

Veröffentlichungsliste:

Biomineralization

- A. Heiss, W. Jahnens-Decent, D. Schwahn, "The hidden Mineral - The Calcium Phosphate binding Properties of the Serum Protein Fetuin-A", in preparation (2009)
- A. Heiss, v. Pipich, W. Jahnens-Decent, D. Schwahn, "Structural dynamics of a colloidal protein - mineral complex bestowing on calcium phosphate a high solubility in biological fluids", in preparation (2009)
- Vitaliy Pipich, Matthias Balz, Stephan E. Wolf, Wolfgang Tremel, and Dietmar Schwahn, "Nucleation and Growth of CaCO_3 Mediated by the Egg-White Protein Ovalbumin: A Time-Resolved in-situ Study Using Small-Angle Neutron Scattering", *J. Am. Chem. Soc. (JACS)* **130** (21) (2008) 6879-6892.
- Dietmar Schwahn, Yurong Ma, Helmut Cölfen, "Mesocrystal to Single Crystal Transformation of DL-Alanine evidenced by Small Angle Neutron Scattering", *J. Phys. Chem. C* **111** (2007) 3224
- V. Pipich, M. Balz, W. Tremel, D. Schwahn, "Mineralization of Calcium Carbonate in the Presence of Ovalbumin – an Exploration with Small Angle Neutron Scattering" published in Biominerization: from Paleontology to Materials Science (J.L. Arias and M.S. Fernández, eds) Proceedings of the ninth international symposium in Pucón (Chile) (2007) 477-485
- A. Heiss, W. Jahnens-Decent, H. Endo, D. Schwahn, "Structural dynamics of a colloidal protein - mineral complex bestowing on calcium phosphate a high solubility in biological fluids", *Biointerphases* **2** (2007) 16
- Oliver Seiler, Christian Burschka, Dietmar Schwahn, Reinhold Tacke, "Behavior of Tri(n-butyl)ammonium Bis[citratato(3-)O¹,O³,O⁶] silicate in Aqueous Solution: Analysis of a Sol-Gel Process by Small-Angle Neutron Scattering", *Inorganic Chemistry* **44** (7) (2005) 2318
- H. Endo, D. Schwahn , H. Cölfen, "On the Role of Block Copolymer Additives for Calcium Carbonate Crystallization – Neutron Scattering Investigation by Applying Contrast Variation", *J. Chem. Phys.* **120** (2004) 9410-9423
- H. Endo, D. Schwahn , H. Cölfen, "An analysis of calcium carbonate / polymer hybrid crystals applying contrast variation SANS", *Physica B* **350** (2004) E943-E945
- Dietmar Schwahn, Mathias Balz, Wolfgang Tremel, "Crystallization of the CaCO_3 mineral in the presence of the protein Ovalbumin", *Physica B* **350** (2004) E947-E949
- H. Endo, D. Schwahn , H. Cölfen, "On the Role of Block Copolymer Additives for Calcium Carbonate Crystallization – Neutron Scattering Investigation by Applying Contrast Variation", *J. Chem. Phys.*, **120** (2004) 9410-9423

- D. Schwahn, M. Balz, M. Bartz, A. Fomenko, and W. Tremel, "Nucleation and Growth of CaCO₃ Minerals on Biomimetic Templates studied by Small Angle Neutron Scattering", *J. Appl. Cryst.* **36** (2003) 583
- Hitoshi Endo, Helmut Cölfen, Dietmar Schwahn, "Analysis of Polymer Templates in Calcium Carbonate – SANS Investigation Applying Contrast Variation" *J. Appl. Cryst.* **36** (2003) 568

Soft matter and related subjects

Publication of last 5 years:

- Aurel Radulescu, Dietmar Schwahn, Jörg Stellbrink, Lewis J. Fetter, and Dieter Richter, "The Microstructure and Morphology of Self-assembling Multi-Block Poly(Ethylene-1-Butene)-n Copolymers in Solution studied by Wide-Q Small-Angle Neutron Scattering and Microscopy", *Macromolecules* (2009) submitted
- Vitaliy Pipich, Lutz Willner, Dietmar Schwahn, "The A-B Diblock Copolymer as non-ordering external Field in a three Component A/B/A-B Polymer Blend", *J. Phys. Chem. B* **112** (50) (2008) 16170-16181
- Aizza Ramzi, Cristianne Rijcken, Theo Veldhuis, Dietmar Schwahn, Wim Hennink, and Cornelius van Nostrum, "Core-Shell Structure of Degradable, Thermosensitive Polymeric Micelles studied by Small-Angle Neutron Scattering", *J. Phys. Chem. B* **112** (3) (2008) 784-792
- L. John R. Foster, Dietmar Schwahn, Vitaliy Pipich, Peter J. Holden and Dieter Richter, "SANS Characterisation of Polyhydroxyalkanoates and their BioPEGylated Hybrids in Solution", *Biomacromolecules* **9** (2008) 314-320
- F. Gabel, D. Wang, D. Madern, A. Sadler, K. Dayie, M. Zamanian Daryoush, D. Schwahn, G. Zaccai, X. Lee, and B.R.G. Williams, "Dynamic Flexibility of Double-stranded RNA Activated PKR in Solution", *J. Mol. Biol.* **359** (2006) 610-623. (Edited by Robert Huber)
- R. Triolo, F. Lo Celso, C. Gorgoni, P. Pallante, D. Schwahn, and M. Baron Mesoscopic structure of marble determined by combined USANS and SANS, *Journal of Neutron Research* **14** (2006) 59
- A. Radulescu, D. Schwahn, J. Stellbrink, E. Kentzinger, M. Heiderich, D. Richter, and L.J. Fetter, "Wax Crystallization from Solution in Hierarchical Morphology Templated by Random Poly(ethylene-butene) Self-assemblies", *Macromolecules* **39** (2006) 6142
- Vitaliy Pipich, Dietmar Schwahn, Lutz Willner, „Composition Fluctuations in a Homopolymer – Diblock Copolymer Mixture covering 3D-Ising, isotropic Lifshitz and Brasovskii Class of Critical Universality”, *J. Chem. Phys.* **123** (2005) 124904-1
- Henry S. Ashbaugh, Xuhong Guo, Dietmar Schwahn, Robert K. Prud'homme, Dieter Richter, and Lewis J. Fetter, "Interaction of Paraffin Wax Gels with Ethylene/Vinyl Acetate Copolymers", *Energy & Fuels* **19** (1) (2005) 138-144

