensional orientational colocalization of individual donor-acceptor pairs

J. Chem. Phys. **120**, 10867-10870 (2004)

M. Lippitz, C.G. Hübner, T. Christ, H. Eichner, P. Bordat, A. Herrmann, K. Müllen, T. Basché

Coherent electronic coupling vs. localization in individual molecular dimers

Phys. Rev. Lett. **92**, 103001 (2004)

G. Zumofen, J. Hohlbein, C.G. Hübner

Recurrence and photon statistics in fluorescence fluctuation spectroscopy

Phys. Rev. Lett. **93**, 260601-4 (2004)

J. Hohlbein, C.G. Hübner

A simple scheme for efficient 3D orientation determination of the emission dipole of single molecules

Appl. Phys. Lett. **86**, 121104 (2005)

I. Potapova, R. Mruk, C. Hubner, R. Zentel, T. Basche, A. Mews

CdSe/ZnS nanocrystals with dye-functionalized polymer ligands containing many anchor groups

Angew. Chem.-Int. Edit. **44**, 2437-2440 (2005)

Curriculum Vitæ

Lothar Jäger

(PD Dr.)



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- 1970-1976 Studium, Technische Hochschule für Chemie Leuna-Merseburg
Diplom bei Professor R. Taube
- 1976-1979 Industrieaspirantur an der Martin-Luther-Universität Halle-
Wittenberg
- 1980 Promotion bei Professor H. Köhler auf dem Gebiet
pseudohalogenmodifizierter Phosphorsäureester
- 1979 wissenschaftlicher Assistent an der Sektion Chemie der Martin-
Luther-Universität Halle-Wittenberg
- 1986 Forschungsaufenthalt an der Staatlichen Universität Kiev bei
Professor V. V. Skopenko
- 1992 Forschungsaufenthalt an der Ecole Nationale Supérieure de
Chimie Montpellier bei Professor H.-J. Cristau
- 1981 H. Köhler, L. Jäger, D. Glanz, H. Wusterhausen, R. Skirl,
Forschungspreis der Martin-Luther-Universität
- 1992 Leopoldina Förderpreis
- 1998 Habilitation auf dem Gebiet der Synthese und
Koordinationschemie cyansubstituierter Methanide und Amide

Forschungsthemen

Synthese und Charakterisierung von präkeramischen, nanostrukturierten Pulvern und Keramiken auf Basis von BaTiO₃, BaSnO₃ und verwandten Systemen.

Pseudochalkogenkonzept: Synthese und Charakterisierung homologer Chalkogen- und Pseudochalkogenverbindungen von Hauptgruppenelementen und ihre Koordinationschemie.

Relevante Publikationen

- R. Köferstein, L. Jäger, V. Lorentz, H.-P. Abicht, J. Woltersdorf, E. Pippel, H. Görls,
Mixed Crystalline Precursor Complexes of the Type $[\text{Ba}(\text{C}_2\text{H}_6\text{O}_2)_4][\text{Ti}_{1-x}\text{Sn}_x(\text{C}_2\text{H}_4\text{O}_2)_3]$ ($x = 0-1$) for $\text{BaTi}_{1-x}\text{Sn}_x\text{O}_3$ Ceramics: Synthesis, Structure and Calcination.
Solid State Sci. **2005**, 7, 1280 -1288.
- L. Jäger, V. Lorenz, C. Wagner, T. Müller, H.-P. Abicht,
 $[\text{Ba}(\text{C}_2\text{H}_6\text{O}_2)_2][\text{Ge}(\text{C}_2\text{H}_4\text{O}_2)_3] \cdot 1,25\text{C}_2\text{H}_6\text{O}_2$ - a 1,2-Diolato Complex of Germanium. Synthesis, Thermal Decomposition and Crystal Structure.
Z. Kristallogr. **2005**, 220, 183-187.
- L. Jäger, V. Lorenz, T. Müller, H.-P. Abicht, M. Rössel, H. Görls,
Bariumstannat-Pulver durch hydrothermale Synthese und durch Thermolyse von Bariumzinn(IV)-glykolaten. Synthese und Struktur von $[\text{Ba}(\text{C}_2\text{H}_6\text{O}_2)_4][\text{Sn}(\text{C}_2\text{H}_4\text{O}_2)_3]$ und $[\text{Ba}(\text{C}_2\text{H}_6\text{O}_2)_2][\text{Sn}(\text{C}_2\text{H}_4\text{O}_2)_3] \cdot \text{CH}_3\text{OH}$.
Z. Anorg. Allg. Chem. **2004**, 630, 189-195.
- V. Müller, L. Jäger, H. Beige, H.-P. Abicht, T. Müller,
Thermal Expansion in the Burns-Phase of Barium Titanate Stannate.
Solid State Commun., 2004, 129, 757-760.
- N. Inguibert, L. Jäger, M. Taillefer, M. Biedermann, H.-J. Cristau,
Synthesis of 1,3,5,2 λ^5 -Triazaphosphinine by Intramolecular Cyclization of Cyanamidophosphinylguanidines and Diguanidinophosphonium Chlorides.
Eur. J. Org. Chem. **2004**, 4870-4876.
- T. Saplinova, L. Jäger, A. Kolbe, C. Wagner,
 $\text{Ph}[\text{PhC}(\text{O})\text{NH}]_2\text{P}=\text{NC}(\text{O})\text{Ph}$ - A New Mesomeric Stabilized Azaylide. Synthesis, Crystal Structure and IR Spectroscopic Results.
J. Mol. Struct., **2004**, 690, 25-29.
- V. Maurizot, L. Jäger, A. Kolbe, C. Wagner, M. Taillefer, H.-J. Cristau,
Crystal and Molecular Structure of the Resonance Stabilized Azaylide $\text{Ph}_2\text{P}[\text{NC}(\text{O})\text{Ph}]\text{NHC}(\text{O})\text{Ph}$ and Its IR Spectroscopic Characterization.
J. Mol. Struct. **2002**, 609, 109-114.
- R. Boča, M. Boča, M. Gembický, L. Jäger, C. Wagner, H. Fuess,
Versatile Coordination Mode of Dicyanamide in Nickel(II) complexes Containing Polyamines as Blocking Ligands.
Polyhedron, **2004**, 23, 2337-2348.
- R. Boča, M. Gembicky, R. Herchel, W. Haase, L. Jäger, C. Wagner, H. Ehrenberg, H. Fuess,
Ferromagnetism in a Dinuclear Nickel(II) Complex Containing Triethylenetetramine and Tricyanomethanide.
Inorg. Chem. **2003**, 42, 6965-6967.
- L. Jäger, C. Wagner, M. Korabik, A. Zygmunt, J. Mroziński,
Molecular Structure and Magnetism of Bis(tetraphenylphosphonium)tetrakis (dicyanamido) Cobaltate(II) with Bridging and Pendant Dicyanamide Ligands.
J. Mol. Struct. **2001**, 570, 161 - 166.

Curriculum Vitæ

Matthew J. Jones

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<http://iw.uni-halle.de/tvt>

- 1986 – 1992 Reading Chemistry at the Westfälische Wilhelms-Universität, Münster, Germany. Graduated as “Diplom-Chemiker” in 1992.
- 1992 – 1997 PhD in Chemistry, School of Chemistry, University of St. Andrews, Scotland and Department of Chemistry, University College London, England
- 1995 – 1996 Visiting Researcher and Tutor, School of Chemistry, Birmingham University, England
- 1996 – 1998 Post-Doctoral Research Assistant at the University of St. Andrews, Scotland
- 1998 – 2000 Post-Doctoral Research Associate, Department of Mechanical- and Chemical Engineering, Heriot-Watt-University, Scotland
- 2000 – 2003 Teaching Fellow (later Senior Teaching Fellow), Department of Chemical Engineering, University of Leeds, England
- Since 2003 Scientific staff member (“Habilitand”) of the Department of Engineering/Thermal Process Engineering at the Martin-Luther-Universität Halle-Wittenberg, Germany

Forschungsthemen

Industrial crystallization,
protein crystallization,
molecular modelling in crystallization,
polymorphism (including solvates and hydrates),
inclusion compounds.

Relevante Publikationen

Jones, M.J., Dette, S.S., Ulrich, J.

Rapid crystal growth without apparent supersaturation induced by nanoscale fluid flows?
Crystal Research and Technology, 41 (2006), 5-9

Jones, M.J., Ulrich, J.

Industrielle Kristallisation von Proteinen – Eine Frage der Aktivität.
Chemie Ingenieur Technik, 10 (2005), 1527-1534

Ulrich, J., Jones, M.J.

Kristalle mit Integriertem Lösungsmittel
Nachrichten aus der Chemie, 53 (2005), 19-23

Meents, A., Kutzke, H., Jones, M.J., Wickleder, C., Klapper, H.

Polymorphs of 2,3-diphenyl maleic acid anhydride and 2,3-diphenyl maleic imide: synthesis, crystals structures, lattice energies and fluorescence.
Zeitschrift für Kristallographie, 220 (2005), 626-638

Ulrich, J., Jones, M. J.,

Industrial Crystallization - Developments in Research and Technology.
Chemical Engineering Research and Design, 82 (2004), 1567-1570

Hammond, R.B., Jones, M.J., Roberts, K.J., Kutzke, H., Klapper, H.

A structural study of polymorphism in phenyl salicylate: determination of the crystal structure of a meta-stable phase from X-ray powder diffraction data using a direct space systematic search method.
Zeitschrift für Kristallographie, 217 (2002), 484 – 491.

Hammond, R.B., Jones, M.J., Murphy, S., Roberts, K.J., Smith, E.D.L., Klapper, H. Kutzke, H., Docherty, R., Cherryman, J., Roberts, R., Fagan, P.G.

Determining the Crystal Structures of Organic Molecular Materials using X-ray Powder Diffraction and Molecular Modelling.
Molecular Crystals and Liquid Crystals, 356 (2001), 389 – 405.

Smith, E.D.L., Hammond, R.B., Jones, M.J., Roberts, K.J., Mitchell, J.B.O., Price, S.L., Harris, R.K., Apperley, D.C., Cherryman, J.C., Docherty, R.

The determination of the crystal structure of anhydrous theophylline by X-ray powder diffraction with a systematic search algorithm, lattice energy calculations, and ¹³C and ¹⁵N solid-state NMR: A question of polymorphism in a given unit cell.
Journal of Physical Chemistry B, 105 (2001), 5818 – 5826.

Jones, M.J., Camus, S., Guillaume, F., Harris, K.D.M., Dianoux, A.-J.

Molecular Dynamics of Guest Molecules in the Cyclohexane/Thiourea Inclusion Compound: a combined MD-IQNS Study.
Physica B, 241 (1998) 472-474.

Jones, M.J., Guillaume, F., Harris, K.D.M., Dianoux, A.-J.,

Molecular Dynamics of Tetrakis(trimethylsilyl)silane in the Solid State: an Incoherent Quasielastic Neutron Scattering Investigation.
Proceedings of the Royal Society, London, A452 (1996) 701-714.

Curriculum Vitæ

Dieter Katzer

(Prof. Dr.)



Professor for Microsystems and Microtechnologies

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|------------|---|
| 1966-1970 | Studies of physics at the Martin Luther University Halle (Saale), Germany |
| 1970 | Graduation in Physics |
| 1971-1973 | Ph.D student at the Martin Luther University Halle |
| 1973-1991 | Scientist at the Institute of the Academy of Sciences for Solid State Physics and Electron Microscopy Halle |
| 1976 | Ph.D. Thesis in Solid State Physics "Moessbauer and X-ray spectroscopy on Fe-Al-alloys" at the Martin Luther University Halle |
| 1985 | Visiting Scientist at Institute for Solid State Physics of the Academy of Sciences of Russia, Siberia Branch at Novosibirsk |
| 1986-1991 | Head of the Group for industrial cooperation in the Field of Microelectronics |
| 1990 | Lecturer and visiting Scientist at P. and M. Curie University Paris, France |
| 1992 | Scientist at the Fraunhofer Institute for Mechanics of Materials, Branch Lab for Microsystems and Microtechnologies Halle |
| Since 1996 | Head of the Fraunhofer Institute for Mechanics of Materials Halle |
| Since 2002 | Honorary Professor for Microsystems and Microtechnologies at the University of Applied Sciences Merseburg |

Forschungsthemen

Microstructure of materials, surfaces and interfaces in relation with mechanical, electronic and optical properties, nanostructuring, ion beam technologies, electron microscopy, electron scattering methods, electron structure, mechanical validation of microcomponents.

