

## **Biographical Sketch**

**Hans Riegler**, *Staff Scientist and Group Leader*,

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### **(i) Professional Preparation:**

|                                      |                    |                                   |
|--------------------------------------|--------------------|-----------------------------------|
| Mainz University, Germany            | Physical Chemistry | Habilitation 1996 (Privat-Dozent) |
| Wuerzburg University, Germany        | Physics            | Diploma 1982                      |
| Technical University Munich, Germany | Biophysics         | Ph.D. 1986                        |

### **(ii) Appointments:**

|                |                                |   |
|----------------|--------------------------------|---|
| 1994 - present | Staff Scientist (group leader) | Max-Planck-Institut fuer Kolloid- und Grenzflaechenforschung, Potsdam |
| 1988 - 1994    | Assistant ("Habilitation")     | Institut fuer Physikalische Chemie, Mainz University                  |
| 1986 - 1988    | Postdoctoral Associate         | AT&T Bell Laboratories, Princeton, NJ                                 |
| 1982- 1986     | Ph.D. Student                  | Technical University Munich, Germany                                  |

### List of Publications, Hans Riegler (2018)

- 85.) J. Danglad-Flores, K. Eftekhari, A. G. Skirtach, and H. Riegler (2018)  
Controlled Deposition of Nano- and Micro-Size Particles by Spin Casting  
*Langmuir*, under review
- 84.) S. Eickelmann, J. Danglad-Flores, G. Chen, M. S. Miettinen, and H. Riegler (2018)  
Meniscus Shape around Nanoparticles Embedded in Molecularly Thin Liquid Films  
*Langmuir* 34, 11364–11373
- 83.) S. Eickelmann and H. Riegler (2018)  
Rupture of ultrathin solution films on planar solid substrates induced by solute crystallization  
*Journal of Colloid and Interface Science* 528, 63–69
- 82.) J. Danglad-Flores, S. Eickelmann and H. Riegler (2018)  
Deposition of polymer films by spin casting: A quantitative analysis  
*Chemical Engineering Science* 179, 257–264
- 81.) B. Sun, H. Riegler, L. Dai, S. Eickelmann, Y. Li, G. Li, Y. Yang, Q. Li, M. Fu, J. Fei, and J. Li (2018)  
Directed Self-Assembly of Dipeptide Single Crystal in a Capillary  
*ACS Nano* 12, 1934–10939
- 80.) G. Chen, R. Perez-Garcia, J. Danglad-Flores and H. Riegler (2017)  
Capillary-Enhanced Immobilization of Nanoparticles  
*J. Phys. Chem. Lett.*: 8, 6094–6098
- 79.) B. Sun, G. Li, H. Riegler, S. Eickelmann, L. Dai, Y. Yang, R. Perez-Garcia, Y. Jia, G. Chen, J. Fei, K. Holmberg, and J. Li (2017)  
Self-Assembly of Ultralong Aligned Dipeptide Single Crystals  
*ACS Nano* 11, 10489–10494
- 78.) R. Perez-Garcia and H. Riegler (2017)  
Controlled Self-Organized Positioning of Small Aggregates by Patterns of (Sub)nanosized Active Sites  
*Cryst. Growth Des.*: 17, 1870–1875
- 77.) M. Jehannin, S. Charton, B. Corso, H. Moehwald, H. Riegler and T. Zemb (2017)  
Structured solvent effects on precipitation  
*Colloid Polym. Sci.* 295: 1817–1826
- 76.) V. Soulie, F. Lequien, F. Ferreira-Gomes, G. Moine, D. Feron, P. Prene, H. Moehwald, T. Zemb, and H. Riegler (2017)  
Salt-induced iron corrosion under evaporating sessile droplets of aqueous sodium chloride solutions  
*Materials and Corrosion* 68: 927–934
- 75.) S. Karpitschka, F. Liebig and H. Riegler (2017)  
Marangoni Contraction of Evaporating Sessile Droplets of Binary Mixtures  
*Langmuir*. 33, 4682–4687