- Vitaliy Pipich, Dietmar Schwahn and Lutz Willner, „Ginzburg number of a homopolymer / diblock copolymer mixture covering 3d-Ising, isotropic Lifshitz and Brasovskii class of critical universality”, Phys. Rev. Lett. **94** (2005) 117801
- Satoshi Koizumi, Michael Monkenbusch, Dieter Richter, Dietmar Schwahn, and Bela Farago, „Concentration fluctuations in polymer gel investigated by neutron scattering: Static inhomogeneity in swollen gel”, J. Chem. Phys. **121** (2004) 12721
- Basil Abbas, Dietmar Schwahn, L. Willner, “Phase Behavior of the Polybutadiene / Polystyrene Diblock Copolymer with Additions of the non-selective Solvent Dichlorobencene in Temperature and Pressure Fields”, Journal of Polymer Science Part B: Polymer Physics **42** (2004) 3179-3190 (Special Issue on Recent Developments in Polymer Science as Determined by Neutron Scattering)
- A. Radulescu, D. Schwahn, M. Monkenbusch, L.J. Fetter, and D. Richter, „A structural study of the influence of partially crystalline poly(ethylene-butene) random copolymers on paraffin crystallization in dilute solutions”, Journal of Polymer Science Part B: Polymer Physics **42**, (2004) 3113-3132 (Special Issue on Recent Developments in Polymer Science as Determined by Neutron Scattering)
- V. Pipich, D. Schwahn, L. Willner, “The Lifshitz line of the disordered and microemulsion phase in an A/B/A-B three component homopolymer/diblock copolymer mixture”, Physica **B 350** (2004) E897-E900
- A. Radulescu, D. Schwahn, M. Monkenbusch, D. Richter, L.J. Fetter, “The interaction mechanisms of triacontane paraffin with semi-crystalline poly(ethylene - butene) random copolymers in dilute solution studied with SANS”, Physica **B 350** (2004) E927-E930
- Y. Kawabata, M. Nagao, H. Seto, S. Komura, T. Taheda, D. Schwahn, N. Yamada, and H. Nobuto “Temperature and pressure effects on the bending modulus of monolayers in a ternary microemulsion”, Phys. Rev. Lett. **92** (2004) 056103
- Y.B. Melnichenko, G.D. Wignall, D. Schwahn, “Universal behavior of polymer blends, solutions, and supercritical mixtures and implications for the validity of the random phase approximation”, Fluid Phase Equilibria **212** (2003) 209-219
- A. Radulescu, D. Schwahn, D. Richter, L.J. Fetter, “Co-crystallization of Poly(ethylene-butene) Copolymers and Paraffin Molecules in Decane Solution studied by SANS”, J. Appl. Cryst. **36** (2003) 995

Publication from 1986 -2002:

- Dietmar Schwahn and Lutz Willner, “Phase Behavior and Flory-Huggins Parameter of Binary Polybutadiene Copolymer Mixture of different Vinyl Content and Molar Volume”, Macromolecules **35** (2002) 239
- Dietmar Schwahn, Henrich Frielinghaus, and Lutz Willner, “Small Angle Neutron Scattering Studies of a Polybutadiene/Polystyrene Blend with small Additions of Ortho-di-Chlorine-Benzene for varying Temperatures and Pressures Fields; Part I: Mean Field to 3D-Ising Crossover Behavior.”, J. Chem. Phys. **116** (2002) 2229

- Henrich Frielinghaus, Dietmar Schwahn, Lutz Willner, Karl F. Freed, "Small Angle Neutron Scattering Studies of a Polybutadiene/Polystyrene Blend with Small Additions of Ortho-di-Chlorine-Benzene for varying Temperatures and Pressures Fields; Part II: Phase Boundaries and Flory-Huggins Parameter", *J. Chem. Phys.* **116** (2002) 2241
- Dietmar Schwahn, Dieter Richter, Pamela J. Wright, Charles Symon, Lew J. Fetter, and Min Lin, "Self-Assembling Behavior in Decane Solution of Potential Wax Crystal Nucleators Based on Poly(co-olefins)", *Macromolecules* **35** (2002) 861
- Dietmar Schwahn, Dieter Richter, Min Lin, and Lew J. Fetter, "The Co-crystallisation of a Poly(ethylene-butene) Random Copolymer with C₂₄ in n-Decane", *Macromolecules* **35** (2002) 3762
- Henry S. Ashbaugh, Aurel Radulescu, Robert K. Prud'homme, Dietmar Schwahn, Dieter Richter, and Lewis J. Fetter, "Interaction of Paraffin Wax Gels with Random Crystalline/Amorphous Hydrocarbon Copolymers", *Macromolecules* **35** (2002) 7044
- Y. B. Melnichenko, G. D. Wignall, and D. Schwahn, "Universal Aspects of Macromolecules in Polymer Blends, Solutions, and Supercritical Mixtures", *Physical Review E* **65** (2002) 061802
- Dirk Volkmer, Björn Bredenkötter, Jörg Tellenbröker, Paul Kögerler, Dirk G. Kurth, Pit Lehmann, Heimo Schnablegger, Dietmar Schwahn, Markus Piepenbrink, and Bernt Krebs, "Structure and Properties of the Dendron-Encapsulated Polyoxometalate (C₅₂H₆₀NO₁₂)₁₂[(Mn(H₂O))₃(SbW₉O₃₃)₂], a First Generation Dendrozyme", *J. Am.Chem. Soc.* **124** (2002) 10489-10496
- Satoshi Koizumi, Michael Monkenbusch, Dieter Richter, Dietmar Schwahn, Bela Farago, and Masahiko Annaka, "Observation of Concentration Fluctuations in Polymer Gels Performed by Neutron Spin Echo", *Journal of Neutron Research* **10** (2002) 155-162
- V. Pipich, D. Schwahn, L. Willner, "Complex phase behavior near the Lifshitz line in a ternary polymer blend", *Applied Physics A* **74** [Suppl.] (2002) 345-347
- Dietmar Schwahn , Lutz Willner, "Phase behavior of binary polybutadiene copolymer mixtures as an example of weakly interacting polymers", *Applied Physics A* **74** [Suppl.] (2002) 358-360
- S. Koizumi, M. Monkenbusch, D. Richter, D. Schwahn, B. Farago, and M. Annaka, "Frozen concentration fluctuations in a poly(N-isopropyl acrylamide) gel studied by neutron spin echo and small angle scattering", *Applied Physics A* **74** [Suppl.] (2002) 399-398
- A. Radulescu, D. Schwahn, D. Richter, L. Fetter, "Crystallization of paraffin solutions in the presence of PEB-7 ethylene-butene random copolymers", *Applied Physics A* **74** [Suppl.] (2002) 411-413
- Y.Kawabata, M. Nagao, H. Seto, S. Komura, T. Takeda, D. Schwahn, "Neutron Spin Echo Studies on the Effects of Temperature and Pressure in a Ternary Microemulsion", *Applied Physics A* **74** [Suppl.] (2002) 534-536