Leader of more than 20 projects (volume > 10 Mio. € mainly founded from industry) in this fields during the last 10 years.

Relevante Publikationen

D. Katzer, G. Safran

Scanning electron microscopy of the microtopography of a (111) silicon surface
Ultramicroscopy **15**, 135 – 138 (1984)

D. Katzer, K. Meinel

Growth modes of Au on Si (111) and the mechanism of the silicide formation
Journal of Crystal Growth **98**, 690 – 696 (1989)

K. Meinel, D. Katzer

Modes of growth of Au films on Si (111) and the mechanism of the silicide formation
Applied Surface Science **56 – 58**, 514 – 519 (1992)

D. Katzer, J. Nagel, R. Scholz

Characterization of the poly-mono silicon interface of polysilicon emitter bipolar transistor by high resolution TEM
The Electrochemical Society Interface, **2**, 21-24 (1993)

J. Nagel, M. Reiche, S. Hopfe, D. Katzer

Stress-induced void formation in interlevel polysilicon films during polybuffered local oxidation of silicon
J. Electrochem. Soc. **140**, 2356 – 2359 (1993)

D. Gerth, D. Katzer, R. A. Schwarzer

The influence of local thermomechanical stress on grain growth in thin Al-1% Si layers on SiO₂/Si Substrates
physica status solidi (a) **146**, 299 (1994)

E. Langer, D. Katzer

Dislocation emission from moving cleavage cracks in silicon at room temperature
Journal of Materials Science Letters **13**, 1256-1259 (1994)

A. Heilmann, F. Altmann, D. Katzer, F. Müller, T. Sawitowski, G. Schmid

Determination of the pore size and the vertical structure of nanoporous aluminium oxide membranes
Applied Surface Science **144/145**, 682-685 (1999)

M. Petzold, J. Bagdahn, D. Katzer, D.

Quality and mechanical reliability assessment of wafer-bonded micromechanical components
Microelectronics Reliability **39**, 1103-1108 (1999)

Breitenstein, M. Langenkamp, F. Altmann, D. Katzer, A. Lindner, H. Eggers

Microscopic lock-in thermography investigation of leakage sites in integrated circuits
Rev. Sci. Instrum. **71**, 4155-4160 (2000)

Curriculum Vitæ

Jürgen Kirschner

(Prof. Dr.)



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of Microstructure Physics
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- 1964 Studies of physics at Ludwig-Maximilians-University Munich, Germany
1967 Intermediate exam, Ludwig-Maximilians-University Munich and study
at University Freiburg/Breisgau, Germany
1967-1968 Study at University Marseille/Nizza, France
(Scholarship of DAAD)
1968-1970 Study at Technical University Munich, Germany
1971 Diploma in physics; Supervisor: Prof. E.W. Blauth, TU Munich; title:
*„Experimental and Statistical Investigations on the Measurement of Very
Low Ion Currents in Mass-Spectrometers“*
1971-1974 Scholarship of the Max-Planck-Society (MPI für Plasmaphysik,
Garching/Munich, Germany)
1974 Doctorate TU Munich, supervisor: Prof. D. Menzel, title of dissertation:
*„Disappearance potential spectroscopy und Verwandte Methoden angewandt
auf saubere und oxidierte Vanadium-Oberflächen“*
1974-1975 Scientific employee at Max-Planck-Institut für Plasmaphysik, Garching
Munich, Germany
1975-1988 Scientific employee at Institut für Grenzflächenforschung und
Vakuumphysik of the KFA Juelich Germany (Dept. Prof. H. Ibach)
1974 Visiting professorship at the Federal University Rio de Janeiro, Brazil
1982 Venia legendi of the RWTH Aachen, Germany. Title of habilitation: *„Spin
dependent phenomena in electron diffraction and photoemission from non-
magnetic crystals“*
1984 Visiting professor at Waseda University, Tokyo, Japan
1986 Gaede-Award of the German Vacuum Society for „Fundamental and
pioneering work on the interaction of spin polarized electrons with solid state
surfaces and thin films“
1988-1992 Chair of Experimental physics (full professor) at Freie Universität Berlin,
Germany
since 1992 Scientific Member of the Max-Planck-Society and Director at the MPI für
Mikrostrukturphysik Halle, Germany
since 2002 Member of the German Academy of Natural Scientists Leopoldina

Forschungsthemen

Correlations of magnetic film properties with structure and morphology,
Spin-resolved electronic structure, Micromagnetism, Spin dynamics.

Relevante Publikationen

U. Schlickum, N. Janke-Gilman, W. Wulfhekel, and J. Kirschner

Step-induced frustration of antiferromagnetic order in Mn on Fe(001)

Phys. Rev. Lett. **92**, 107203 (2004)

R. Vollmer, M. Etzkorn, A. P. S. Kumar, H. Ibach, and J. Kirschner

Spin-polarized electron energy loss spectroscopy of high energy, large wave vector spin waves in ultrathin fcc Co films on Cu(001)

Phys. Rev. Lett. **91**, 147201 (2003)

O. V. Lysenko, V. S. Stepanyuk, W. Hergert, and J. Kirschner

Mesoscopic relaxation in homoepitaxial metal growth

Phys. Rev. Lett. **89**, 126102 (2002)

O. Fruchart, M. Klaua, J. Barthel, and J. Kirschner

Self-organized growth of nanosized vertical magnetic Co pillars on Au(111)

Phys. Rev. Lett. **83**, 2769-2772 (1999)

M. Plihal, D. L. Mills, and J. Kirschner

Spin wave signature in the spin polarized electron energy loss spectrum of ultrathin Fe films: theory and experiment

Phys. Rev. Lett. **82**, 2579-2582 (1999)

R. Herrmann, S. Samarin, H. Schwabe, and J. Kirschner

Two-electron photoemission in solids

Phys. Rev. Lett. **81**, 2148-2151(1998)

J. Kirschner, O.M. Artamonov, and A.N. Terekhov

Two-electron coincidence spectroscopy of scattering events at surfaces

Phys. Rev. Lett. **69**, 1711 (1992)

J. Reif, J.C. Zink, C.M. Schneider, J. Kirschner

Effects of surface magnetism on optical second harmonic generation

Phys. Rev. Lett. **67**, 2878 (1991)

L. Baumgarten, C.M. Schneider, H. Petersen, F. Schäfers, J. Kirschner

Magnetic X-ray dichroism in core-level photoemission from ferromagnets

Phys. Rev. Lett. **65**, 492 (1990)

J. Kirschner

Direct and exchange contributions in inelastic scattering of spin-polarized electrons from iron

Phys. Rev. Lett. **55**, 973 (1985)

Curriculum Vitæ

Reinhard Krause-Rehberg (Prof. Dr.)



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|---------------|---|
| 1976-1981 | Studies of physics at Martin-Luther-University Halle-Wittenberg, Germany |
| 1981 | Diploma Thesis in Experimental Physics at Martin-Luther-University Halle-Wittenberg |
| 1981-1985 | Ph.D. student at Martin-Luther-University Halle-Wittenberg |
| 1985 | Ph.D. Thesis in Experimental Physics “Investigation of decomposition phenomena of Al alloys by Positron Annihilation Spectroscopy” at Martin-Luther-University Halle-Wittenberg |
| 1982-2002 | Assistant at Martin-Luther-University Halle-Wittenberg, Dept. of Physics |
| 1986 and 1990 | Research stay at Helsinki University of Technology (2 x 6 month) |
| 1995 | Habilitation in Experimental Physics “Vacancies in Semiconductors” at Martin-Luther-University Halle-Wittenberg |
| Since 2002 | Professor at the Martin-Luther-University Halle-Wittenberg, Germany |

Forschungsthemen

Materials Science,
Metals and alloys,
Semiconductors,
Defect physics,
Nuclear Methods in Solid State Physics.

Relevante Publikationen

R. Krause-Rehberg, H.S. Leipner

Monograph "**Positron Annihilation in Semiconductors**"

Vol. 127 of Series "Solid-State Sciences"

Springer-Verlag, Berlin 1999

R. Krause-Rehberg, S. Sachert, G. Brauer, A. Rogov, K. Noack

EPOS - An intense positron beam project at the ELBE radiation source in Rossendorf

Applied Surface Science 252 (2006) 3106–3110

V. Bondarenko, J. Gebauer, F. Redmann, and R. Krause-Rehberg

Vacancy formation in GaAs under different equilibrium conditions

Appl. Phys. Lett. 87 (2005) 161906

G. Dlubek, A. Sen Gupta, J. Pionteck, R. Häussler, R. Krause-Rehberg, H. Kaspar, K.H. Lochhaas
Glass transition and free volume in the mobile (MAF) and rigid (RAF) amorphous fractions of semicrystalline PTFE: a positron lifetime and PVT study

Polymer 46 (2005) 6075–6089

V. Bondarenko, R. Krause-Rehberg, H. Feick, C. Davia

Defects in FZ-silicon after neutron irradiation - A positron annihilation and photoluminescence study

J. Mater. Sci. 39 (2004) 919-923

J. Gebauer, M. Lausmann, F. Redmann, R. Krause-Rehberg, H.S. Leipner, E. R. Weber, and Ph. Ebert

Determination of the Gibbs free energy of formation of Ga vacancies in GaAs by positron annihilation

Phys. Rev. B 67 (2003) 235207

J. Gebauer, R. Zhao, P. Specht, E.R. Weber, F. Börner, F. Redmann, R. Krause-Rehberg

Does beryllium doping suppress the formation of Ga vacancies in nonstoichiometric GaAs layers grown at low temperatures?

Appl. Phys. Lett. 79 (2001) 4313 – 4315

A. Kawasuso, F. Redmann, R. Krause-Rehberg, M. Weidner, T. Frank, G. Pensl, P. Sperr, W. Triftshäuser, H. Itoh

Annealing behavior of vacancies and Z1/2 levels in electron-irradiated 4H-SiC studied by positron annihilation and deep-level transient spectroscopy

Appl. Phys. Lett. 79 (2001) 3950- 3952

T. E. M. Staab, R. M. Nieminen, J. Gebauer, R. Krause-Rehberg, M. Luysberg, M. Haugk, Th. Frauenheim

Do Arsenic Interstitials Really Exist in As-Rich GaAs?

Phys. Rev. Lett 87 (2001) 045504

R. Krause-Rehberg, F. Börner, and F. Redmann

Impurity gettering by vacancy-type defects in high-energy ion-implanted silicon at Rp /2

Appl. Phys. Lett., 77 (2000) 3932-3934

Curriculum Vitæ

Jörg Kressler

(Prof. Dr.)