- 74.) C. Jin and H. Riegler (2016)  
Morphological Transitions during Melting of Small Cylindrical Aggregates  
*J. Phys. Chem. C.*: 120, 16815–16821
- 73.) M. Jehannin, S. Charton, S. Karpitschka, T. Zemb, H. Möhwald, and H. Riegler (2015)  
Periodic Precipitation Patterns during Coalescence of Reacting Sessile Droplets  
*Langmuir*: 31, 11484-11490
- 72.) L. Pithan, E. Meister, C. Jin, C. Weber, A. Zykov, K. Sauer, W. Brütting, H. Riegler, A. Opitz, and S. Kowarik (2015)  
Thermally driven smoothening of molecular thin films: Structural transitions in n-alkane layers studied in real-time  
*J. Chem. Phys.*: 143, 164707
- 71.) V. Soulie, S. Karpitschka, F. Lequien, P. Prene, T. Zemb, H. Moehwald, and H. Riegler (2015)  
The evaporation behavior of sessile droplets from aqueous saline solutions  
*Phys.Chem.Chem.Phys.*: 17, 22296
- 70.) S. Karpitschka, C. Weber and H. Riegler (2015)  
Spin casting of dilute solutions: Vertical composition profile during hydrodynamic-evaporative film thinning  
*Chemical Engineering Science*: 129, 243-248
- 69.) F. Ghani, H. Gojzewski and H. Riegler (2015)  
Nucleation and growth of copper phtalocyanine aggregates deposited from solution on planar surfaces  
*Applied Surface Science*: 351, 969-976
- 68.) S. Karpitschka and H. Riegler (2014)  
Sharp transition between coalescence and non-coalescence of sessile drops  
*J. Fluid Mech.*: 743, R1
- 67.) S. Karpitschka, C. Hanske, A. Fery, and H. Riegler (2014)  
Coalescence and Noncoalescence of Sessile Drops: Impact of Surface Forces  
*Langmuir*: 30, 6826-6830
- 66.) S. Karpitschka, E. Dietrich, JRT. Seddon, HJW. Zandvliet, D. Lohse, H. Riegler (2012)  
Nonintrusive Optical Visualization of Surface Nanobubbles  
*Physical Review Letters*: 109, 066102
- 65.) S. Karpitschka and H. Riegler (2012)  
Noncoalescence of Sessile Drops from Different but Miscible Liquids: Hydrodynamic Analysis of the Twin Drop Contour as a Self-Stabilizing TravelingWave  
*Physical Review Letters*: 109, 066103
- 65.) F. Ghani, I. Bochukov, K. Fostiropoulos, H. Riegler (2012)  
Hybrid solution/vacuum-processed bilayerheterojunction organic solar cells: Structural characterization and performance  
*Thin Solid Films*: 525, 177-181