- D. Schwahn, H. Frielinghaus, K. Mortensen, K. Almdal, "Abnormal Pressure Dependence of the Order-Disorder Phase Boundary in (PEE;PEP)-PDMS Binary Polymer Blends and Diblock Copolymers", *Macromolecules* **34** (2001) 1694-1706
- H. Frielinghaus, D. Schwahn, L. Willner, "Blends of Polybutadiene with different Vinyl Contents and Polystyrene studied with Small Angle Neutron Scattering in varying Temperature and Pressure Fields", *Macromolecules* **34** (2001) 1751-1763
- Henrich Frielinghaus, Dietmar Schwahn, Jacek Dudowicz, K.W. Foreman, Karl Freed, "Application of the LCT to describe the Temperature, Pressure, and Microstructure Dependent Small Angle Neutron Scattering Experiments on Polybutadiene/Polystyrene Blends", *J. Chem. Phys.* **114** (2001) 5016
- G.D. Wignall, R.G. Alamo, E.J. Ritchon, L. Mandelkern, and D. Schwahn, "SANS Studies of Liquid-Liquid Separation in Heterogeneous and Metallocene-Based Linear Low-Density Polyethylenes", *Macromolecules* **34** (2001) 8160
- S. Koizumi, M. Monkenbusch, D. Richter, D. Schwahn, M. Annaka, "Frozen Concentration Fluctuations of a Poly (N-isopropyl acrylamide) Gel Decomposed by Neutron Spin Echo", *J Phys. Soc. Jpn.* **70** (2001) Suppl. A pp.320-322
- Dietmar Schwahn, Kell Mortensen, Henrich Frielinghaus, Kristoffer Almdal, Lars Kielhorn, "Thermal Composition Fluctuations near the Isotropic Lifshitz Critical Point in a Ternary Mixture of a Homopolymer Blend and Diblock Copolymer", *J. Chem. Phys.* **112** (2000) 5454-5472
- D. Schwahn, "Ginzburg Number and Phase Behavior of Binary Polymer Blends in Pressure Fields", *Macromol. Symp.* **149** (2000) 43-52
- Dietmar Schwahn, Kell Mortensen, Henrich Frielinghaus, Kristoffer Almdal, "3D-Ising and Lifshitz Critical Behavior in a Mixture of a Polymer Blend and a Corresponding Diblock Copolymer", *Physica B* **276-278** (2000) 353-354
- Basil Abbas, Dietmar Schwahn, Lutz Willner, "Concentrated Diblock Copolymer Solutions in a Pressure Field", *Physica B* **276-278** (2000) 377-378
- S. Koizumi, M. Annaka, S. Borbely, D. Schwahn, "Fractal Structures of a Poly(N-Isopropylacrylamide) Gel studied by Small-Angle Neutron Scattering over a Q-range from 10^{-5} to 0.1\AA^{-1} ", *Physica B* **276-278** (2000) 367-368
- Kell Mortensen, Dietmar Schwahn, Henrich Frielinghaus, and Kristoffer Almdal, "Lifshitz Critical Line in the Ternary Mixture of Homopolymer Blend and Diblock Copolymer, studied by Small-Angle Neutron Scattering", *J. Appl. Cryst.* **33** (2000) 686-689
- Dirk G. Kurth, Pit Lehmann, Dirk Volkmer, Achim Müller, and Dietmar Schwahn, "Biologically-inspired polyoxometalate-surfactant composite materials. Investigations on the structures of discrete surfactant-encapsulated clusters, monolayers, and Langmuir-Blodgett films of $\text{DODA}_{40}(\text{NH}_4)_2[(\text{H}_2\text{O})_n \subset \text{Mo}_{132}\text{O}_{372}(\text{CH}_3\text{COO})_{30}(\text{H}_2\text{O})_{72}]$ ", *J. Chem. Soc., Dalton Trans.*, (2000) 686-689