Professor of Heterogeneous Polymer Materials

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<http://matsci.iw.uni-halle.de/kressler/index.html>

- 1978-1983 Studies of chemistry at TU Dresden, Germany
- 1983 Diploma Thesis in polymer chemistry "Contribution on the continuous copolymerization of multicomponent systems (acrylonitrile/styrene/ α -methylstyrene/maleic anhydride)" at the TU Dresden
- 1983-1987 Ph.D. student at the TU Dresden
- 1987 Ph.D. Thesis in macromolecular chemistry "Investigations of the copolymerization of vinyl monomers with maleic anhydride and investigations of the phase behavior of copolymer blends" at the TU Dresden
- 1987-1989 Assistant Professor at the TU Dresden
- 1989-1990 Postdoc at the University of Massachusetts at Amherst with Professor F.E. Karasz, USA
- 1990-1991 Assistant Professor at the TU Dresden
- 1991-1993 Humboldt-Fellow at the Tokyo Institute of Technology with Professor T. Inoue, Japan
- 1996 Habilitation in physical chemistry "Thermodynamics and morphology development of polymer blends" at the TU Dresden
- 1994-1997 Assistant Professor at the Freiburger Materialforschungszentrum at the University of Freiburg i. Br., Germany
Member of research center (SFB 428)
- since 10/1997 Professor at the Martin Luther University Halle-Wittenberg, Germany
- since 2001 Member of research center (SFB 418)
- since 2002 Coordinator of VW-project "Control of membrane permeability"
- since 2004 Director of the Materials Research Center of Martin Luther University Halle-Wittenberg

Forschungsthemen

Polymer blends, nanostructured polymers, thermodynamics, polymers in pharmacy and medicine, morphology development and characterization, microscopic and scattering techniques, living polymerization techniques.

Relevante Publikationen

M. Suess, J. Kressler, H. W. Kammer

The miscibility window of poly(methyl methacrylate)/poly(styrene-co-acrylonitrile) blends
Polymer **28**, 957-960 (1987)

H. W. Kammer, C. Kummerlöwe, J. Kressler, J. P. Melior

Shear-induced phase changes in polymer blends
Polymer **32**, 1488-1489 (1991)

N. Higashida, J. Kressler, S. Yukioka, T. Inoue

Ellipsometric measurements of positive χ parameters between dissimilar polymers and their temperature dependence
Macromolecules **25**, 5259-5262 (1992)

M. C. Coen, K. Lorenz, J. Kressler, H. Frey, R. Mülhaupt

Mono- and multilayers of dendritic liquid crystalline polymers on mica
Macromolecules **29**, 8069-8076 (1996)

S. Setz, F. Stricker, J. Kressler, T. Duschek, R. Mülhaupt

Morphology and mechanical properties of blends of isotactic or syndiotactic polypropylene with SEBS block copolymers
J. Appl. Polym. Sci. **59**, 1117-1128 (1996)

R.-D. Maier, R. Thomann, J. Kressler, R. Mülhaupt, B. Rudolf

The influence of stereoregularity on the miscibility of poly(propylene)s
J. Polym. Sci. Part B Polym. Phys. **35**, 1135-1144 (1997)

P. Reichert, J. Kressler, R. Thomann, R. Mülhaupt, G. Stöppelmann

Nanocomposites based on a synthetic layer silicate and polyamide-12
Acta Polym. **49**, 116-123 (1998)

B. Hoffmann, J. Kressler, G. Stöppelmann, Chr. Friedrich, G.-M. Kim

Rheology of nanocomposites based on layered silicates and polyamide-12
Coll. Polym. Sci. **278**, 629-636 (2000)

G.-M. Kim, D. H. Lee, B. Hoffmann, J. Kressler, G. Stöppelmann

Influence of nanofillers on the deformation process in layered silicate / polyamide-12 nanocomposites
Polymer **42**, 1095-1100 (2001)

H. Hussain, A. Kerth, A. Blume, J. Kressler

Amphiphilic block copolymers of poly(ethylene oxide) and poly(perfluorohexylethyl methacrylate) on water surface and their penetration into lipid monolayer
J. Phys. Chem. **B 108**, 9962-9969 (2004)

Curriculum Vitæ

Hartmut S. Leipner

(PD Dr.)



Interdisziplinäres Zentrum für Materialwissenschaften
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- 1977 – 1982 Study of physics at the *Matematicko-Fyzikální Fakulta* of the *Univerzita Karlova* Prag, Czechoslovakia, major in solid state physics
- 1982 – 1996 Scientific co-worker at the Department of Physics of the Martin-Luther-Universität Halle–Wittenberg
- 1988 PhD thesis “Versetzungsbewegung in A^{III}B^V-Halbleitern”
- 1994 Postdoc at Tohoku University Sendai, Japan
- 2001 Habilitation thesis “Wechselwirkung von Punktdefekten und Versetzungen in Halbleitern”
- 2001 Max von Laue Prize of the Deutsche Gesellschaft für Kristallographie
- since 2001 Chief Executive Officer of the Interdisziplinäres Zentrum für Materialwissenschaften of the Martin-Luther-Universität Halle–Wittenberg
- since 2002 Speaker of the Microprobe Group of the Deutsche Physikalische Gesellschaft

Forschungsthemen

Defects in semiconductors,
high-resolution microscopic analysis of solids,
positron annihilation,
alternative lithographic techniques of nanostructuring.

Relevante Publikationen

J. Zhang, F. Paumier, T. Höche, F. Heyroth, F. Syrowatka, R. J. Gaboriaud, H. S. Leipner:
Electron energy-loss spectroscopy investigations of Y_2O_3 films on Si (001) substrate.
Thin Sol. Films **496** (2006) 266–272.

B. Fuhrmann, H. S. Leipner, H.-R. Höche, L. Schubert, P. Werner, U. Gösele:
Ordered arrays of silicon nanowires produced by nanosphere lithography and molecular beam epitaxy.
Nano Lett. **5** (2005) 2524–2527.

H. S. Leipner, H. Lei:
Diffusion–drift–aggregation model of the interaction of point defects and dislocations in semiconductors.
phys. stat. sol. (c) **2** (2005) 1859–1863.

J. Zhang, A. Visinoiu, F. Heyroth, F. Syrowatka, M. Alexe, D. Hesse, H. S. Leipner:
High-resolution electron energy-loss spectroscopy of $BaTiO_3/SrTiO_3$ multilayers.
Phys. Rev. B **71** (2005) 064108.

J. Gebauer, M. Lausmann, F. Redmann, R. Krause-Rehberg, H. S. Leipner, E. R. Weber, P. Ebert:
Determination of the Gibbs free energy of formation of Ga vacancies in GaAs by positron annihilation.
Phys. Rev. B **67** (2003) 235207.

D. Lorenz, A. Zeckzer, U. Hilpert, P. Grau, H. Johansen, H. S. Leipner:
Pop-in effect as homogeneous nucleation of dislocations during nanoindentation.
Phys. Rev. B **67** (2003) 172101.

H. Lei, H. S. Leipner, N. Engler:
Why are arsenic clusters situated at dislocations in gallium arsenide?
Appl. Phys. Lett. **82** (2003) 1218–1220.

H. S. Leipner, D. Lorenz, A. Zeckzer, P. Grau:
Dislocation-related pop-in effect in gallium arsenide.
physica status solidi (a) **183** (2001) R4–6.

H. S. Leipner, D. Lorenz, A. Zeckzer, H. Lei, P. Grau:
Nanoindentation pop-in effect in semiconductors.
Physica B **308–310** (2001) 446–449.

H. S. Leipner, C. G. Hübner, T. E. M. Staab, M. Haugk, A. Sieck, R. Krause-Rehberg, T. Frauenheim:
Vacancy clusters in plastically deformed semiconductors
J. Phys. Condens. Matter **12** (2000) 10071–10078.

Curriculum Vitæ

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- 1986 – 1990 Study of Pharmacy at the Humboldt-University Berlin, Germany
Sept. 1990 Diploma (Summa cum laude) in Pharmacy; title: „ESR investigations on microemulsions and pharmaceutical relevant polymers“
July 1991 Approbation as pharmacist
April 1993 Defence of PhD thesis (Summa cum laude) with a work on “Biopharmaceutical Applications of ESR spectroscopy and Imaging“
1994-1995 Postdoc. visit (sponsored by DAAD) at the Lab. of Prof. Dr. H.M. Swartz, Dept. of Radiology, Dartmouth Medical School Hanover, NH (USA)
1995-1997 DFG-stipendium for Habilitation at the Institute of Pharmacy, Humboldt-University Berlin
1997-1998 Postdoc. visit at the Lab. of Prof. Dr. T. Kissel, Institute of Pharmaceutical Technology and Biopharmacy, Philipps-Universität Marburg, Marburg
11.Mar.1998 Habilitation for Pharmaceutical Technology and Biopharmacy with a work entitled „In vitro and in vivo investigations on release processes from biodegradable drug delivery systems.“
1998 – 2000 Senior scientist at the Institute of Pharmaceutical Technology and Biopharmacy, Free University Berlin.
March. 2000 Job offer for an Associate Professorship in Pharmaceutics from the University of Oslo, Norway
March 2000 Job offer for an Associate Professorship in Pharmaceutics from the University of Leipzig
2000 – 2003 Group leader „Galenic Research“, Fa. Hoffmann-LaRoche, Basel, Switzerland
since 02/2003 Full Professor and Head of Institute for Pharmaceutical Technology and Biopharmacy, Martin-Luther-University Halle, Germany

Forschungsthemen

Lipid nanostructures, Polymer nanoparticles, Nanocapsules, Biodegradable block polymers, Electron spin resonance spectroscopy and Imaging, NMR spectroscopy and Imaging, Isostatic High Pressure Treatment

Relevante Publikationen

A. Rübe, K. Mäder

An electron spin resonance study on the dynamics of polymeric nanocapsules

J. Biomed. Nanotechnology. **1**, 208–213 (2005)

D.J. Lurie, K. Mäder

Monitoring drug delivery processes by EPR and related techniques – principles and applications

Adv. Drug Deliv. Rev. **57**, 1171-1190 (2005)

K. Mäder

Characterization of nanoscaled drug delivery systems by electron spin resonance (ESR)

In: Nanosystem Characterization Tools in the Life Sciences (Ed.: CS.S.R. Kumar,

Nanotechnologies for the Life Sciences (Vol. 3), Wiley-VCH, 2005

K.Jores , W. Mehnert, M. Drechsler , H. Bunjes , C. Johann , K. Mäder

Investigations on the structure of solid lipid nanoparticles (SLN) and oil-loaded solid lipid nanoparticles by photon correlation spectroscopy, field-flow fractionation and transmission electron microscopy

J. Contr. Rel., **95** (2), 217-227 (2004)

K. Mäder, W. Mehnert

Solid lipid nanoparticles — concepts, procedures, and physicochemical aspects

In: Lipospheres in Drug Targets and Delivery. C. Nastruzzi (Ed.), CRC press 2004, 1-22

K. Jores, W. Mehnert, K. Mäder

Physicochemical investigations on solid lipid nanoparticles (SLN) and on oil-loaded solid lipid nanoparticles: a NMR- and ESR-study

Pharm. Res. **20** (8), 1274-1283 (2003)

* W. Mehnert, K. Mäder

Solid lipid nanoparticles. Production, characterization and applications.