- 64.) F. Ghani, J. Kristen and H. Riegler (2012)  
Solubility Properties of Unsubstituted Metal Phthalocyanines in Different Types of Solvents  
*J. Chem. Eng. Data*: 57, 439–449
- 63.) H. Kusumaatmaja, R. Lipowsky, C. Jin, R.-C. Mutihac, and H. Riegler (2012)  
Nonisomorphic Nucleation Pathways Arising from Morphological Transitions of Liquid Channels  
*Physical Review Letters*: 108: 126102
- 62.) R. Borcia, S. Menzel, M. Bestehorn, S. Karpitschka, and H. Riegler (2011)  
Delayed coalescence of droplets with miscible liquids: Lubrication and phase field theories  
*Eur. Phys. J. E* 34: XX
- 61.) J. K. Berg, C. M. Weber, and H. Riegler (2010)  
Impact of Negative Line Tension on the Shape of Nanometer-Size Sessile Droplets  
*Physical Review Letters*: 105: 076103
- 60.) S. Karpitschka and H. Riegler (2010)  
Quantitative Experimental Study on the Transition between Fast and Delayed Coalescence of Sessile Droplets with Different but Completely Miscible Liquids  
*Langmuir* 26: 11823
- 59.) R.-C. Mutihac and H. Riegler (2010)  
Phase Transition Broadening Due to Interfacial Premelting: A New Quantitative Access to Intermolecular Interactions within Submonolayer Films at Solid/Vapor Interfaces  
*Langmuir* 26: 6394
- 58.) M. Fassier, N. Chouard, C.S. Peyratout, D.S. Smith, H. Riegler, D.G. Kurth, C. Ducroquetz, and M.A. Bruneaux (2009)  
Photocatalytic activity of oxide coatings on fired clay substrates  
*J. European Ceramic Society* 29: 565
- 57.) H. Riegler and P. Lazar (2008)  
Delayed Coalescence Behavior of Droplets with Completely Miscible Liquids  
*Langmuir* 24: 6395
- 56.) H. Riegler and R. Köhler (2007)  
How pre-melting on surrounding interfaces broadens solid/liquid phase transitions  
*Nature Physics*: 754
- 55.) R. Köhler, H. Riegler (2006)  
Optical imaging of thin films with molecular depth resolution  
*Applied Physics Letters*: 89(24): 241906
- 54.) R. Sczech, H. Riegler (2005)  
Molecularly smooth cellulose surfaces for adhesion studies  
*Journal of Colloid and Interface Science*: 301(2): 376
- 53.) P. Lazar, H. Riegler (2005)  
Reversible self-propelled droplet movement: A new driving mechanism  
*Physical Review Letters*: 95(13): 136103

- 52.) P. Lazar, H. Schollmeyer, H. Riegler (2005)  
Spreading and two-dimensional mobility of long-chain alkanes at solid/gas interfaces  
*Physical Review Letters*: 94(11): 116101
- 51.) L. Knüfing, H. Schollmeyer, H. Riegler et al. (2005)  
Fractal analysis methods for solid alkane monolayer domains at SiO<sub>2</sub>/air interfaces  
*Langmuir*: 21: 992
- 50.) S. Leporatti, R. Szech, H. Riegler, et al. (2005)  
Interaction forces between cellulose microspheres and ultrathin cellulose films monitored by colloidal probe microscopy – effect of wet strength agents  
*Journal of Colloid and Interface Science*: 281(1): 101
- 49.) H. Schollmeyer, B. Struth and H. Riegler (2003)  
Long Chain n-Alkanes at SiO<sub>2</sub>/Air Interfaces: Molecular Ordering, Annealing, and Surface Freezing of Triacontane in the Case of Excess and Submonolayer Coverage  
*Langmuir*: 19: 5042
- 48.) H. Riegler, G. Decher and F. Essler (2002)  
Polyelectrolytes. 2. Intrinsic or Extrinsic Charge Compensation? Quantitative Charge Analysis of PAH/PSS Multilayers  
*Langmuir*: 18: 6694
- 47.) H. Schollmeyer, B. Ocko, and H. Riegler (2002)  
Surface Freezing of Triacontane at SiO<sub>2</sub>/Air Interfaces: Submonolayer Coverage  
*Langmuir*, 18: 4351
- 46.) A. Holzwarth, S. Leporatti, and H. Riegler (2000)  
Molecular ordering and domain morphology of molecularly thin triacontane films at SiO<sub>2</sub>/air interfaces  
*Europhysics Letters* 52(6): 653
- 45.) J. Ruths, F. Essler, G. Decher, H. Riegler (2000)  
Polyelectrolytes I: Polyanion/Polycation multilayers at the air/monolayer/water interface as elements for quantitative polymer adsorption studies and preparation of hetero-superlattices on solid surfaces  
*Langmuir*, 16: 8871
- 44.) K.-H. Graf and H. Riegler (2000)  
Is there a General Equation of State Approach for Interfacial Tensions?  
*Langmuir* 16: 5187
- 43.) T. Pfohl and H. Riegler (1999)  
Critical Wetting of a Liquid/Vapor Interface by Octane  
*Phys. Rev. Lett.* 82(4): 783
- 42.) T. Pfohl, H. Möhwald, and H. Riegler (1998)  
Ellipsometric study of the wetting of air/water interfaces with hexane, heptane, and octane from saturated alkane vapours  
*Langmuir* 14(18): 5285