- Dietmar Schwahn, Kell Mortensen, Henrich Frielinghaus, and Kristoffer Almdal, “Crossover from 3d-Ising to Isotope Lifshitz Critical Behavior in a Mixture of a Homopolymer Blend and Diblock Copolymer”, Phys. Rev. Lett. **82** (1999) 5056
- N. Gorsky, J. Kalus, G. Meier, D. Schwahn, “The Temperature Dependence of the Chemical Potential of Tetradecyldimethylaminoxid Micelles in D₂O - A SANS Study”, Langmuir **15** (1999) 3476-3482
- H. Hasegawa, N. Sakamoto, H. Takeno, H. Jinnai, T. Hashimoto, D. Schwahn, H. Frielinghaus, S. Janßen, M. Imai, and K. Mortensen, “SANS Studies on Phase Behavior of Block Copolymers”, J. Phys. Chem. Solids, **60** (1999) 1307-1312
- N. Gorski, J. Kalus, and D. Schwahn, „The Pressure Dependence of the Chemical Potential of Tetradecyldimethylaminoxid Micelles in D₂O - A SANS Study”, Langmuir **15** (1999) 8080-8085
- H. Frielinghaus, D. Schwahn, L. Willner, and T. Springer, “Thermal Composition Fluctuations in Binary Homopolymer Mixtures as a Function of Pressure and Temperature”, Physica **B 241-243** (1998) 1022-1024
- D. Schwahn, H. Frielinghaus, K. Mortensen, and K. Almdal, “Pressure Dependence of the Order-Disorder Transition in several Diblock Copolymers studied with SANS”, Physica **B 241-243** (1998) 1029-1031
- Ch. Dux, S. Musa, V. Reus, H. Versmold, D. Schwahn, P. Lindner, “Small Angle Neutron Scattering Experiments from Colloidal Dispersions at Rest and under Sheared Conditions”, J. Chem. Phys. **109** (1998) 2556-2561
- H. Frielinghaus, B. Abbas, D. Schwahn, and L. Willner, “Temperature and Pressure dependent Composition Fluctuations in a Polybutadiene/Polystyrene Polymer Blend and Diblock Copolymer”, Europhys. Lett. **44 (5)** (1998) 606-612
- D. Schwahn, H. Frielinghaus, K. Mortensen, K. Almdal and T. Springer, “Effect of Pressure on Thermal Orderparameter Fluctuations and Phase Boundaries in Polymer Blends and Diblock Copolymers”, Neutron News **8(1)** (1997) 32
- H. Frielinghaus, D. Schwahn, K. Mortensen, L. Willner, K. Almdal, “Pressure and temperature effects in homopolymer blends and diblock copolymers”, Physica **B 234-236** (1997) 260
- G. Müller, D. Schwahn, H. Eckerlebe, J. Rieger, and T. Springer, “Deviation of early stage of spinodal decomposition from the Cahn-Hilliard-Cook theory observed in an isotopic polymer blend”, Physica **B 234-236** (1997) 245
- H. Frielinghaus, D. Schwahn, L. Willner, T. Springer, “Thermal composition fluctuations in binary homopolymer blends as a function of pressure and temperature”, Physica **B 241** (1997) 1022
- D. Schwahn, H. Frielinghaus, K. Mortensen, K. Almdal, “Pressure dependence of the order-disorder transition in several diblock copolymers studied with SANS”, Physica **B 241** (1997) 1029

- K. Mortensen, K. Almdal, D. Schwahn and H. Frielinghaus, "Pressure and Temperature Dependence of the Phase Behavior of Diblock Copolymers as Studied by Small-Angle Neutron Scattering", *Macromolecular Symposia* **121** (1997) 245
- G. Müller, D. Schwahn, T. Springer, "Homogeneous nucleation and growth in the critical 3d-Ising regime of a binary polymer blend", *Phys. Rev. E* **55** (1997) 7267
- H. Frielinghaus, D. Schwahn, K. Mortensen, L. Willner, and K. Almdal, "Pressure and Temperature Effects in Homopolymer Blends and Diblock Copolymers", *J. Appl. Cryst.* **30** (1997) 696
- K. Mortensen, K. Almdal, D. Schwahn, and F.S. Bates, "Small-Angle Neutron Scattering Studies of the Phase Behavior and Mesophases of Homopolymers, Block Copolymers and Complex Mixtures", *J. Appl. Cryst.* **30** (1997) 702
- D. Schwahn, G. Müller, and H. Frielinghaus, "The Effect of Thermal Composition Fluctuations on Phase Decomposition in Polymer Blends – An Experimental Study", In: *Recent Research Developments in Macromolecules Research* **2** (1997) 107-119, (Research Signpost)
- M. D. Dadmun, M. Muthukumar, D. Schwahn, and T. Springer, "Small-Angle Neutron Scattering of Poly(γ -benzyl L-glutamate) in Deuterated Benzyl Alcohol", *Macromolecules* **29** (1996) 207
- H. Frielinghaus, D. Schwahn, K. Mortensen, K. Almdal, and T. Springer, "Composition Fluctuations and Coil Conformation in the Poly(ethylene-Propylene)-Poly(ethyl ethylene) Diblock Copolymer as a Function of Temperature and Pressure", *Macromolecules* **29** (1996) 3263
- G. Müller, D. Schwahn, H. Eckerlebe, J. Rieger, and T. Springer, "Effect of the Onsager coefficient and internal relaxation modes on spinodal decomposition in the high molecular isotopic blend polystyrene / deutero-polystyrene studied with small angle neutron scattering", *J. Chem. Phys.* **104** (1996) 5326
- M. D. Dadmun, M. Muthukumar, R. Hempelmann, D. Schwahn, and T. Springer, "Proton Motion of Poly(γ -benzyl L-glutamate) in Benzyl Alcohol During Gelation as Measured by Quasielastic Neutron Scattering", *J. Polym. Science B* **34** (1996) 649
- H. Seto, D. Schwahn, M. Nagao, E. Yokoi, S. Komura, M. Imai and K. Mortensen, "The Crossover from Meanfield to 3D-Ising Critical Behavior in a 3-Component Microemulsion", *Phys. Rev. E* **54** (1996) 629
- D. Schwahn, H. Frielinghaus, K. Mortensen, and K. Almdal, "Temperature and pressure dependence of the order parameter fluctuations, conformational compressibility, and phasediagram of the PEP-PDMS diblock copolymer", *Phys. Rev. Lett.* **77** (1996) 3153
- D. Schwahn and T. Springer, "Pressure and time-resolved SANS experiments on polymer blends", *Journal of Neutron Research* **3** (1995) 41
- S. Janßen, D. Schwahn, T. Springer, K. Mortensen, "Coil and Melt Compressibility of Polymer Blends Studied by SANS - and pVT – Experiments", *Macromolecules* **28** (1995) 2555