Adv. Drug Deliv. Rev. **47**, 165-196 (2001)

K. Mäder, B. Bittner, Y. Li, W. Wohlauf, T. Kissel

Monitoring microviscosity and microacidity of the albumin microenvironment inside degrading microparticles from polylactide-co-glycolide (PLG) or ABA -triblock polymers containing hydrophobic poly(lactide-co-glycolide) A blocks and hydrophilic poly(ethylenoxide) B blocks

Pharm. Res. **15**, 787-793 (1998)

K. Mäder, S. Nitschke, R. Stösser, H.-H. Borchert, A. Domb

Nondestructive and localised assesment of acidic microenvironments inside biodegradable polyanhydrides by spectral spatial electron paramagnetic resonance imaging (EPRI)

Polymer **38**, 4785-4794 (1997)

K. Mäder, G. Bacic, A. Domb, O. Elmalak, R. Langer, H.M. Swartz

Noninvasive in vivo monitoring of drug release and polymer erosion from biodegradable polymers by EPR spectroscopy and NMR imaging

J. Pharm. Sci., **86**, 126 - 134 (1997)

Curriculum Vitæ

Ingrid Mertig



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Professor of Quantum Theory of Solids

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- 1974-1979 Studies of physics at the TU Dresden, Germany
- 1979 Diploma Thesis in Theoretical Physics “De Haas-van Alphen effect of dilute alloys” at the TU Dresden
- 1979-1982 Ph.D. student at the TU Dresden
- 1982 Ph.D. Thesis in Theoretical Physics “Galvanomagnetic properties of metals” at the TU Dresden
- 1982-1985 Assistant Professor at the TU Dresden, Institute of Theoretical Physics
- 1985-1990 Postdoc at the Joint Institute for Nuclear Research, Russia
- 1990-2001 Assistant Professor at the TU Dresden, Institute of Theoretical Physics
- 1990-1995 Regular Guest Scientist at the Research Center Jülich, Germany; collaboration with P.H. Dederichs
- 1995 Habilitation in Theoretical Physics “Theory of spin-dependent Transport” at the TU Dresden
- 1996 Guest Professor at New York University, USA; collaboration with P. Levy
- 1997-2001 Heisenberg Fellow of the DFG
- 1998 Guest Professor at the University Paris-Sud, France; collaboration with A. Fert
- 1999 JSPS Fellow University of Nagoya, Japan; collaboration with J. Inoue
- Since 2001 Professor at the Martin-Luther-University Halle-Wittenberg, Germany
- Since 2001 Spokesperson of the DFG Research Group “Oxidic Interfaces”

Forschungsthemen

Quantum theory of Solids; Density Functional Theory; Transport Theory;
Theory of Magnetism; Physics of Nanostructures; Spintronics

Relevante Publikationen

Mertig, R. Zeller, and P. H. Dederichs

Ab initio calculations of residual resistivities for dilute Ni-alloys

Phys. Rev. B **47**, 16178 (1993)

I. V. Solovyev, P. H. Dederichs, and I. Mertig

On the origin of orbital magnetization and magnetocrystalline anisotropy in TX ordered alloys (T=Fe,Co and X=Pd,Pt)

Phys. Rev. B **52**, 13419 (1995)

P. Zahn, I. Mertig, M. Richter, and H. Eschrig

Ab initio calculations of giant magnetoresistance for Fe/Cr-superlattices

Phys. Rev. Lett. **75**, 2996 (1995)

P. Zahn, J. Binder, I. Mertig, R. Zeller, and P. H. Dederichs

Origin of giant magnetoresistance - bulk or interface scattering

Phys. Rev. Lett. **80**, 4309 (1998)

I. Mertig

Transport properties of dilute alloys

Rep. Prog. Phys. **62**, 1 (1999)

I. Mertig and P. Levy

Theory of GMR in spin-dependent transport in magnetic nanostructures

Ed. by S. Maekawa, Gordon and Breach Publishing Group (2002)

N. Papanikolaou, J. Opitz, P. Zahn, and I. Mertig

Spin-filter effect in metallic nanowires

Phys. Rev. B **66**, 165441 (2002)

J. Opitz, P. Zahn, and I. Mertig

Ab initio calculated electronic structure of metallic nanowires and nanotubes

Phys. Rev. B **66**, 245417-1 (2002)

V. S. Stepanyuk, P. Bruno, A. L. Klavysyuk, A. N. Baranov, W. Hergert,

A. M. Saletsky, and I. Mertig

Structure and quantum effects in atomic-sized contacts

Phys. Rev. B **69**, 033302 (2004)

A. Bagrets, N. Papanikolaou, and I. Mertig

Magnetoresistance of atomic-sized contacts: ab-initio study

Phys. Rev. B **70**, 064410 (2004)

Curriculum Vitæ

Kurt Merzweiler



(Prof. Dr.)

Professor for Molecular and Structural Chemistry

Institut für Anorganische Chemie
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www2.chemie.uni-halle.de/anorg/ak/merzweiler/index.html

- October 1977 Begin of the chemistry studies at the University of Karlsruhe (TH)
- October 1979 Diploma in Chemistry - intermediate examination
- October 1982 Diploma in Chemistry - main examination
Diploma Thesis – and Doctoral Thesis in Inorganic Chemistry under
the supervision of Prof. Dr. D. Fenske
- April 1986 Ph.D. Thesis
- February 1986 -
November 1986 Research associate at the Max-Planck-Institut für
Festkörperforschung in Stuttgart (Group of Prof. Dr. H. G. v.
Schnering)
- December 1986 Research associate at the Institut für Anorganische Chemie der J. W.
Goethe-Universität Frankfurt (Group of Prof. Dr. D. Fenske)
- February 1990 -
October 1993 Assistant Professor at the University of Karlsruhe
- January 1991 Habilitation,
Erteilung der Lehrbefugnis für das Fach "Anorganische Chemie"
- October 1991 -
February 1992 Teaching position at the University of Stuttgart-Hohenheim
- April - September 1992 „Vertretung“ of a C3-Professur at the University of Freiburg
- October 1993 Appointed to the grade of University Professor
- from July 1994 C3-Professor for "Molecular and Structural Chemistry" at the
University of Halle-Wittenberg

Forschungsthemen

Synthesis and structural characterization of clusters of elements of the main group, metallorganic chemistry with emphasis on supramolecular aspects (e.g. Organozincometallate), Coordinationpolymers (MOF's, metal-organic frameworks), X-Ray diffraction (single crystals and powder diffraction).

Relevante Publikationen

M. Kondracka, T. Hertrich, K. Merzweiler

[(Mes₃Sn)₂MoO₄], ein monomeres Triorganozinnmolybdat.

Z. anorg. allg. Ch., **630** (2004) 1798

F. Rosenland, M. Kondracka, K. Merzweiler

Neue eindimensionale Koordinationspolymere des Typs (NBu₄)[(Me₃Sn)MO₄] (M = Mo, W)'

Z. anorg. allg. Ch., **631** (2005) 2919

F. Rosenland, M. Kondracka, K. Merzweiler

Die Kristallstrukturen von NBu₄[(Ph₃Sn)₃(MoO₄)₂] und NBu₄[(Ph₃Sn)₃(MoO₄)₂]•CH₃CN: Organozinnmolybdate mit neuartigen 3D-Netzwerken.

Z. anorg. allg. Chem. **629** (2003) 2573

Chr. Wagner und K. Merzweiler

[{Cp*(CO)₂Fe}₆Sn₆O₈]²⁺, ein kationischer Zinnoxocluster mit metallorganischen Substituenten.

Z. anorg. allg. Chem. **628** (2002) 2241

R. Hauser und K. Merzweiler

[(PhSnS₃)₂(CuPMe₂Ph)₆], ein sechskerniger Cu(I)-Komplex mit PhSnS₃-Liganden.

Z. anorg. allg. Chem. **628** (2002) 905

F. Rosenland, K. Merzweiler

[Me₃SnVO₃] und [(Me₂Sn)₄V₂O₉], zwei Organozinnvanadate mit neuen 3D-Netzwerkstrukturen.

Z. anorg. allg. Chem. **627** (2001) 2403

Chr. Wagner und K. Merzweiler

Synthesis, structure and reactivity of novel clusters with tetrahedral Mo₂SbE-core (E=S,Se) Phosphorus,

Sulfur, Silicon **168-169** (2001) 199

Th. Grabowy und K. Merzweiler

Neue mehrkernige Indium-Stickstoff-Verbindungen. Synthese und Kristallstrukturen von [In₄X₄(N^tBu)₄] (X = Cl, Br, I) und [In₃Br₄(N^tBu)(NH^tBu)₃].

Z. anorg. allg. Chem., **626** (2000) 736

Chr. Lämmer und K. Merzweiler

Neue mehrkernige Organozinn(IV)-Stickstoff-Verbindungen. Synthese und Kristallstrukturen von [(MeSn)₄(NHPPh)₄(NPh)₄] und [(PhSn)₄(NPh)₅Cl₂].

Z. anorg. allg. Chem. **625** (1999) 735

U. App und K. Merzweiler

Neue Metallorganisch substituierte Gallium-Chalkogen-Verbindungen mit Ga₄E₄-Heterokubangerüst. Synthese und Kristallstrukturen von [{Cp(CO)₂Fe}₄Ga₄E₄] (E = S, Se, Te).

Z. anorg. allg. Chem. **623** (1997) 478

Curriculum Vitæ

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- 1963 – 68 Study of Physics at Martin Luther University Halle-Wittenberg
- 1968 Diploma in the field of solid state physics (“Effects of Nucleation at the Surfaces of Crystals”) at the Martin Luther University Halle-Wittenberg
- 1969 – 90 Scientist and group leader in Research Center of Chemical Industry, Schkopau
- 1978 Dissertation (PhD) “Deformation- and Fracture Mechanisms in Glassy and Rubber-Modified Polymers”, University Halle-Wittenberg
- 1987 Habilitation “Crazes and Craze-like Deformations in Polymers”, University Halle-Wittenberg
- 1989 Venia legendi in “Materials Technology”, Technical University Merseburg
- 1990 Professor of Experimental Physics at the Technical University of Merseburg
- since 1992 Professor of General Materials Science at the Martin Luther University Halle-Wittenberg
- since 1992 Director of the Institute of Polymeric Materials (IPW) as an applied research institute at the University
- since 2001 Co-Director of the Polymer Service GmbH Merseburg
- since 1996 Member of SFB 418 “Struktur und Dynamik nanoskopischer Inhomogenitäten in kondensierter Materie“
- since 2002 Coordinator of the DFG Transferinitiative „Optimierung von Steifigkeit/Festigkeit/Zähigkeit von Polymerwerkstoffen“

Forschungsthemen

Structure-property-correlations of polymers, mechanical properties and enhancement of toughness, micro- and nanomechanical mechanisms of deformation and fracture, electron and scanning force microscopy of polymers, nanoanalytics, heterogeneous nanostructured and nanoparticle modified polymers.

2002: “A. v. Humboldt – J.C. Mutis Research Award”, Madrid, Spain,

2003: “Paul J. Flory Polymer Research Prize”, Denton, USA.

Relevante Publikationen

G.H. Michler

Kunststoff – Mikromechanik - Morphologie, Deformations- und Bruchmechanismen von Polymerwerkstoffen

Carl Hanser Verlag, München, Wien, 1992

R. Godehardt, W. Lebek, G.H. Michler

Morphology and micromechanics of phase separated polyethylene blends

in: Grellmann, W. and Seidler, S., eds., Deformation and fracture behaviour of polymers, Springer, Berlin, Heidelberg 2001, 267 - 281

R. Adhikari, G.H. Michler

Correlation between molecular architecture, morphology and micromechanical behaviour of styrene/butadiene block copolymers

Transworld Research Network (2003) 101 – 137

G.H. Michler, R. Adhikari, S. Henning

Toughness enhancement of nanostructured amorphous and semicrystalline polymers

Macromol. Symposia: R.D. Sanderson, H. Pasch (Eds.) (2004) 47 – 71

T.A. Huy, R. Adhikari, Th. Lüpke, S. Henning, G.H. Michler

Molecular deformation mechanisms of isotactic polypropylene in α - and β -crystal forms by FTIR spectroscopy

J. Polym Sci. Phys. **42** (2004) 4478 – 4488

E.M. Ivankova, G.H. Michler, A. Hiltner, E. Baer

Micromechanical processes in PET/PC multilayered tapes: High voltage electron microscopy investigations

Macromol. Mater. Eng. (2004) 787 – 792

G.H. Michler, R. Adhikari, S. Henning

Micromechanical properties in lamellar heterophase polymer systems

J. Materials Sci. **39** (2004) 3281 – 3292

V. Seydewitz, M. Krumova, G.H. Michler, J.Y. Park, S.C. Kim

Morphology and micromechanical behaviour of ethylene cycloolefin copolymers (COC)

Polymer **46** (2005) 5608 – 5614

G.-M. Kim, R. Lach, G.H. Michler, Y.-W. Chang

The mechanical deformation process of electrospun polymer nanocomposite fibers

Macromol. Rapid Commun. **26** (2005) 728 – 733

G.H. Michler, F.J. Baltá Calleja (eds.)

Mechanical properties of polymers based on nanostructure and morphology

Taylor & Francis, CRC Press Boca Raton, USA, 2005

Curriculum Vitæ

Reinhard Neubert

(Prof. Dr.)