- 41.) K.-H. Graf and H. Riegler (1998)  
Molecular adhesion interactions between Langmuir monolayers and solid substrates  
*Colloids Surfaces A: Physicochem. Eng. Aspects* 131: 215
- 40.) C. Merkl, T. Pfohl, and H. Riegler (1997)  
Influence of molecular ordering on the wetting/dewetting behaviour of alkanes at SiO<sub>2</sub>/vapour interfaces  
*Phys. Rev. Lett.* 79(2): 4625
- 39.) M. Ibn-Elhaj, H. Riegler, H. Möhwald, M. Schwendler, and C. A. Helm (1997)  
X-ray reflectivity study of layering transitions and the internal multilayer structure of films of three-block organosiloxane amphiphilic smectic liquid crystals at the air-water interface.  
*Phys. Rev. E* 56(2): 1844
- 38.) T. Pfohl, D. Beaglehole, and H. Riegler (1996)  
An ellipsometric study of the surface freezing of liquid alkanes  
*Phys. Chem. Lett.* 260: 82
- 37.) M. Ibn-Elhaj, H. Riegler, and H. Möhwald (1996)  
Layering transitions and reentrant-like phenomenon in thin films of three-block organosiloxane smectogens at the air/water interface  
*J. de Physique I France* 6: 969
- 36.) M. Thoma, M. Schwendler, H. Baltes, C. A. Helm, T. Pfohl, H. Riegler, and H. Möhwald (1996)  
Ellipsometry and X-ray Reflectivity Studies on Monolayers of Phosphatidylethanolamine and Phosphatidylcholine in Contact with *n*-Dodecane, *n*-Hexadecane, and Bicyclohexyl  
*Langmuir* 12: 1722
- 35.) Rainer Jordan, Karlheinz Graf, Hans Riegler and Klaus Unger (1996)  
Polymer-supported alkyl monolayers on silica: synthesis and self-assembly of terminal functionalized poly(N-propionylethylenimine)s  
*Chem. Commun.* 1996: 1025
- 34.) D. Ducharme, D. Vaknin, M. Paudler, C. Salesse, H. Riegler, and H. Möhwald (1996)  
Surface properties of valine-gramicidin A at the air-water interface  
*Thin Solid Films* 284-285: 90
- 33.) A. Asmussen and H. Riegler (1996)  
Numerical analysis of x-ray reflectivity data from ultrathin organic films at interfaces  
*J. Chem., Phys.* 104(20): 8159
- 32.) A. Asmussen and H. Riegler (1996)  
X-ray reflectivity study of behenic acid Langmuir-Blodgett mono- and multilayers on SiO<sub>2</sub> surfaces as-deposited and after thermal treatment: Influence of substrate/film interactions on molecular ordering and film topology  
*J. Chem., Phys.* 104(20): 8151
- 31.) H. Riegler, A. Asmussen, C. Merkl, F. Schabert, J. Rabe, and A. Davydov (1995)  
Island formation in ultrathin organic multilayers of behenic acid on silicondioxide surfaces in: "Short and long chains at interfaces", eds.: J. Daillant, P. Guenoun, C. Marques, P. Muller, and J. Tranh Thanh Van. *Edition Frontieres*, Gif-Sur-Yvette, France, p 307