- D. Schwahn, S. Janßen, G. Müller, T. Springer, H. Eckerlebe, J. Rieger, "Early states of spinodal decomposition in polymer blends studied with SANS", *Physica B* **213 & 214** (1995) 688
- S. Janßen, D. Schwahn, T. Springer, K. Mortensen, H. Hasegawa, "Investigation of the pressure dependence of the Gibbs potential for polymer blends by means of SANS", *Physica B* **213 & 214** (1995) 691
- H. Seto, D. Schwahn, E. Yokoi, M. Nagao, S. Komura, M. Imai and K. Mortensen, "The Crossover from Meanfield to 3D-Ising Critical Behavior in a 3-Component Microemulsion", *Physica B* **213 & 214** (1995) 591
- D. Schwahn, S. Janßen, L. Willner, T. Schmackers, T. Springer, K. Mortensen, H. Takeno, H. Hasegawa, H. Jinnai, T. Hashimoto, and M. Imai, "Critical crossover phenomena in compatible polymer blends studied with SANS", *Physica B* **213 & 214** (1995) 685
- D. Schwahn, T. Schmackers, and K. Mortensen, "Ginzburg Criterion for the Mean-Field to 3d-Ising Crossover in Polymer Blends", *Phys. Rev. E* **52** (1995) R1288
- H. Matsuoka, D. Schwahn, and N. Ise, "Determination of Cluster Size in Polyelectrolyte Solutions by Small-Angle Neutron Scattering" In: ACS Symposium Series 548, Chapter 27 (1994) "Macro-ion Characterization from Dilute Solutions to Complex Fluids" Kenneth S. Schmitz, Editor
- D. Schwahn, G. Meier, K. Mortensen and S. Janssen, "On the scaling of the Ginzburg number and the critical amplitudes with the degree of polymerization N as observed in various compatible polymer blends by scattering experiments with neutrons and light", *Journal de Physique II (France)* **4** (1994) 837
- D. Schwahn, K. Mortensen, and S. Janssen, "Critical neutron scattering in a polymer blend above and below the critical point of demixing: critical exponents and amplitude ratios", *Phys. Rev. Lett.* **73** (1994) 1452
- D. Schwahn, H. Takeno, L. Willner, H. Hasegawa, H. Jinnai, T. Hashimoto, and M. Imai, "Microstructural effects onto the Ginzburg number and the crossover behavior in d-PB/PS blends", *Phys. Rev. Lett.* **73** (1994) 3427
- D. Schwahn, S. Janßen, and T. Springer, "Exponential and Nonexponential Relaxation and the Early State of Spinodal Decomposition in Polymer Blends by SANS", *Progr. Colloid Polym. Sci.* **91** (1993) 80
- H. Seto, D. Schwahn, K. Mortensen, S. Komura, "A small angle neutron scattering study of density fluctuations at near-critical region and a van der Waals model in a 3-component microemulsion", *J. Chem. Phys.* **99** (1993) 5512
- G. Meier, D. Schwahn, K. Mortensen, and S. Janssen, "On the Crossover from Ising to Mean Field Behaviour in Compatible Binary Polymer Blends", *Europhys. Lett.* **22** (8) (1993) 577
- K. Mortensen, D. Schwahn and S. Janssen, "Pressure-Induced Melting of Micellar Crystal", *Phys. Rev. Lett.* **71** (11) (1993) 1728

- S. Janßen, D. Schwahn, K. Mortensen, T. Springer, "Pressure Dependence of the Flory-Huggins Interaction Parameter in Polymer Blends: a SANS Study and a Comparison to the Flory-Orwoll-Vrij Equation of State", *Macromolecules* **26** (1993) 5587
- H. Seto, E. Yokoi, S. Komura, D. Schwahn, K. Mortensen, J. Suzuki, M. Ohnuma, and Y. Ito, "Small Angle Neutron Scattering Study on a Phase Separation in a 3-Component Microemulsion System", *Journal de Physique IV*, C8, Vol. **3** (1993) 161
- D. Schwahn, H. Eckerlebe, E. Hädicke and T. Springer, "Observation of Internal Relaxation Modes During Early State of Spinodal Decomposition in the Isotopic Polymer Mixture d-PS/PS with SANS", *Journal de Physique IV*, C8, Vol. **3** (1993) 13
- S. Janßen, D. Schwahn, K. Mortensen, T. Springer, "Pressure Dependence of the Flory-Huggins Interaction Parameter in Binary Polymer Blends Investigated by SANS", *Journal de Physique IV*, C8, Vol. **3** (1993) 17
- D. Schwahn, S. Janßen, and T. Springer, "Studies of Phase Transitions and Relaxation in Polymer Blends by SANS", *Physica B* **180 & 181** (1992) 492
- S. Janßen, D. Schwahn, and T. Springer, "The Meanfield-Ising Crossover and the Critical Exponents γ , v and η for a Polymer Blend: d-PB/PS studied by SANS", *Phys. Rev. Lett.* **68** (1992) 3180-3183
- H. Seto, S. Komura, D. Schwahn, and K. Mortensen, "Mean-Field Behaviour at Phase Separation in 3-Component Microemulsion System" in "Slow Dynamics in Condensed Matter" AIP Conf. Proc. **256** (1992) 318
- D. Schwahn, S. Janßen, and T. Springer, "Early state of spinodal decomposition studied with small angle neutron scattering in the polymer blend d-PS/PVME - a comparison with the Cahn-Hilliard-Cook theory", *J. Chem. Phys.* **97** (1992) 8775
- D. Schwahn, T. Springer, S. Janßen, and E. Hädicke, "Investigation of Equilibrium- and Non-Equilibrium-States of Polymer Blends by Small Angle Neutron Scattering", *J. Appl. Cryst.* **24** (1991) 685-691
- D. Schwahn, T. Springer, and S. Janssen, "Equilibrium and Non-Equilibrium States of Polymer Blends Investigated by Small Angle Neutron Scattering", *Physica B* **174** (1991) 159
- H. Matsuoka, D. Schwahn, and N. Ise, "Observation of Cluster Formation in Polyelectrolyte Solutions by Small-Angle Neutron Scattering", *Macromolecules* **24** (1991) 4227
- D. Schwahn, T. Springer, K. Hahn, and J. Streib, "Studies on the Excess Free Energy and the Early State of Spinodal Decomposition of the Blend d-PS/PVME and the Isotopic Blend d-PS/PS with Small Angle Neutron Scattering", *Mat. Res. Soc. Symp. Proc.* **171** (1990) 261
- R.P. Hjelm, P. Thiagarajan, D.S. Sivia, P. Lindner, H. Alkan, D. Schwahn, "Small-Angle Neutron Scattering from Aqueous Mixed Colloids of Lecithin and BileSalt", *Progress in Colloid and Polymer Science* **81** (1990) 225

