

Priv. Doz. Dr. rer.nat. habil. Wolfgang Doster

Publikationsliste Stand Okt. 2004

1. W. Doster, R. Kimmich
Monte Carlo Study of Defect Fluctuations and Reptation in Polymer Melts
J. Pol. Sci. (Phys. Ed.), 14, 1671-1682 (1976)
2. W. Doster, B. Hess
Quasielastic Light Scattering of Pyruvate Kinase
Hoppe-Seyler 358, 1194-1197 (1977)
3. W. Doster, Th. Reed, B. Hess
Structural and Function Transitions in the Unfolding Pathway of Muscle Pyruvate Kinase
Hoppe-Seyler 359, 1041-1045 (1978)
4. Th. Reed, B. Hess, W. Doster
Photoselection and Aggregation in Purple Membrane of *Halobacterium Halobium*
Biochem. Biophys. Acta 502, 188-197 (1978)
5. A. Boiteux, W. Doster, B. Hess, M. Markus, Th. Plessner, H.J. Wieker
The Function of Pyruvate Kinase
FEBS 12th Meeting, Protein Structure Function and Industrial Applications,
52, 35-43 (1979) (A)
6. L. Giri, C.L. Pon, C. Gualerzi, W. Doster, B. Hess
Hydrodynamic Studies of *E. Coli* 30S Ribosomal Subunits and 30S IF-3 Complex
Biochem. Biophys. Res. Comm. 87, 976-982 (1979)
7. W. Doster, H. Begusch, B. Hess
Determination of Diffusion Coefficients Molecular Weights of Partially Dissociated F1-ATPase by Gel-Filtration Coupled to Laser Light Scattering Spectroscopy
FEBS LET 113, 315-317 (1980)
8. W. Doster, B. Hess, D. Watters, A. Maelicke
Translational Diffusion and Molecular Weight of the Acetylcholin Receptor from Torpedo
FEBS LET 113, 312-314 (1980)

9. W. Doster, B. Hess
Reversible Solvent Denaturation of Pyruvate Kinase
Biochemistry. 20, 772-780 (1981)
10. J.O. Alben, D. Beece, S.F. Bowne, W. Doster, L. Eisenstein, H. Frauenfelder, D. Good, McDonals, M.C. Marden, P.P. Moh, L. Reinisch, A.H. Reynolds, E. Shyamsunder, K.T. Yue
Infrared Spectroscopy of Photodissociated Carboxymyoglobin at Low Temperatures
PNAS, USA 79, 3744-3748 (1982)
11. W. Doster, D. Beece, S.F. Bowne, E. Di Iorio, L. Eisenstein, H. Frauenfelder, L. Reinisch, E. Shyamsunder, K.H. Winterhalter, K.T. Yue
Control and pH Dependence of Ligand Binding to Heme Proteins
Biochemistry, 21, 4831-4839 (1982)
12. W. Doster
Viscosity Scaling and Protein Dynamics
Biophys. Chem. 17, 97-103 (1983)
13. W. Doster, B. Simon, G. Schmidt, W. Mayr
Compressibility of Lysozyme in Solution from Time Resolved Brillouin Difference Spectroscopy
Biopol. 24, 1543-1548 (1985)
14. F. Stetzkowski, R. Banjeree, M. Marden, D. Beece, S.F. Bowne, W. Doster, L. Eisenstein, H. Frauenfelder, L. Reinisch, E. Shyamsunder, Ch. Jong
Dynamics of Dioxygen and Carbon Monoxide Binding to Soybean Leghemoglobin
J. Biol. Chem. 260, 8803-8809 (1985)
15. W. Doster
Glass Transition of Hydrated Water and Structural Flexibility of Myoglobin
Biophysics, Vol. 1, Springer (1986), Structure Dynamics and Function of Biomolecules, (B)
Eds.: A. Ehrenberg, R. Rigler, A. Graeslund, L. Nilsson, 34-38
16. W. Doster, T. Bachleitner, R. Dunau, M. Hieble, E. Luescher
Low Temperature Properties of Water in Myoglobin Crystals and Solutions,
Biophys. J. 50, 213-219 (1986)
17. W. Doster, S. Bowne, H. Frauenfelder, L. Reinisch, E. Shyamsunder
Recombination of CO to Ferrous Horse-Radish Peroxidase Types A and C
J. Mol. Biol. 194, 299-312 (1987)