- 30.) H. Riegler and K. Spratte (1995)  
On-line Structure Control of Langmuir-Blodgett Films  
in *Organic Thin Films And Surfaces, Volume 20*, A. Ulman (ed.), Academic Press, p 349
- 29.) H.-J. Galla, A. v. Nahmen, A. Post, J. Ruths, H. Riegler, M. Sieber (1995)  
Pulmonary surfactant protein C containing lipid films at the air-water interface mimic the natural situation  
*Mol. Membr. Biol.* 12: 93
- 28.) K. Spratte and H. Riegler (1994)  
Dynamic Equilibrium Morphology and Composition of Mixed Monomolecular Films (Langmuir Monolayers) at the Air/Water Interface in the Vicinity of the Three-Phase Line: Model Calculations and Experiments  
*Langmuir* 10(9): 3161
- 27.) C. Flament, K.-H. Graf, F. Gallet, and H. Riegler (1994)  
Structure of an anisotropic two-dimensional solid in a Langmuir film studied by electron scattering  
*Thin Solid Films* 243: 411
- 26.) A. Leuthe, L. F. Chi, and H. Riegler (1994)  
Thermal behaviour of Langmuir-Blodgett films. Part III: Structure and epitaxial layer growth of stearic, arachidic and behenic acid multilayers  
*Thin Solid Films* 243: 351
- 25.) K. Spratte, L. F. Chi, and H. Riegler (1994)  
Physisorption Instabilities During Dynamic Langmuir Wetting  
*Europhys. Lett.* 25(3): 211
- 24.) A. Leuthe and H. Riegler (1992)  
Thermal Behaviour of Langmuir-Blodgett Films. II .X-ray and Reflexion Polarized Microscopy Studies on Coexisting Polymorphism, Thermal Annealing and Epitaxial Layer Growth of Behenic Acid Multilayers  
*Journal of Physics D: Applied Physics* 25: 1786
- 23.) H. Riegler and H. Möhwald (1992)  
Fluorescence microscopy studies of structure formation in surfactant monolayers  
in: *Fluorescence Spectroscopy*, O. Wolfbeis (ed.) Springer, Berlin, Heidelberg, p. 111
- 22.) J. N Herron, W. Müller, M. Paudler, H. Riegler, H. Ringsdorf, P. Suci (1992)  
Specific Recognition-Induced Self-Assembly of a Biotinlipid/Streptavidin/Fab-Fragment Triple Layer at the Air/Water Interface: Ellipsometry and Fluorescence Microscopy Investigations  
*Langmuir* 8: 1413
- 21.) H. Riegler and K. Spratte (1992)  
Structural Changes in Lipid-Monolayers During the Langmuir-Blodgett Transfer Due to Substrate-Monolayer Interactions  
*Thin Solid Films* 210/211: 9
- 20.) M. Paudler, J. Ruths, and H. Riegler (1992)  
Analysis of Multiple-Angle Ellipsometry of Uniaxial Organic Films at the Air-Water Interface and Determination of the Refractive Indices of Behenic Acid Monolayers  
*Langmuir* 8(1): 184