- D. Schwahn, K. Hahn, J. Streib and T. Springer, "Critical Fluctuations and Relaxation Phenomena in the Isotopic Blend Polystyrene/deutero-Polystyrene Investigated by SANS", *J. Chem. Phys.* **93** (1990) 8383
- D. Schwahn, K. Hahn, J. Streib, and T. Springer, "Studies on the Excess Free Energy and the Collective Diffusion Constant of the Blend d-PS/PVME, d-PB/PS and the Isotopic Blend d-PS/PS with Neutron Small Angle Scattering", Proceedings: Third European Symposium on Polymer Blends, Cambridge, UK July 24-26, 1990
- W. Pyckhout, D. Schwahn, I. Sosnowska, T. Springer and H. Yee-Madeira, "Critical Phenomena and Precipitation Kinetics of Macromolecular Blends, Investigated by Small Angle Neutron Scattering", *Physica B* **156 & 157** (1989) 402
- K. Hahn, J. Kerth, D. Schwahn, T. Springer and J. Kugler, "Determination of the chain conformation in fast spun Polypropylene (PP) fibers by SANS", *Macromolecules* **21** (1988) 1541-1543
- D. Schwahn, T. Springer, K. Mortensen and H. Yee-Madeira, "Small Angle Scattering Experiments of Neutrons for the Polymer Blend PVME/d-PS", In: *Dynamics of Ordering Processes in Condensed Matter* Edited by S. Komura and H. Furukawa, Plenum Publishing Corporation (1988) 445
- D. Schwahn, T. Springer, H. Yee-Madeira and K. Mortensen, "Growth of Domains in a PVME/d-PS Polymer Blend by Small Angle Neutron Scattering", *Proceedings in Physics* **29** (1988) 296-300
- D. Schwahn, K. Mortensen, and H. Yee-Madeira, "Studies of Critical Phenomena and Phase Transition with SANS and DKD in the Polymer Blend PVME-PSD", *Symposia Proceedings of Materials Research Society* **79** (1987) 123
- D. Schwahn and H. Yee-Madeira, "Spinodal Decomposition of the Polymerblend Deutereous Polysterene (d-PS) and Polyvinylmethylether (PVME) studies with High Resolution Neutron Small Angle Scattering", *Colloid & Polymer Science* **265** (1987) 867-875
- D. Schwahn, K. Mortensen, T. Springer, H. Yee-Madeira and R. Thomas, "Investigation of the Phase Diagram and Critical Fluctuations of the System Polyvinylmethylether and d-Polystyrene with Neutron Small Angle Scattering", *J. Chem. Phys.* **87** (1987) 6078
- D. Schwahn, K. Mortensen and H. Yee-Madeira, "Mean-Field and Ising Critical Behavior of a Polymer Blend", *Phys. Rev. Lett.* **58** (1987) 1544-1546
- D. Schwahn, L. Belkoura and D. Woermann, "Neutron Scattering Experiments with a Critical Mixture for the Determination of the Critical Exponent η ", *Berichte Bunsenges. Phys. Chem.* **90** (1986) 339