18. W. Doster, S. Cusack, W. Petry
Scaling Properties of Fast Motions in a Globular Protein
published in Dynamics of Disordered Solids, Springer Proceedings of Physics
37, 120-123 (1988), (B)
19. W. Doster
On the Mechanism of Ligand Binding to Myoglobin: The Role of Structural Fluctuations
Eur. Biophys. J. 17, 217-220 (1989)
20. * W. Doster, S. Cusack, W. Petry
Dynamical Transition of Myoglobin Revealed by Inelastic Neutron Scattering
Nature 337, 754-758 (1989)
21. W. Doster, W. Schirmacher, M. Settles
Percolation Model of Ionic Channel Dynamics
Biophys. J. 57, 681-684 (1989)
22. *I. Iben, D. Braunstein, W. Doster, H. Frauenfelder, M. Hong, J. Johnson, S. Luck, P. Ormos, A. Schulte, P. Steinbach, A. Xie, R. Young,
Glassy Behaviour of a Protein
Phys. Rev. Lett. 62, 1916-1919 (1989)
23. S. Smith, K. Kuczera, B. Tidor, W. Doster, S. Cusack, M. Karplus
Internal Dynamics of Globular Proteins: Comparison of Neutron Scattering Measurements and Theoretical Models
Physica B 156 & 157, 437-443 (1989)
24. S. Cusack, W. Doster
The Temperature Dependence of the Low Frequency Dynamics of Myoglobin:
Measurement of the Vibrational Frequency Distribution by Inelastic Neutron Scattering
Biophys. J. 58, 243-251 (1990)
25. * W. Doster, S. Cusack, W. Petry
Dynamic Instability of Liquid-Like Motions in a Globular Protein
Phys. Rev. Lett. 65, 1080-1084 (1990)
26. W. Doster, Ch. Holzhey, H. Miesmer, F. Post
The Effect of Heterogenous Structural Diffusion on Ligand Binding to Heme Proteins
J. Biol. Phys. 17, 281-298 (1990)
27. W. Doster
The Glass Transition Anomalies of Myoglobin in the Light of Mode Coupling Theory
Mod. Phys. Lett. 5, (Invited Review) 1407-1414 (1991)

28. S. Cusack and W. Doster
Low frequency dynamics of proteins: comparison of experiment with theory in: Proteins, Structure, Dynamics and Design (1991)
ESCOM, Leiden Ed.: V.Renugopalakrischnan and P. Carey,
I.C.P. Smith, S.G. Huang and A.C. Storer
29. W. Doster, S. Cusack, W. Petry
Structural dynamics of proteins, scaling behaviour and liquid glass transition
J. Noncryst. Solids 131-133, 375-361 (1991)
30. W. Doster, W. Schirmacher
A Protein Dynamics View of Ion Channel Gating
Comm. on Theor. Biol. Part C, 239-319 (1991)
31. S. Cusack and W. Doster
Low Frequency Dynamics of Proteins
in Proteins, Structure, Dynamics and Design
ESCOM, Leiden, 1992 Ed. V. Renugopalakrishnan et al.
32. W. Doster, S. Cusack, M. Settles, N. Frederico
Plasticity of Proteins and tRNA as Seen by Inelastic Neutron Scattering
Structural Tools for the Analysis of Protein-DNA Complexes, Eds.: D. Lilley,
D. Suck, H. Heumann, Birkhäuser Verlag, 391-400 (1992) (B)
33. G. Kneller, W. Doster, M. Settles, S. Cusack, J. Smith
Methyl Group Dynamics in the Crystalline Alanine Dipeptide: A Combined Computer Simulation and Inelastic Neutron Scattering Analysis
J. Chem Phys. 97, 8864-8879 (1992)
34. M. Settles, W. Doster, F. Kremer, F. Post, W. Schirmacher
Proton Conductivity and Bound Water Reorientation in Hydrated Myoglobin
Philos. Mag. B 65, 861-866 (1992)
35. M. Settles, W. Doster, A. Schulte, F. Post
Specific Heat Spectroscopy of Dynamic Protein-Solvent Interactions
Biophys. Chem. 43, 107-116 (1992)
36. W. Doster, S. Cusack, M. Settles, F. Post
Low Frequency Modes of Partially Hydrated Proteins
Water-Biomolecule Interactions Conference Proceedings 43,
Eds.: M.U. Palma, M.B. Palma-Vitorelli and F. Parak, Italian Physical Society,
Bologna, 123-126 (1993) (B)
37. Th. Kleinert, W. Doster, F. Post, M. Settles
Hydration Effects on Protein Function
Water-Biomolecule Interactions Conference Proceedings 43,
Eds.: M.U. Palma, M.B. Palma-Vitorelli and F. Parak, Italian Physical Society,
Bologna, 127-130 (1993) (B)