Professor of Biopharmaceutics

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<http://www.pharmtech/index.html>

- 1970-1974 Studies of pharmacy at Martin-Luther-University (MLU) Halle-Wittenberg, Germany
- 1974 Diploma Thesis in pharmaceutical biology at MLU Halle-Wittenberg
- 1974-1978 Ph.D. student at the MLU Halle-Wittenberg
- 1978 Ph.D. thesis "Biopharmaceutical model in vitro systems characterizing transport and absorption of drugs" at the MLU Halle-Wittenberg
- 1978-1992 Assistant Professor at the MLU Halle-Wittenberg
- 1987 Habilitation in biopharmacy "Biopharmaceutical relevance of ion pair transport" at the MLU Halle-Wittenberg
- since July 1992 Professor at the Martin Luther University Halle-Wittenberg, Germany
- 1996-2003 Speaker of the Graduate Program "Transport in biological systems" of the German Research Community
- 1992-1999 Dean of the Department of Pharmacy at the MLU Halle-Wittenberg
- 1997-1999 Dean of the Faculty of Mathematics, Natural Science and Engineering of MLU Halle-Wittenberg
- since 1996 Chairman of the local section Saxony-Anhalt of the German Pharmaceutical Society
- 2004 Honorary doctorate at Medical University of Poznan
- since 2000 Vice-Rector of the MLU Halle-Wittenberg for Research, Graduation and International Affairs

Forschungsthemen

Drug transport, Dermal drug delivery, Colloidal drug carrier systems, Biosensors based on quartz microbalance, Drug analysis based on capillary electrophoresis and HPLC-mass spectrometry, food-drug interactions, Molecular structure of the stratum corneum lipids.

Relevante Publikationen

K. Raith, A.V. Kühn, F. Rosche, R. Wolf, R.H.H. Neubert

Characterization of povidone products by means of ^{13}C -NMR, MALDI and electrospray mass spectrometry

Pharm. Res. **19**, 556-560 (2002)

A. Hildebrand, R.H.H. Neubert, P. Garidel, A. Blume

Bile salt induced solubilization of synthetic phosphatidylcholine vesicles studied by isothermal titration calorimetry

Langmuir **18**, 2836-2847 (2002)

A. Shukla, M. Janich, K. Jahn, A. Krause, M. Kisilew, R.H.H. Neubert

Investigations of pharmaceutical O/W microemulsions by small angle scattering

Pharm. Res. **19**, 881-886 (2002)

A. Hildebrand, P. Garidel, R.H.H. Neubert, A. Blume

Thermodynamics of demicellization of mixed micelles composed of sodium oleate and bile micelles

Langmuir **20**, 320-328 (2004)

A. Hildebrand, S. Beyer, R.H.H. Neubert, A. Blume

Temperature dependence of interaction of cholate and deoxycholate with fluid model membranes and their solubilization into mixed micelles

Colloid Surface **B 32**, 335-351 (2003)

A. Kühn, R.H.H. Neubert

Characterization of mixtures of alkyl polyglycosides (Plantacare) by liquid chromatography-electrospray ionization quadrupole time-of-flight mass spectrometry

Pharm. Res. **21**, 2347-2352 (2004)

A. Shukla, H. Graener, R.H.H. Neubert

Observation of two diffusive relaxation modes in microemulsions by dynamic light scattering

Langmuir **20**, 8526-8530 (2004)

A. Hildebrand, K. Beyer, R.H.H. Neubert, P. Garidel, A. Blume

Solubilization of negatively charged DPPC/DPPG liposomes by bile salts

J. Colloid Interf. Sci. **279**, 559-571 (2004)

P.M. Fechner, S. Wartewig, A. Kiesow, A. Heilmann, P. Kleinebudde, R.H.H. Neubert

Interaction of water with different cellulose ethers: a Raman spectroscopy and environmental scanning electron microscopy study

J. Pharm. Pharmacol. **57**, 689-698 (2005)

M.A. Kiselev, J. Zbytovska, D. Matveev, S. Wartewig, I.V. Gapienko, J. Perez,

P. Lesieur, A. Hoell, R.H.H. Neubert

Influence of trehalose on the structure of unilamellar DMPC vesicles

Colloid Surface **A 256**, 1-7 (2005)

Curriculum Vitæ

Nicola Pinna

(Dr.)



Nachwuchsgruppelleiter

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<http://nano.chemie.uni-halle.de/>

- 1994-1998 Studies of physical chemistry at the University Pierre et Marie Curie, Paris, France
- 1998 Diploma Thesis in electrochemistry " Synthesis Characterization and properties of semiconductor nanoparticles: CdTe" at the University Pierre et Marie Curie, Paris, France
- 1998-2001 Ph.D. student at the University Pierre et Marie Curie, Paris, France
Ph.D. Thesis in physical chemistry " Nanomaterials : structural studies and optical properties"
- 2002-2003 Postdoc at the Fritz Haber Institut der Max Planck Gesellschaft, Berlin, Germany
- 2003-2004 Research Associate at the Max Planck Institute of Colloids and Interfaces, Potsdam Germany
- since 2005 Nachwuchsgruppelleiter at the Martin Luther University Halle-Wittenberg, Germany
- since 2005 Guest Scientist at the Max Planck Institute of Microstructure Physics, Halle, Germany

Forschungsthemen

Inorganic nanoparticles, inorganic biomaterials, assembly and organization of nanoparticles, gas sensors, catalysis, optical properties of nanomaterials, structural characterizations, transmission electron microscopy, scattering techniques.

Relevante Publikationen

Nadine Nassif, Nicola Pinna, Nicole Gehrke, Markus Antonietti, Christian Jaeger, Helmut Coelfen
Amorphous layer around aragonite platelets in nacre
Proceedings of the National Academy of Sciences **2005**, 102, 12653

Nicola Pinna
X-ray diffraction from nanocrystals
Progress in Colloid and Polymer Science **2005**, 130, 29

Nicola Pinna, Stephanie Grancharov, Pablo Beato, Pierre Bonville, Markus Antonietti, Markus Niederberger
Magnetite nanocrystals: nonaqueous synthesis, characterization and solubility
Chem. Mater. **2005**, 17, 3044

Nicola Pinna, Georg Garnweitner, Markus Antonietti, Markus Niederberger
A general nonaqueous route to binary metal oxide nanocrystals involving a C-C bond cleavage
J. Am. Chem. Soc. **2005**, 127, 5608

Nicola Pinna, Georg Garnweitner, Markus Antonietti, Markus Niederberger
Nonaqueous synthesis of high-purity metal oxide nanopowders using an ether elimination process
Adv. Mater. **2004**, 16, 2196

Nicola Pinna, Giovanni Neri, Markus Antonietti, Markus Niederberger
Nonaqueous synthesis of nanocrystalline semi-conducting metal oxides for gas sensing
Angew. Chem. Int. Ed. **2004**, 43, 4345

Markus Niederberger, Nicola Pinna, Julien Polleux, Markus Antonietti
A general soft-chemistry route to perovskites and related materials: Synthesis of BaTiO₃, BaZrO₃, and LiNbO₃ nanoparticles
Angew. Chem. Int. Ed. **2004**, 43, 2270

N. Pinna, U. Wild, J. Urban, and R. Schlögl
Divanadium pentoxide nanorods
Advanced Materials 15, **2003**, 329

N. Pinna, M. Maillard, A. Courty, V. Russier, and M. P. Pileni
Optical properties of silver nanocrystals self-organized in 2D superlattice : Substrate effect
Physical Review B 66, **2002**, 045415

N. Pinna, K. Weiss, J. Urban, M.-P. Pileni
Triangular CdS nanocrystals: Structural and optical studies
Advanced Materials 13, **2001**, 261

Curriculum Vitæ

Hans-Joachim Radusch (Prof. Dr.)



Professor of Polymer Technology

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<http://www.kunststofftechnik.uni-halle.de>

- 1967-1972 Studies of chemical engineering/polymer materials technology at Technical University Merseburg, Germany
- 1972 Diploma Thesis in polymer materials technology "Contribution on the pressure regulation in extruders" at the Technical University Merseburg
- 1972-1974 Ph.D. student at the Technical University Merseburg
- 1975 Ph.D. Thesis in polymer technology "Modeling and simulation of the single screw extrusion process" at the Technical University Merseburg
- 1974-1977 Occupation at Research Institute of Shoe Technology in Weissenfels, Dept. of Polymer Materials Development
- 1977-1986 Senior Scientific Assistant at the Technical University Merseburg
- 1979/80 Postdoc at the Moscow Chemical-Technological Institut "D.I. Mendelejew" with Professor M.S. Akutin
- 1985 Habilitation in Materials Science "Generation, morphology and properties of polyethylene blends" at the Technical University Merseburg
- 1986 Lecturer at the Technical University Merseburg
- 1988 University Professor of Materials Technology at the Technical University Merseburg
- since 1994 University Professor of Polymer Technology at the Martin Luther University Halle-Wittenberg
- since 1999 Elected subject referee (Polymer Technology) of German Research Foundation
- since 2000 Member of the Scientific Circle of Polymer Technology (WAK)
- since 2002 Director of the Institute of Materials Science of Martin Luther University Halle-Wittenberg
- since 2003 Representative of Germany of the Polymer Processing Society (PPS)
- since 2004 Elected subject main referee (Polymer Technology) of German Research Foundation (Fachkollegiat)

Forschungsthemen

Polymer blends, morphology development, reactive compounding, nanostructured polymers, thermoplastic elastomers, morphology characterization, deformation behavior of polymers, solid state processing, high oriented structures, biodegradable polymers, rapid prototyping polymer materials, electrical conductive polymers, processing-structure-properties relationships.

Relevante Publikationen

Kolesov, H.-J. Radusch

Segment relaxation in PBT/PC and PA6/ABS blends as studied by thermally stimulated depolarization currents

J. of Macromol. Sci., Physics **B 38**, 5&6,1055 – 1069 (1999)

D. Tomova, J. Kressler, H.- J. Radusch

Phase behaviour in ternary polyamide 6/polyamide 66/elastomer blends

Polymer **41**, 7773-7783 (2000)

A.P. Mathew, S. Packirisamy, H.-J.Radusch, S. Thomas

Effect of initiating system, blend ratio and crosslink density on the mechanical properties and failure topography of nano-structured full-interpenetrating polymer networks from natural rubber and polystyrene

European Polymer Journal **37**, 9, pp. 1921-1934 (2001)

C. Kunze, Th. Freier, E. Helwig, B. Sandner, D. Reif, A. Wutzler, H.-J. Radusch

Surface modification of tricalcium phosphate for improvement of the interfacial compatibility with biodegradable polymers

Biomaterials, **24**, 6, 967-974 (2003)

H.H. Le, Th. Lüpke, T. Pham, H.-J. Radusch

Time dependent deformation behavior of thermoplastic elastomers

Polymer **44**, 4589-4597 (2003)

R. Androsch, I. Kolesov, H.-J. Radusch

Temperature-resolved derivative FTIR: Melting and formation of mesomorphic poly(ethylene)

J. Therm. Anal. Cal. **73**, 59-70 (2003)

H. H Le, S. Ilisch, B. Jakob, H.-J. Radusch

Online characterization of the effect of mixing parameters on carbon black dispersion in rubber compounds using electrical conductivity

Rubber Chem. & Technol. **77**, 1, 147-160 (2004)

S. Domenech, J.H. Bortoluzzi, V. Soldi, C.V. Franco, W. Gronski, H.-J. Radusch

Characterization, morphology, thermal and mechanical properties of conductive polyaniline-functionalized EPDM elastomers obtained by casting

J. Polym. Sci B: Polym. Phys. **42**, 9, 1767-1782 (2004)

* Lüpke, Th.; Dunger, S.; Sänze, J.; Radusch, H.-J.

Sequential biaxial drawing of polypropylene films

Polymer **45**, 6861-6872 (2004)

Kolesov, I.S., Androsch, R.; Radusch, H.-J.