Materials science and related subjects

- F. Carsughi and D. Schwahn, “Small Angle Neutron Scattering from Silica Particles in Solution with Different Concentrations”, *Physica B* **234-236** (1997) 343101
- G. Albertini, F. Carsughi, R. Coppola, F. Rustichelli, D. Schwahn, G. Mercurio, “Small-Angle Neutron Scattering Study of Microstructural Inhomogeneities in a Steel for Fusion Technology”, *Nuclear Instru. & Methods in Physics Research A* **321** (1992) 381-384
- Stefan Odenbach, Dietmar Schwahn and Klaus Stierstadt, “Evidence for diffusion-induced convection in ferrofluids from small-angle neutron scattering”, *Z. Phys. B* **96** (1995) 567
- F. Carsughi, W. Kesternich, H. Schroeder, D. Schwahn, H. Ullmaier, “Coarsening of Helium Bubbles in FeCrNi Measured by Small Angle Neutron Scattering”, *J Nucl. Mater.* **191-194** (1992) 1284
- G. Albertini, F. Carsughi, R. Coppola, W. Kesternich, G. Mercurio, F. Rustichelli, D. Schwahn, H. Ullmaier, “Study of He-Bubble Growth in Manet Steel by Means of Small-Angle Neutron Scattering”, *Journal of Nucl. Materials* **191-194** (1992) 1327
- D. Schwahn, “Gas Density in Helium Bubbles in Nickel and Iron Determined by Small Angle Neutron Scattering”, *Mat. Res. Soc. Symp. Proc.* **166** (1990) 443
- S. Komura, T. Takeda, D. Schwahn, and T. Springer, “Absence of Neutron Bragg Reflections from the Magnetic Flux-Line Lattice Structures in $\text{YBa}_2\text{Cu}_3\text{O}_7$ and $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ ”, *Solid State Communication* **74**, No. 9 (1990) 965
- Qiang Li, W. Kesternich, H. Schroeder, D. Schwahn and H. Ullmaier, “Gas Densities in Helium Bubbles in Nickel Measured by Small Angle Neutron Scattering”, *Acta Metall.* **38** (1990) 2383-2392
- D. Schwahn and H. Schuster, “Material investigation using Neutron Small Angle Scattering at FRJ-2” (IAEA-SM-300/021) (1988) 35-42. Proceedings of IAEA: International Symposium on the Utilization of Research Reactors and Related International Cooperation Grenoble 19-23 Oct. 1987
- D. Schwahn and M.H. Yoo, “Studies of Heterogeneties of Micrometer-Range with Double Crystal Diffractometer”, *Proceedings in Physics* **10** (1986) 83-88 (Springer-Verlag)
- D. Schwahn, W. Kesternich, S. Spooner, H. Schroeder, H. Ullmaier, J. Schelten, “Determination of Helium Densities in Bubbles using a Contrast Variation Method”, *Proceedings in Physics* **10** (1986) 197-202 (Springer-Verlag)
- P. Poerschke and D. Schwahn, “Radiation Enhanced Diffusion as a Tool for Alloy Decomposition Studies at low Temperatures: Neutron Scattering on Electron Irradiated Cu-Ni Alloys”, *Acta-Scripta Metallurgica Proceedings Series 2* (1985) 180-184
- P. Kournellas, K. Stierstadt and D. Schwahn, “The shape of Cobalt Precipitates in Copper”, *Phil. Mag.* **B51** (1985) 381-388

- P. Prieto, B. Lengeler, and D. Schwahn, "Small Angle Neutron Scattering of Guinier-Preston Zones in Alumnum Copper", *Acta Met.* **32** (1984) 1439-1445
- R. Anders, M. Gierhrl, E. Röber, K. Stierstadt and D. Schwahn, "Temperature Dependence of Magnetic Neutron Scattering by Dislolutions II", *Solid State Communications* **51** Nr. 2 (1984) 111-113
- W. Kesternich, D. Schwahn and H. Ullmaier, "Sizes of the Bubbles in Bulk, Grain Baundaries and Region near the Surface of Nickel", *Scripta Met.* **18** (1984) 1011-1016
- D. Schwahn and G. Hammer, "Neutronenkleinwinkelstreuung an ZrO₂ Teilchen in Platin 10 Rhodium", *Zeitschrift für Metallkunde* **74** (1983) 598-602
- D. Schwahn, H. Ullmaier, J. Schelten, and W. Kesternich, "Gas Densities in He Bubbles and their site Distribution in Nickel measured by Neutron Scattering", *Acta Met.* **31** (1983) 2003-2011
- C.M. Jantzen, D. Schwahn, J. Schelten and H. Herman, "The SiO₂ - Al₂O₃ System: I Later Stage Spinodal Decomposition and Metastable Immiscibility", *Phys. Chem. Glasses* **22** (1981) 122-137
- C.M. Jantzen, D. Schwahn, J. Schelten and H. Herman, "The SiO₂ - Al₂O₃ System: II The Glass Structure and Decomposition Model", *Phys. Chem. Glasses* **22** (1981) 138-14417
- D. Schwahn, W. Kesternich and H. Schuster, "Evaluation of Microstructural Changes in Alloy 713 LC by Neutron Small Angle Scattering and Analytical Electron Microscopy", *Met. Trans.* **12A** (1981) 155
- W. Wagner, R. Poerschke, A. Axmann and D. Schwahn, "Neutron-Scattering Studies of an Electron Irradiated Ni⁶² - 41. 4 at % Cu⁶⁵ Alloy", *Phys. Rev.* **21** (1980) 3087
- D. Schwahn and W. Schmatz, "Neutron Small Angle Scattering from the Alloy Al-Zn Above the Critical Point", *Acta Met.* **26** (1978) 1571
- J. Vrijen, S. Radelaar and D. Schwahn, "A Diffuse Neutron Scattering Study of Clustering Kinetics in Cu-Ni Alloys", *Journal de Physique Suppl. C7*, **38** (1977) C7 – 347
- D. Schwahn and W. Schmatz, "Neutron Small Angle Scattering from the Alloy Al-Zn Above the Critical Point", *Journal de Physique Suppl. C7*, **38** (1977) C7-411

Instrumental Methods and Development

- H. Frielinghaus, V. Pipich, A. Radulescu, M. Heiderich, R. Hanslik, K. Dahlhoff, H. Iwase, S. Koizumi and D. Schwahn, "Aspherical refractive lenses for small-angle neutron scattering", *J. Appl. Cryt.* submitted (2009)
- S. Teixeira, G. Zaccai, T. Forsyth, P. Timmins, J. Peters, F. Natali, M. Tehei, G. Fragneto, W. Heller, G. Lynn, V. Urban, K. Weiss, Y. Mo, F. Meilleur, J. Ankner, K. Herwig, D. Myles, I. Tanaka, U.-I. Suzuki, N. Torikai, K. Shibata, N. Niimura, T. Gutberlet, J. Kohlbrecher, T. Geue, T. Straessle, F. Juranyi, R. Vavrin, P. Fischer, J.