- 19.) M. Engel, H. J. Merle, I. R. Peterson, H. Riegler, and R. Steitz (1991)  
Structural Relationships between Floating and Deposited Monolayers of Docosanoic Acid  
*Ber. Bunsenges. Phys. Chem.* 95: 1514
- 18.) M. Engel and Hans Riegler (1991)  
On the electrostatic Component of the Adhesional Interactions between Solid Substrates and Langmuir Monolayers  
*Ber. Bunsenges. Phys. Chem.* 95: 1424
- 17.) M. Paudler, J. Ruths, B. Alberti, and H. Riegler (1991)  
Ellipsometric Studies of Behenic Acid at the Air-Water Interface  
*Makromol. Chem., Macromol Symp.* 46: 401
- 16.) M. Engel and Hans Riegler (1991)  
Studies of the Lipid-Monolayer/Substrate Adhesion as Function of the Monolayer Headgroup Charge: DMPE and DMPA  
*Makromol. Chem., Macromol Symp.* 46: 395
- 15.) K. Spratte and H. Riegler (1991)  
Fluorescence Microscopy Studies of Layer/Substrate Interaction during the Langmuir-Blodgett Transfer: Fractional Condensation and Local Layer Modification in Lipid Monolayers at the Three-Phase-Line  
*Makromol. Chem., Macromol Symp.* 46: 113
- 14.) P. Tippmann-Krayer, H. Riegler, M. Paudler, H. Möhwald, H.-U. Siegmund, J. Eickmans, U. Scheunemann, U. Licht, and W. Schrepp (1991)  
LB films stable against desorption up to 250°C  
*Advanced Materials* 3: 46
- 13.) H. Riegler and K. Spratte (1990)  
Nucleation, Deposition and Domain Growth of Monomolecular Organic Films at the Three-Phase-Line of a Typical Langmuir-Blodgett Transfer Configuration  
in: *Dynamical Processes in Condensed Molecular Systems*. Blumen, Klafter, and Haarer (eds), World Scientific Publishing, Singapore, p 105
- 12.) C. Böhm, R. Steitz, and Hans Riegler (1989)  
Temperature dependent Electron Diffraction Studies of Cadmium Arachidate Mono- and Multilayers  
*Thin Solid Films* 178: 335
- 11.) J. E. Riegler (1989)  
Thermal Behaviour of Langmuir-Blodgett Films I. Electron Diffraction Studies on Monolayers of Cadmium Stearate, Arachidate, and Behenate.  
*The Journal of Physical Chemistry* 93(17): 6475
- 10.) J. D. LeGrange, H. Riegler, W. P. Zurawsky, and S. F. Scarlatta (1989)  
Orientational Order of Langmuir-Blodgett Films as determined by Fluorescence Anisotropy  
*Journal of Chemical Physics* 90(7): 3838



- 9.) J. E. Riegler and J. D. LeGrange (1988)  
Observation of a Monolayer Phase Transition on the Meniscus in a Langmuir-Blodgett Transfer Configuration  
*Physical Review Letters* 61(21): 2492
  
- 8.) J. E. Riegler (1988)  
Fluorescence Microscope for real-time Studies of Langmuir-Blodgett Layer Deposition  
*Review of Scientific Instruments* 59(10): 2220
  
- 7.) J. D. LeGrange, H. E. Riegler, W. P. Zurawsky, and S. F. Scarlatta (1988)  
Fluorescence Anisotropy Studies of Orientational Order of Langmuir-Blodgett Multilayers  
*Thin Solid Films* 159: 101
  
- 6.) S. F. Scarlatta, H. Riegler, J. D. LeGrange (1987)  
The Structural Order of Langmuir-Blodgett Films as studied by Fluorescence Techniques  
*Biophysical Journal* 51(2): 535
  
- 5.) J. Peschke, J. Riegler, and H. Möhwald (1987)  
Quantitative Analysis of Membrane Distortions induced by Mismatch of Protein and Lipid hydrophobic Thickness  
*European Biophysical Journal* 14: 385
  
- 4.) J. Riegler, H. Möhwald (1986)  
Elastic Interactions of Photosynthetic Reaction Center Proteins affecting Phase Transitions and Protein Distributions  
*Biophysical Journal* 49: 1111
  
- 3.) J. Riegler, W. M. Heckl, J. Peschke, M. Lösche, and H. Möhwald (1985)  
Protein/Lipid Interactions of Reaction Center and Antenna Proteins  
*Springer Series in Chemical Physics* (ed. M. E. Michel-Beyerle) 42: 207
  
- 2.) J. Riegler, J. Peschke, H. Möhwald (1984)  
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*Biochem. and Biophys. Res. Commun.* 125: 592
  
- 1.) H. Riegler, M. Tacke, H. G. Häfele, and E. Skok (1983)  
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