Effect of crystal morphology and crystallinity on the mechanical α - and β -relaxation processes of short-chain branched polyethylene

Macromolecules **38**, 445-453 (2005)

Curriculum Vitæ

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- 1989–1995 Studies of Materials Science at Technische Hochschule "Carl Schorlemmer" Leuna-Merseburg and Martin Luther University Halle-Wittenberg
- 1995 Diploma thesis: "Fracture mechanical material optimization of modified polyamides under dynamic loading"
- 1996-recent Scientific assistant at the Martin Luther University of Halle-Wittenberg; work for different projects
- 2005 Public defence of dissertation: "Fracture mechanical assessment of unfilled and filled elastomeric materials"

Forschungsthemen

Structure–property correlations of filler reinforced thermoplastic materials
Technical material diagnostics – fracture mechanics of reinforced elastomeric blends
Crack initiation and crack propagation characteristics of filler reinforced elastomers
Investigations regarding possibilities of different mechanical examination methods for quantitative description of pharmaceutical substances

Relevante Publikationen

Bethge, I., Reincke, K., Seidler, S., Grellmann, W.:

Influence of Modifier Content and Temperature on Toughness Behaviour of Polyamide.

In: Grellmann, W., Seidler, S. (Eds.) Deformation and Fracture Behaviour of Polymers, Springer Berlin Heidelberg 2001, 243–256

Grellmann, W., Reincke, K.

Instrumentierte Schlagzugprüfung an Elastomeren

In: Frenz, H., Wehrstedt, A. (Hrsg.) Kennwertermittlung für die Praxis. Wiley-VCH Weinheim, 2003, 340–344

Reincke, K., Grellmann, W., Lach, R., Heinrich, G.:

Toughness Optimization of SBR Elastomers – Use of Fracture Mechanics Methods for Characterization.

Macromolecular Materials and Engineering, 288 (2003), 181–189

Grellmann, W., Reincke, K.

Quality Improvement of Elastomers. Application of Instrumented Notched Tensile-Impact Testing for Assessment of Toughness

Materialprüfung 46 (2004) 4, 168–175

Freitag, F., Reincke, K., Runge, J., Grellmann, W., Kleindebudde, P.

How do Roll Compaction/ Dry Granulation Affect the Tableting Behaviour of Inorganic Materials? Microhardness of Ribbons and Mercury Porosimetry Measurements of Tablets

European Journal of Pharmaceutical Sciences 22 (2004) 325–333

Reincke, K., Heinrich, G., Grellmann, W.

Investigation of Mechanical and Fracture Mechanical Properties of Elastomers Filled with Precipitated Silica and Nanofiller Based upon Layered Silicates

Rubber Chemistry and Technology 77/4 (2004) 662–677

Grellmann, W., Berghaus, A., Haberland, E.-J., Jamali, Y., Holweg, K., Reincke, K., Bierögel, C.

Determination of Strength and Deformation Behaviour of Human Cartilage for the Definition of Characteristic Parameters

Journal of Biomedical Material Research, Vol. 78/A1 (2006), 168-174

Curriculum Vitæ

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www.physik.uni-halle.de/nmr

- 1991-1997 Studies of Chemistry at the Universities of Mainz and Freiburg, Germany
- 1997 Diploma in Macromolecular Chemistry on “*Cellulose in New Coordinating Solvents - Investigation of the Solution Structure via Static/Dynamic Light Scattering and Rheological Methods*” (with W. Burchard) at the Institute for Macromolecular Chemistry, University of Freiburg
- 1997-2000 PhD-Student at the Max-Planck-Institute for Polymer Research, Mainz
- 2000 PhD in Physical Chemistry on “*Heteronuclear Recoupling Methods in Solid-State NMR*” (with H. W. Spiess), University of Mainz
- 2000-2001 Project leader at the Max-Planck-Institute for Polymer Research, Mainz
- 2001-2004 Staff scientist (“Habilitation”) in the group of H. Finkelmann, Institute for Macromolecular Chemistry, University of Freiburg
- since 2003 Member of the collaborative research center SFB 428 of the DFG
- 2004 Habilitation and *venia legendi* in Macromolecular Chemistry, thesis on “*Order Phenomena and Dynamics in Polymers: Distributions of Interactions and Intermediate Motions as a Challenge for NMR*”, University of Freiburg
- 2004-2005 Lecturer (“Hochschuldozent”), University of Freiburg
- 2005 Invitation (“Ruf”) to assume a professorship in Experimental Physics (NMR spectroscopy), University of Halle

Forschungsthemen

Structure and dynamics of polymeric and liquid-crystalline systems,
soft matter, transport phenomena,
polymer crystallization,
nanostructured and confined media,
solid-state NMR spectroscopy,
optical spectroscopy.

Relevante Publikationen

A. Fechtenkötter, K. Saalwächter, M. A. Harbison, K. Müllen, H. W. Spiess

Highly ordered columnar structures from hexa-peri-hexabenzocoronenes - synthesis, X-ray diffraction, and solid-state heteronuclear multiple-quantum NMR investigations

Angew. Chem. Int. Ed. Engl. **38**, 3039-3042 (1999)

K. Saalwächter, R. Graf, H. W. Spiess

Recoupled polarization transfer ^1H - ^{13}C heteronuclear multiple-quantum correlation in solids under ultra-fast MAS

J. Magn. Reson. **140**, 471-476 (1999)

K. Saalwächter, W. Burchard, P. Klüfers, G. Kettenbach, P. Mayer, D. Klemm, S. Dugarmaa

Cellulose solutions in water containing metal complexes

Macromolecules **33**, 4094-4107 (2000)

M. Wind, U.-M. Wiesler, K. Saalwächter, K. Müllen, and H. W. Spiess

Shape-persistent polyphenylene dendrimers - restricted molecular dynamics from advanced solid-state NMR techniques

Adv. Mater. **13**, 752-756 (2001)

K. Saalwächter

An investigation of poly(dimethylsiloxane) chain dynamics and order in its inclusion compound with γ -cyclodextrin by Fast-MAS Solid-State NMR spectroscopy

Macromol. Rapid Commun. **23**, 286-291 (2002)

I. Fischbach, T. Pakula, P. Minkin, A. Fechtenkötter, K. Müllen, H. W. Spiess, K. Saalwächter
Structure and dynamics in columnar discotic materials: A combined X-ray and solid-state NMR study of hexabenzocoronene derivatives

J. Phys. Chem. B **106**, 6408-6418 (2002)

I. Schnell, K. Saalwächter

^{15}N - ^1H bond length determination in natural abundance by inverse detection in Fast-MAS Solid-State NMR spectroscopy.

J. Am. Chem. Soc. **124**, 10938-10939 (2002)

K. Saalwächter

Detection of heterogeneities in dry and swollen polymer networks by proton low-field NMR spectroscopy

J. Am. Chem. Soc. **125**, 14684-14685 (2003)

K. Saalwächter, M. Krause, W. Gronski

Molecular interactions and dynamics in thin silica surface layers by proton solid-state NMR spectroscopy

Chem. Mater. **16**, 4071-4079 (2004)

K. Severing, K. Saalwächter

A biaxial nematic phase in a thermotropic liquid-crystalline side-chain Polymer

Phys. Rev. Lett. **92**, 125501 (2004)

Curriculum Vitæ

Gerhard Seifert

(PD Dr.)



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| 1985-90 | Studies of physics at the University of Bayreuth, Germany |
| 1990 | Diploma Thesis in physics |
| 1990-94 | Ph.D. student at the University of Bayreuth |
| 1994 | Ph.D. Thesis in experimental physics "Picosecond infrared spectroscopy of small molecules in the liquid phase" at the University of Bayreuth |
| 1994-95 | Research Assistant at the University of Bayreuth |
| 1995-1997 | Research Assistant at the Martin-Luther-University Halle-Wittenberg |
| since 1997 | Assistant Professor at the Martin-Luther-University Halle-Wittenberg |
| 2003 | Habilitation in experimental physics "Time resolved studies of molecular dynamics and inelastic interactions in liquids " at the Martin-Luther-University Halle-Wittenberg |
| 2000-2003 | Member of research group (FOR 404) |
| 2003-2005 | Member of research center (SFB 418) |
| since 2005 | Member of „International Max Planck Research School for Science and Technology of Nanostructures“, Halle |

Forschungsthemen

Development of ultrashort lasers; time-resolved laser spectroscopy on condensed matter; ultrafast vibrational, orientational and thermalization dynamics of liquids; dielectric composites containing nanoparticles: preparation, modification by laser or electric field, investigations on nanostructure and optical properties.

Relevante Publikationen

T. Patzlaff, M. Janich, G. Seifert and H. Graener

Ultrafast Dynamics of Water-AOT-Octane Microemulsions

Chem. Phys. **261**, 381 (2000)

G. Seifert, T. Patzlaff, H. Graener

Ultrafast vibrational dynamics of doubly hydrogen bonded acetic acid dimers in liquid solution

Chem. Phys. Lett. **333**, 248 (2001)

M. Kaempfe, G. Seifert, K.-J. Berg, H. Hofmeister and H. Graener

Polarization Dependence of the Permanent Deformation of Silver Nanoparticles in Glass by Ultrashort Laser Pulses

Eur. Phys. J. D **16**, 237 (2001)

G. Seifert, T. Patzlaff, H. Graener

Size dependent ultrafast cooling of water droplets in microemulsions by picosecond IR spectroscopy

Phys. Rev. Lett. **88**, 147402 (2002)

G. Seifert, T. Patzlaff and H. Graener

Picosecond vibrational energy transfer observed in the CH and OH stretching region of stearic acid dimers in liquid solution

J. Mol. Liquids **102**, 227 (2003)

G. Seifert

Stimulated Raman gain spectroscopy of low frequency density of states in liquids by picosecond IR laser pulses

Chem. Phys. Lett. **370**, 309 (2003)

G. Seifert, T. Patzlaff and H. Graener

Pure intermolecular vibrational relaxation of the OH bending mode of water molecules

J. Chem. Phys. **120**, 8866 (2004)

A. Podlipensky, A. Abdolvand, G. Seifert, H. Graener, O. Deparis, P.G. Kazansky

Dissolution of silver nanoparticles in glass through an intense DC electric field

J. Phys. Chem B **108**, 17699 (2004).

A. Kiesow, S. Strohkark, K. Löschner, A. Heilmann, A. Podlipensky, A. Abdolvand, G. Seifert

Generation of wavelength-dependent, periodic line pattern in metal nanoparticle-containing polymer films by femtosecond laser irradiation

Appl. Phys. Lett. **86**, 153111 (2005).

A. Abdolvand, A. Podlipensky, S. Matthias, F. Syrowatka, U. Gösele, G. Seifert, H. Graener

Metallo-dielectric 2D photonic structures made by electric field microstructuring of nanocomposite glasses

Adv. Mater. **17**, 2983 (2005)

Curriculum Vitæ

Georg Steinhart

(Dr.)