38. F. Post, W. Doster, M. Settles
Structural Relaxation and Nonexponential Kinetics of CO Myoglobin Studied
by Multiple Flash Photolysis
Biophys. J. 64, 1833-1842 (1993)
39. N. Agmon, W. Doster, F. Post
The Transition from Inhomogeneous to Homogeneous Kinetics in CO Binding
to Myoglobin
Biophys. J. 66, 1612-1622 (1994)
40. W. Doster, F. Post, M. Settles
Origins of Nonexponential Relaxation in Proteins
Disorder Effects on Relaxation Processes, Eds.: R. Richert, A. Blumen, Springer (1994) 615-624 (B)
41. H. Leyser, T. Olden, A. Schulte, W. Doster and W. Petry
Volume Effect on the Relaxation of Supercooled Liquids probed by High Pressure Dielectric Spectroscopy
Bull. Am. Soc. Phys. 39 (1994) 1808
42. F. Nardi, W. Doster, B. Tidor, M. Karplus, S. Cusack, J.C. Smith
Dynamics of tRNA: Experimental Neutron Spectra compared with a Normal Mode Analysis
Isr. Journ. of Chem. 34, (1994) 233-238
43. W. Doster, Th. Kleiert, F. Post, and M. Settles
Effect of Solvent on Protein Internal Dynamics
in Protein-Solvent Interactions, Ed.: R.B. Gregory, Marcel Dekker, New York (1995) 375-384 (B)
44. H. Leyser, A. Schulte, W. Doster and W. Petry
High Pressure Specific Heat Spectroscopy at the glass transition of o-terphenyl
Phys. Rev. E 51 (1995) 5899-5904
45. M. Settles and W. Doster
Anomalous Diffusion of Protein Adsorbed Water
Faraday Discussion 103, Royal Soc. Chem. p.269-280 (1996)
46. M. Settles and W. Doster
Iterative Calculation of the Phonon Density of States from Incoherent Neutron Scatterin Data with the Account of Double Scattering
in Biological Macromolecular Dynamics (1996) p.3-8
Ed. S. Cusack, H. Büttner, M. Ferrand, P. Langan and P. Timmins
Adenine Press
47. W. Doster, M. Diehl, W. Petry and W. Schober
Water Coupled Low Frequency Modes in Myoglobin and Lysozyme Observed

by Inelastic Neutron Scattering
Biophys.J. 73 (Nov) (1997)