Dhont, R. Dahint, K. Mortensen, A. Ostermann, D. Schwahn, C. Neylon, R. Dalgliesh, A. Soper, R. Bewley, S. Kreuger, C. Majkrzak, J. Pieper, T. Hauß, R. Lechner, N. Dencher, P. Langan, New Sources and Instrumentation for Neutrons in Biology, Chemical Physics **345** (2008) 133-151. (Special Issue on Neutrons in Biology)

- A. Radulescu, E. Kentzinger, J. Stellbrink, L. Dohmen, B. Alefeld, U. Rücker, M. Heiderich, D. Schwahn, T. Brückel, D. Richter, KWS-3, the new (very) small-angle neutron scattering instrument based on focusing-mirror optics, Neutron News **16** (2005) 18
- G. Kemmerling, U. Bünten, U. Clemens, R. Engels, M. Heiderich, W. Pyckhout-Hintzen, H. Rongen, J. Schelten, D. Schwahn, and K. Zwoll, "Performance Measurements of a new Large-Area Neutron Scintillation Detector System", IEEE Transactions on Nuclear Science **51** (2004) 1098-1102
- Mario Villa, Mattias Baron, Martin Hainbuchner, Erwin Jericha, Vincent Leiner, Dietmar Schwahn, Erwin Seidl, Jochen Stahn, and Helmut Rauch, "Optimization of a Crystal Design for a Bonse-Hart Camera", J. Appl. Cryst. **36** (2003) 769
- G.Kemmerling, R.Engels, N.Bussmann, U.Clemens, M.Heiderich, R.Reinartz, H.Rongen, J.Schelten, D.Schwahn, K.Zwoll, "A new two-dimensional scitillation detector system for small angle neutron scattering experiments", Transactions on Nuclear Science **48** (2001) 1114
- S. Borbely, M. Heiderich, D. Schwahn, E. Seidl, "Resolution of the USANS diffractometer at the FRJ-2 reactor in Jülich", Physica **B 276-278** (2000) 138-139
- B. Waibel, D. Schwahn, A. Magerl, "Reflectivity of sound-excited crystals measured on a double crystal diffractometer", Physica **B 241-243** (1998) 183-185
- D. Schwahn, "Contrast variation in SANS with polarized neutrons and polarized samples", Journal de Physique IV, C8, **3** (1993) 419
- D. Schwahn, G. Meier, and T. Springer, "SANS Instrument Developments at the Jülich Research Reactor FRJ-2", J. Appl. Cryst. **24** (1991) 568-570
- B. Alefeld, D. Schwahn and T. Springer, "New Developments of Small Angle Neutron Scattering Instruments with Focussing Mirror", Nucl. Inst. a. Meth. in Physical Research **A 274** (1989) 210-216
- B. Alefeld, H.J. Fabian, D. Schwahn and T. Springer, "Recent Developments in Neutron Optics in Particular for Neutron Small Angle Scattering", Physica B **156 & 157** (1989) 602
- H. Weinfurter, G. Badurek, H. Rauch and D. Schwahn, "Inelastic Action of a Gradient Radio-Frequency Neutron Spin Flipper", Z. Physik B - Condensed Matter **72** (1988) 195-201
- D. Schwahn, A. Miksovsky, H. Rauch, E. Seidl, G. Zugarek, "Test of Channel-Cut Perfect Crystals for Neutron Small Angle Scattering Experiments", Nucl. Instr. a. Meth. in Physical Research **A 239** (1985) 229-234

- J. Palacios, D. Schwahn and H. Rauch, "High Angular Resolution Neutron Transmission Measurements - A Proposed Nondestructive Material Testing Method", NDT International (August 1981) p. 189

Chapter in books

- D. Schwahn, "Polymer Phase Transitions", Lecture on manuscripts of the 39rd IFF spring school: "Soft Matter: From Synthetic to Biological Materials" organized on March, 3-14, 2008 in the Forschungszentrum Jülich by the Institut für Festkörperforschung
- Alexander Heiß and Dietmar Schwahn, „Formation and Structure of Calciprotein Particles: The Calcium Phosphate -- Ahsg / Fetuin-A Interphase”, Chapter 24, pp. 415-433 in Handbook of Biomineralization, Vol. 1: The Biology of Biominerals Structure Formation (E. Bäuerlein, P. Behrens, M. Epple, (eds.), Wiley-VCH, Weinheim) (2007)
- Dietmar Schwahn, "Critical to Mean Field Crossover in Polymer Blends" Advances in Polymer Science **183** (2005) 1-61
- D. Schwahn, "Small Angle Neutron Scattering in Polymer Blends", Chapter 12 in „Polymer Characterization Techniques and their Applications to Blends“ edited by George P. Simon, Oxford University Press 2003
- D. Schwahn, "Investigations of Polymers by Small Angle Neutron Scattering“, 33. IFF-Ferienkurs 2002 über Soft Matter, Schriften des Forschungszentrum Jülich, Vol **10** (2002)
- Dietmar Schwahn and Kell Mortensen, "Thermal Composition Fluctuations in Polymer Blends Studied with Small Angle Neutron Scattering", Chapter 8 in „Scattering in Polymeric and Colloidal Systems“, eds. W. Brown and K. Mortensen, Gordon and Breach Publishers 2000
- D. Schwahn, "Small angle Scattering and Reflectometry" and "Soft Matter: Structure", In: Lectures of the Laboratory Course "Neutron Scattering", Schriften des Forschungszentrum Jülich, Vol **5** (2000)
- D. Schwahn, "Polymer Blends and Phase Separation", Chapter II in "Neutron and Synchrotron Radiation for Condensed Matter Studies" Volume **3** (Les Editions de Physique - Springer-Verlag 1994)
- D. Schwahn, "Homogeneous Linear Polymers in Solution and Binary Mixtures", in: Lecture Notes of the first Summer School on Neutron Scattering, Zuoz, Switzerland, 1993 PSI-Proceedings **93-01** (ISSN 1019-6447) p 129