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- April 1993 Chemie – Vordiplom (Universität Hamburg)
- April 1993 –
März 1994 Chemie – Hauptstudium an der Universität Hamburg
- 1994 – 1997 Unterbrechung des Studiums wegen Krankheit
- April 1997 –
April 2000 Chemie – Hauptstudium an der Universität Marburg
- August 1999 –
April 2000 Diplomarbeit (Betreuer Prof. J. H. Wendorff): „*Ultradünne Polymerfasern mit ungewöhnlichen Morphologien*“
- April 2000 Chemie – Diplom (sehr gut)
- 2000 –2003 Dissertation am Institut für Physikalische Chemie der Universität Marburg (Prof. J. H. Wendorff) und am Max-Planck-Institut für Mikrostrukturphysik, Halle: „*Nanoröhrchen durch Benetzung poröser Template*“
- Juni 2003 Promotion (mit Auszeichnung)
- since 2004 Gruppenleiter am Max-Planck-Institut für Mikrostrukturphysik : „*Morphologiedesign von Nanoröhren und Nanodrähten aus anderen Materialien als Kohlenstoff*“

Forschungsthemen

Benetzung poröser Template (geordnetes poröses Aluminiumoxid, makroporöses Silicium) mit Schmelzen und Lösungen, Mechanismen der Infiltration von Mesoporen mit Flüssigkeiten
Herstellung von Nanoröhren und Nanodrähten aus anderen Elementen als Kohlenstoff durch Benetzung poröser Template; Generierung spezifischer Morphologien
Mesoskopische Strukturbildungsprozesse (Nukleation und Kristallisation, Phasenseparation, Bildung von Mesophasen) in der begrenzenden Geometrie von Mesoporen
Nanodrähte und Nanoröhren aus ferroelektrischen Polymeren

Relevante Publikationen

M. Steinhart, J. H. Wendorff, A. Greiner, R. B. Wehrspohn, K. Nielsch, J. Schilling, J. Choi, U. Gösele,

Polymer nanotubes by wetting of ordered porous templates

SCIENCE 296, 1997 (2002).

M. Steinhart, Z. Jia, A. Schaper, R.B. Wehrspohn, U. Gösele, J. H. Wendorff,

Palladium nanotubes with tailored wall morphologies

ADVANCED MATERIALS 15, 706 (2003).

M. Steinhart, S. Senz, R. B. Wehrspohn, U. Gösele, J. H. Wendorff,

Curvature-directed crystallisation of polyvinylidene fluoride in nanotube walls

MACROMOLECULES 36, 3646 (2003).

Y. Luo, I. Szafraniak, V. Nagarjan, R.B. Wehrspohn, M. Steinhart, J.H. Wendorff, N.D. Zakharov, R. Ramesh, M. Alexe,

Ferroelectric switching of nanotubes composed of lead zirconate titanate and barium titanate

APPLIED PHYSICS LETTERS 83, 440 (2003).

Y. Luo, S. K. Lee, H. Hofmeister, M. Steinhart, U. Gösele,

Pt nanoshell tubes by template wetting

NANO LETTERS 4, 143 (2004).

P. Göring, E. Pippel, H. Hofmeister, R. B. Wehrspohn, M. Steinhart, U. Gösele,

Gold/carbon composite tubes and gold nanowires by impregnating templates with hydrogen tetrachloroaurate/acetone solutions

NANO LETTERS 4, 1121 (2004).

D. H. Kim, P. Karan, P. Göring, J. Leclaire, A.-M. Caminade, J.-P. Majoral, U. Gösele, M. Steinhart, W. Knoll,

Dendrimer nanotubes by layer-by-layer deposition

SMALL 1, 99 (2005).

Y. Sun, M. Steinhart, D. Zschech, R. Adhikari, G. H. Michler, U. Gösele,

Diameter-dependence of the morphology of PS-b-PMMA nanorods confined within ordered porous alumina templates

MACROMOLECULAR RAPID COMMUNICATIONS 26, 369 (2005).

M. Steinhart, S. Zimmermann, P. Göring, A. K. Schaper, U. Gösele, C. Weder, J. H. Wendorff,

Liquid crystalline nanowires in porous alumina: geometric confinement versus influence of pore walls

NANO LETTERS 5, 429 (2005).

M. Steinhart, S. Zimmermann, A. K. Schaper, T. Ogawa, M. Tsuji, U. Gösele, C. Weder, J. H. Wendorff,

Morphology of polymer/liquid-crystal nanotubes: influence of confinement

ADVANCED FUNCTIONAL MATERIALS 15, 1656 (2005).

Curriculum Vitæ

Thomas Thurn-Albrecht (Prof. Dr.)



Professor of Experimental Polymer Physics

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|-------------|---|
| 1982-1990 | Studies of physics at the Albert-Ludwigs-Universität Freiburg, Germany and Edinburgh University/UK |
| 1987 - 1989 | Diplom Thesis, "Oscillatory and Diffusive Molecular Dynamics in Fluorinated n-Alkanes" at the Albert-Ludwigs-Universität Freiburg (Advisor: Prof. G. R. Strobl, Hoechst AG Ph.D.-student-award) |
| 1991 - 1994 | Ph.D. student at the Albert-Ludwigs-Universität Freiburg |
| 1994 | Ph.D. thesis in polymer physics "Mechanisms of Partial Melting in Semicrystalline Polymers" (Advisor: Prof. G. R. Strobl, Gödecke Award) |
| 1995 - 1998 | Postdoc at the Max-Planck-Institute for Polymer Research in Mainz with Prof. E. W. Fischer |
| 1998 - 1999 | Postdoc at the Polymer Science and Engineering Department, University of Massachusetts at Amherst with Prof. T. P. Russell |
| 2000 - 2003 | Assistant Professor at the Faculty of Physics, Albert-Ludwigs-Universität Freiburg |
| 2000 | Habilitation in physics "Studies of Controlled Structure Formation and Dynamics in Polymers and Colloids" |
| since 2003 | Professor for Experimental Physics (Polymer Physics) at the Martin-Luther-University Halle-Wittenberg |
| since 2004 | Member of research center (SFB 418) |

Forschungsthemen

Structure formation in polymers (crystallisation, microphase separation),
control of structure formation processes by external fields,
polymer based self organized nanostructures,
scattering techniques (x- ray and neutron scattering, reflectivity, x-ray photon correlation spectroscopy).

Relevante Publikationen

F. Ebert, T. Thurn-Albrecht,

Controlling the orientation of semicrystalline polymers by crystallization in magnetic fields
Macromolecules, **36**, 8685 (2003)

T. Thurn-Albrecht, J. DeRouchey, T. P. Russell, R. Kolb

Pathways towards electric field induced alignment of block copolymers Macromolecules, **35**, 8106 (2002)

G. Reiter, G. Castelein, J.-U. Sommer, A. Röttele, T. Thurn-Albrecht

Direct visualization of random crystallization and melting in arrays of nanometer-sized polymer crystals

Physical Review Letters, **87**, 226101 (2001)

T. Thurn-Albrecht, J. Schotter, G. A. Kästle, N. Emley, T. P. Russell, M. T. Tuominen, T. Shibauchi, L. Krusin-Elbaum, C.T. Black

Ultrahigh-density nanowire arrays grown in self-assembled diblock copolymer templates
Science, **290**, 2126 (2000)

T. Thurn-Albrecht, R. Steiner, J. DeRouchey, C. M. Stafford, E. Huang, M. Bal, M. Tuominen, C. J. Hawker and T. P. Russell

Nanosopic templates from oriented block copolymer films

Advanced Materials, **12**, 787 (2000)

T. Thurn-Albrecht, J. DeRouchey, T. P. Russell, H. M. Jaeger

Overcoming interfacial interactions with electric fields

Macromolecules, **33**, 3250 (2000)

E. Schäffer, T. Thurn-Albrecht, T. P. Russell, U. Steiner

Electrically induced pattern formation

Nature, **403**, 874 (2000)

R. Rulkens, G. Wegner, T. Thurn-Albrecht

Cylindrical micelles of wormlike polyelectrolytes

Langmuir, **15**, 4022 (1999)

T. Thurn-Albrecht, W. Steffen, A. Patkowski, G. Meier, E. W. Fischer, G. Grübel, D. L. Abernathy

Photon correlation spectroscopy of colloidal palladium using a coherent X-ray beam

Physical Review Letters, **77**, 5437 (1996)

T. Albrecht, G. Strobl

Temperature dependent crystalline-amorphous structures in linear polyethylene: Surface melting and the thickness of the amorphous layers

Macromolecules, **28**, 5827 (1995)

Curriculum Vitæ

Steffen Trimper

(Prof. Dr.)



Professor of Statistical Physics

Department of Physics
Martin Luther University Halle-Wittenberg
06099 Halle (Saale)

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www.physik.uni-halle.de/Fachgruppen/Theorie/thermo/stat/st/

- 1964-1969 Studies of physics at the University in Leipzig, Germany
- 1971 Diploma Thesis in theoretical physics "Perturbative calculation of Greens functions for a Heisenberg antiferromagnet with spin $\frac{1}{2}$ " at the University Leipzig
- 1969-1972 Ph.D. student at the University Leipzig
- 1972 Ph.D. Thesis in theoretical physics "Green`s function in the theory of ferromagnetism" at University Leipzig
- 1974-1983 Scientific assistant at Physics Department University Leipzig
- 1981 Habilitation in theoretical physics "Contribution to the theory of static and dynamical behaviour at phase transitions"
- 1983-1994 Assistant Professor (Dozent) for Theoretical Physics, Department of Physics University Halle,
- 1991 Gustav-Hertz-Medal, Physical Society Germany
- since 1994 Professor at the Martin Luther University Halle-Wittenberg, Germany
- since 1996 Member of research center (SFB 418)
- since 1996 Speaker (Coordinator) of the SFB 418
- since 2002 Leader of the Department for Theoretical Physics at the Martin-Luther-University in Halle

Forschungsthemen

Theoretical physics, statistical physics in equilibrium and nonequilibrium,

Phase transitions, transport theory, pattern formation, ferroelectric and ferromagnetic systems, nanomaterial,

Field theoretical methods in statistical physics, evolution models and mathematical biology, problems in econophysics.

Relevante Publikationen

T. Nattermann, S. Trimper

Critical behaviour and cubic anisotropy

J. Phys A: Math. Gen **8**, 2000 (1975)

T. Nattermann, S. Trimper

Influence of dipolar interaction on critical behaviour

J. Phys. C: Cond. Mat **9**, 2589 (1976)

T. Nattermann, S. Trimper

The commensurate-incommensurate transition and fluctuations in two and three dimensions

J. de Physique **43**, 23 (1982)

S. Trimper

Supersymmetry breaking for dynamical systems

J. Phys. A: Math. Gen., L 169 (1990)

S. Sandow, S. Trimper

Aggregation process in a master equation approach

Europhys. Lett. **21**, 799 (1993)

M. Schulz, S. Trimper

Analytical and numerical studies of the one-dimensional spin facilitated kinetic Ising model

J. Stat. Phys. **94**, 173 (1999)

M. Schulz, S. Trimper

Feedback-induced localization

Phys. Rev. B **64** R233101 (2001)

S. Trimper, K. Zabrocki, M. Schulz

Evolution model with a cumulative feedback-coupling

Phys. Rev E **65**, 056106 (2002)

J. M. Wesselinowa, S. Trimper

Central peak in the excitation spectra of thin ferroelectric films

Phys. Rev. B **69**, 024105 (2004)

J M Wesselinowa, S. Trimper, K. Zabrocki

Impact of layer defects in ferroelectric thin films

J. Phys. Cond. Mat. **17**, 4687 (2005)

Curriculum Vitæ

Carsten Tschierske (Prof. Dr.)