48. F. Demmel, W. Doster, W. Petry and A. Schulte
Vibrational Frequency Shifts as a Probe of Hydrogen Bonds and Protein-Water
Interactions
Eurp. Biophys.J. (1997) Vol. 26/4 327–336
49. T. Kleinert, W. Doster, H. Leyser, W. Petry, M. Settles, V. Schwarz
Solvent Composition and Viscosity Effects on the Kinetics of
CO-binding to Horse Myoglobin
Biochemistry 37 (1998) 717-7133
50. H. Lichtenegger, W. Doster, T. Kleinert, A. Birk, B. Sepiol
and G. Vogl
Heme-solvent coupling, a Mössbauer study of myoglobin in sucrose-water
Biophys.J. 76 (1999) 414-422
51. W. Doster and M. Settles
The dynamical transition in proteins: the role of hydrogen bonds
Hydration Processes in Biology, Les Houches Lectures (1998) Eds. M.C Bellissent-
Funel and J. Teixera, IOS Press p. 177-194
52. W. Doster
Visco-elastic structural relaxation in proteins
Hydration Processes in Biology, Les Houches Lectures (1998) Eds. M.C Bellissent-
Funel and J. Teixera, IOS Press p.375
53. H. Leyser, W. Doster and M. Diehl
Far infrared emission by boson peak oscillations in a globular protein
Phys. Rev. Lett. 82 (1999) 2987-2990
54. W. Doster, M. Diehl, H. Leyser, W. Petry and H. Schober
Terahertz spectroscopy of globular proteins: visco-elastic damping of
protein modes
in Spectroscopy of Biological Molecules, Kluwer Academic Press (1999)
Eds. J. Greve, G.J. Puppels and C. Otto
55. W. Doster, M. Diehl, H. Leyser, W. Petry and H. Schober
Time-resolved mean square displacements of protein-water hydrogens
Eur. Biophys.J. 29 (2000) 390
56. W. Doster and H. Leyser
Time-resolved enthalpy measurements of light-induced reactions by optical
interferometry
Eur. Biophys.J. 29 (2000) 321

57. W. Doster, M. Diehl, W. Petry and M. Ferrand
Elastic resolution spectroscopy: a method to study molecular motions in small biological samples
Physica B 301 (2001) 65-68
58. W. Doster, M. Diehl, H. Leyser, W. Petry and J. Wiedersich
Effect of pressure and pressure denaturation on fast molecular motions of solvated myoglobin
in *Trends in High Pressure Bioscience and Biotechnology* (2002) p. 207 Ed. R. Hayashi, Elsevier Science B.V.
59. S. Longeville, W. Doster, M. Diehl, R. Gähler and W. Petry
Neutron Spin Echo: oxygen transport in crowded protein solutions
Lecture Notes in Physics: Neutron Resonance Spin Echo, Springer Verlag 2003, Ed. B. Gutberlet
60. R. Gebhardt, W. Doster, J. Friedrich, W. Petry and A. Schulte
Pressure-induced critical association of myoglobin
in: *Advances in High Pressure Science and Biotechnology II* p. 33 Springer Verlag (2003) Ed. R. Winter
61. R. Gebhardt, W. Doster and and A. Soper
Pressure-induced unfolding of myoglobin: neutron diffraction and dynamic scattering experiments
in: *Advances in High Pressure Science and Biotechnology II* p. 29 Springer Verlag (2003) Ed. R. Winter
62. S. Longeville, W. Doster and G. Khali
myoglobin in crowded solutions, structure and diffusion
Chem.Phys. 292 (2003)313-424
63. W. Doster, M. Diehl, R. Gebhardt, R. Lechner and J. Pieper
TOF elastic resolution spectroscopy, time domain analysis of weakly scattering samples
Chem. Phys. 292 (2003) 383-389
64. M.C. Bellissent-funel, W. Doster, R. Gähler, L. Köper, S. Longeville and W. Petry
Performance of neutron resonance spin echo spectroscopy in biology
Neutron News 14 (2003)
65. A. Molina-Hoeppner, W. Doster, R. Vogel and M. Gänzle
Protective effect of sucrose during sublethal and lethal high pressure treatment of *Lactococcus Lactis*
Applied and Environmental Microbiology (2004) 70, 2013

66. W. Doster and J. Friedrich
Pressure-temperature denaturation phase diagrams of proteins
in: *Handbook of Protein Folding*, John Wiley (2004) in press Ed. Th. Kieflhaber
67. W. Doster
Moment Analysis of Protein-Water Dynamics
in: *Neutrons in Biology*, Springer Verlag (2004) in press Ed. R. Gutberlet