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|------------|---|
| 1978-1981 | Studies of chemistry at University Halle, Germany |
| 1981 | Diploma Thesis in organic chemistry at University Halle |
| 1981-1985 | Ph.D. student at the University Halle |
| 1985 | Ph.D. Thesis in organic chemistry "Synthesis and liquid crystalline properties of condensed 1,3-Diheteroalicycles " at the University Halle |
| 1986-1993 | Lecturer at the University Halle |
| 1990 | Habilitation in organic chemistry " Structure-Property relations in thermotropic and lyotropic liquid crystals" at the University Halle |
| 1991-1992 | Guest Professor at the Department of Chemistry, University Marburg, Germany |
| 1992-1993 | Guest Professor at the Institute of Organic Chemistry, University Würzburg, Germany |
| 1993 | Dozentenstipendium des Fonds der Chemischen Industrie |
| since 1994 | Professor of Organic Chemistry (C3), Institute of Organic Chemistry, University Halle |
| 2001-2002 | Guest Professor at the Institute of Advanced Material Study, Kyushu University, Fukuoka, Japan |
| since 2000 | Member of the Editorial Board of „Liquid Crystals“ |
| since 2003 | Chair of the “German Liquid Crystal Society” |
| since 2002 | Chair of the Graduate Study Program GK 984 “Self-organization by coordinative and noncovalent interactions ” |
| since 2005 | Member editorial Board of “Chemical Communications” |

Forschungsthemen

Supramolecular chemistry; synthesis and characterization of non-conventional liquid crystals, (amphiphiles, metallomesogens, perfluorinated molecules, polyphilic block-molecules, hydrogen bonded Systems, banana-shaped liquid crystals); supramolecular chirality; polar ordered (ferroelectric) materials; stereoselective and transition-metal catalyzed synthesis

Relevante Publikationen

C. Tschierske

Non-conventional liquid crystals - the importance of micro-segregation for self-organisation

J. Mater. Chem. **8** 1485-1508 (1998)

X. H. Cheng, S. Diele, C. Tschierske

Molecular design of liquid crystalline block-molecules: Semifluorinated pentaerythritol tetrabenzoates exhibiting lamellar, columnar or cubic mesophases

Angew. Chem. **112** 605-608 (2000)

P. Fuchs, C. Tschierske, K. Raith, K. Das, S. Diele

A thermotropic mesophase comprised of closed micellar aggregates of the normal type

Angew. Chem. Int. Ed. **41** 628-631(2002)

G. Dantlgraber, A. Eremin, S. Diele, A. Hauser, H. Kresse, G. Pelzl, C. Tschierske

Chirality and macroscopic polar order in a ferroelectric smectic liquid crystalline phase formed by achiral polyphilic bent-core molecules

Angew. Chem. Int. Ed. **41**, 2408-2412 (2002)

X. H. Cheng, M. K. Das, S. Diele, C. Tschierske

Novel liquid crystalline phases with layerlike organization

Angew. Chem. Int. Ed. **41**, 4031-4035 (2002)

M. Prehm, S. Diele, M.K. Das, C. Tschierske

Correlated layer structures- A novel type of liquid crystalline phases with 2D-lattice

J. Am. Chem. Soc. **125**, 614-615 (2003)

X.-H. Cheng, M. Prehm, M. K. Das, J. Kain, U. Baumeister, S. Diele, D. Leine, A. Blume, C. Tschierske

Calamitic bolaamphiphiles with (Semi)perfluorinated lateral chains: Polyphilic block molecules with new liquid crystalline phase structures

J. Am. Chem. Soc. **125** 10977-10996 (2003)

B. Chen, X. Zeng, U. Baumeister, S. Diele, G. Ungar, C. Tschierske

Liquid crystals with novel complex superstructures

Angew. Chem. Int. Ed. **43**, 4540-4548 (2004)

C. Keith, R. A. Reddy, U. Baumeister, C. Tschierske

Banana-shaped liquid crystals with two oligosiloxane end-groups: Field-induced switching of supramolecular chirality

J. Am. Chem. Soc. **126** , 14312-14313 (2004)

B. Chen, X. Zeng, U. Baumeister, G. Ungar, C. Tschierske

Liquid crystals composed of pentagonal, square and trigonal columns

Science. **307**, 96-99 (2005)

Curriculum Vitæ

Joachim Ulrich

(Prof. Dr.)



Professor of Thermal Separation Processes

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1971 – 1976	Studies of Chemical Engineering at TU Clausthal, Germany
1976 – 1981	Scientific assistant at RWTH Aachen, Germany
1981	PhD-Thesis in Chemical Engineering (with the degree: Dr.-Ingenieur) from RWTH Aachen, Germany
1981 – 1982	Postdoc research fellowship at Waseda University, Tokyo, Japan, granted by the Japan Society for the Promotion of Science (JSPS)
1982 – 1984	scientific assistant at the Institut für Verfahrenstechnik der RWTH Aachen;
1983	Visiting Professor for Chemical Engineering at the Tongji-University, Shanghai, PR China, supported by DAAD
1984 – 1999	Scientific staff member of the Department of Chemical Engineering of the faculty of Production Engineering at the University of Bremen, Germany
1990	Habilitation in Chemical Engineering (Privatdozent, teaching in Chemical Engineering) at the University of Bremen
1994	Visiting Professor at IPT, São Paulo, Brasil, supported by FAPSP and DAAD
1995 September	Außerplanmäßiger Professor (professorship) given by the Senator für Bildung, Wissenschaft, Kunst und Sport der Freien Hansestadt Bremen,
1994 - 1999	Member of research center DFG - SFB 372
since 1999 May	Full Professorship at the Martin Luther University Halle-Wittenberg,
since 2000	Chair of Thermal Separation Processes in Chemical Engineering Topic Editor of the Journal of Crystal Growth & Design
since 2001	Chairman of the Working Party on Crystallization of the European Federation of Chemical Engineering,
May-June 2005	Visiting Professor at the University of Rouen, France,
Since 2005	Member of Editorial Advisory Board of the Journal "Chemical Engineering & Technology"

Forschungsthemen

Industrial Crystallization, Melt and solution crystallization processes, Molecular Modelling in Crystallization, Process design, Emulsion Forming

Relevante Publikationen

Jones, M., J., Ulrich, J.

Industrielle Kristallisation von Proteinen – Eine Frage der Aktivität.

Chemie Ingenieur Technik, 10 (2005), 1527-1534

Heinrich, J., Ulrich, J.

Reaktionskristallisation

Chemie Ingenieur Technik, 11 (2005), 1759-1772

Lu, J. J., Ulrich, J.

Improved understanding of molecular modeling – the importance of additive incorporation.

Journal of Crystal Growth 270 (2004), 203-210

Ulrich, J., Jones, M. J.,

Industrial Crystallization - Developments in Research and Technology.

Chemical Engineering Research and Design, 82 (2004), 1567-1570

Schultz, S., Wagner, G., Urban, K., Ulrich, J.

High-Pressure Homogenization as a Process for Emulsion Formation.

Chem. Eng. Technol. 27 (2004) 4, 361 – 368

Ulrich, J., Glade, H.

Melt Crystallization: Fundamentals, Equipment and Applications.

Aachen, Shaker Verlag, 2003

Ulrich, J., Bülau, H. C.

Melt Crystallization.

In A. S. Myerson: Handbook of Industrial Crystallization. 2nd Edition, Butterworth Heinemann, Boston, 2002, 161 - 179

Ulrich, J.

Crystallization.

In Kirk-Othmer Encyclopedia of Chemical Technology (Online), John Wiley & Sons, Inc., 2002

Kim, K.-J., Ulrich, J.

An Estimation of Purity and Yield in Purification of Crystalline Layers by Sweating Operations.

Separation Science and Technology 37 (2002) 11, 2717 - 2737

Haasner, T., Kuszlik, A. K., Stadler, R., Ulrich, J.

Surface Properties - A Key for Nucleation in Melt Crystallization Processes.

Chemical & Engineering Technology 24 (2001) 873 - 878

Curriculum Vitæ

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| 1971 - 1976 | Physik-Studium an der Martin-Luther Universität Halle /Saale |
| 1975 – 1976 | Diplomarbeit am "Institut für Festkörperphysik und Elektronenmikroskopie" der AdW in Halle |
| 1976 | Diplomprüfung |
| 1976 – 1991 | Wissenschaftlicher Mitarbeiter am "Institut für Festkörperphysik und Elektronenmikroskopie" der AdW |
| 1984 – 1987 | Promotion am "Institut für Festkörperphysik und Elektronenmikroskopie" in Halle / Saale |
| 1990-1991 | Gastaufenthalt am "Institut für Festkörperforschung" der KFA in Jülich |
| 1991 – 1992 | PostDoc-Aufenthalt am Lawrence Berkeley Laboratorium in Berkeley / USA |
| ab 1992 | Wissenschaftlicher Mitarbeiter am MPI für Mikrostrukturphysik in Halle / Saale |
| 1997/98 | Gastaufenthalt an „Bell Laboratories“ in Murray Hill/USA |

Forschungsthemen

Festkörperphysik, Halbleiterphysik,
Transmissionselektronenmikroskopie,
Strukturanalyse kristalliner Materialien mittels der Hochauflösungsmikroskopie (Halbleiter, Silikate, Oxide),
Wachstum von Halbleiter-Heterostrukturen mittels MBE,
Punktdefektdiffusion in Halbleitern,
Strukturanalyse von Quanten-Strukturen in Halbleitermaterialien,
Strukturanalyse von Grenzflächen im Rahmen von Festkörperreaktionen,
Wachstum und Charakterisierung von SiGe-Nanodrähten.

Relevante Publikationen

K. Pötschke, L. Müller-Kirsch, R. Heitz, R. L. Sellin, U. W. Pohl, D. Bimberg, N. Zakharov, P. Werner:

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N. V. Kryzhanovskaya, A. G. Gladyshev, S. A. Blokhin, Yu. G. Musikhin, A. E. Zhukov, M. V. Maksimov, N. D. Zakharov, A. F. Tsatsulnikov, N. N. Ledentsov, P. Werner, F. Guffart, D. Bimberg:

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G.E. Cirlin, N.D. Zakharov, V.A. Egorov, P. Werner, V.M. Ustinov, N.N. Ledentsov:

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G.E. Cirlin, V.A. Egorov, L. V. Sokolov, P. Werner:

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V. G. Talalaev, G. E. Cirlin, A. A. Tonkikh, N. D. Zakharov, P. Werner:

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M.G. Makarov, N.N. Ledentsov, A.F. Tsatsulnikov, G.E. Cirlin, V.A. Egorov, V.M. Ustinov, N.D. Zakharov, P. Werner:

Investigations of the optical properties of a structures with superflat arrays of Ge quantum dots in a Si host:

Semiconductors **37** (2003) 219-223.

A.A. Tonkikh, V.G. Dubrovskii, G.E. Cirlin, V.A. Egorov, V.M. Ustinov, P. Werner:

Temperature dependence of quantum dot lateral size in Ge/Si(100) system.

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G.E. Cirlin, V.G. Talalaev, V.A. Egorov, N.D. Zakharov, P. Werner, N.N. Ledentsov, V.M. Ustinov:

Nanostructures formed by sub- and close-to-critical Ge inclusions in a Si matrix.

Physica E **17** (2003) 131-133.

Curriculum Vitæ

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- 1982-1988 Studies of physics at the Philipps University Marburg, Germany
- 1988-1991 PhD at the Institute of Nuclear Physics, Department of Physics, Philipps University Marburg, carried out at the Max Planck Institute of Nuclear Physics in Heidelberg
- 1991-1992 Scientist at the Department of Physics, Philipps University Marburg
- 1992-1994 Postdoc at the Chemical Engineering Department, UC Santa Barbara, USA (Prof. W. H. Weinberg), Feodor-Lynen scholarship of the Alexander-von-Humboldt Foundation
- 1994-2001 Scientist/"Oberassistent" at the Chair of Prof. Dr. Menzel, Physics Department E20 of the TU Munich
- 2001-2003 Professor (C3) for Experimental Physics, main focus laser and synchrotron radiation, TU Berlin, combined with the head of the department "Synchrotron-radiation, Micro- and Nanostructures" at the Max-Born-Institute of Nonlinear Optics and Short Pulse Spectroscopy"
- since 2003 Professor (C4) of Surface and Interface Physics at the Martin Luther University Halle-Wittenberg, Germany

Forschungsthemen

Physics of surfaces and interfaces,
surfaces of solids,
layered systems in proximity to surfaces,
electronic structure of low-dimensional systems,
organic-inorganic interfaces.

Relevante Publikationen

Widdra, W.; Yi, S. I.; Maboudian, R.; Briggs, G. A. D.; Weinberg, W. H. , **Adsorption, abstraction, and pairing of atomic-hydrogen on Si(100)-(2 X-1)**
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Widdra, W.; Trischberger, P.; Henk, J.
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Bröcker, D.; Gießel, T.; Widdra, W.
Charge Carrier Dynamics at the SiO₂/Si(100) Interface: A time-resolved photoemission study with combined laser and synchrotron radiation
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