

List of Publications

W. Freyland

Institute of Physical Chemistry

1. **W. Freyland, J. Haase, W. Zeil**
„Eine erweiterte Intensitätsfunktion für Elektronenbeugung an Gasen und ihre Interpretation durch kinematische Asymmetrien“
Z. Naturforsch. 21a, 1945 (1966)
2. **W. Freyland, A. Müller**
Radical Formation in Cysteamine Free Base and Cysteamine.
2HCl by Reaction with Atomic Hydrogen and by Gamma-Irradiation“
Int. J. Radiat. Biol. 14, 483 (1968)
3. **W. Freyland, F. Hensel**
„The Vapour Pressure Curve of Liquid Potassium up to the Critical Point“
Ber. Bunsenges. Phys. Chem. 76, 17 (1972)
4. **W. Freyland, F. Hensel**
„The Electrical Properties of Metals in the Liquid-Gas Critical Region“
Ber. Bunsenges. Phys. Chem. 76, 347 (1972)
5. **H.P. Pfeifer, W. Freyland, F. Hensel**
„Absolute Thermoelectric Power of Fluid Cesium in the Metal-Nonmetal Transition Range“
Phys. Lett. 43A, 111 (1973)
6. **W. Freyland, H.P. Pfeifer, F. Hensel**
„Volume and Temperature Dependence of the Electronic Transport Properties of Fluid Alkalis in the Semiconducting Range“
Proc. 5th Int. Conf. Amorphous and Liquid Semiconductors, Eds. J. Stuke and W. Brenig, Taylor and Francis, London, 1974, p. 1327
7. **U. Even, W. Freyland**
„Hall Mobility of Expanded Liquid Cesium in the Metallic Propagation Region“
J. Phys. F: Metal Phys. 5, 104 (1975)
8. **G. Steinleitner, W. Freyland, F. Hensel**
„Electrical Conductivity and Excess Volume of the Liquid Alloy System Li-Bi“
Ber. Bunsenges. Phys. Chem. 79, 1186 (1975)

9. **G. Steinleitner, W. Freyland**
 „Highly Diamagnetic Susceptibility and Compound Formation in Liquid Cesium-Gold Alloys“
 Phys. Lett. 55A, 163 (1975)
10. **R. Block, J.B. Suck, W. Gläser, W. Freyland, F. Hensel**
 „Measurement of the Structure Factor of Liquid Rubidium by Neutron Diffraction up to 1400 K and 200 bar“
 Ber. Bunsenges. Phys. Chem. 80, 718 (1976)
11. **H.P. Pfeifer, W. Freyland, F. Hensel**
 Simultaneous Measurement of Density, Electrical Conductivity and Absolute Thermoelectric Power of Liquid Rubidium up to 1400 °C and 400 bar“
 Ber. Bunsenges. Phys. Chem. 80, 716 (1976)
12. **W. Freyland, G. Steinleitner**
 „Magnetic Susceptibility and Electronic Structure in Metallic and Nonmetallic Liquid Cesium-Gold and Cesium-Antimony Alloys“
 Ber. Bunsenges. Phys. Chem. 80, 810 (1976)
13. **W. Freyland, G. Steinleitner**
 „Metal-Nonmetal Transition and Change in the Electronic and Magnetic Properties of Liquid Cs-Sb and Cs-Au Alloys“
 in: Liquid Metals 1976, Eds. R. Evans and D.A. Greenwood, Inst. Phys. Conf. Ser. No. 30, 488 (1977)
14. **R. Block, J.B. Suck, W. Freyland, F. Hensel, W. Gläser**
 „Structure Factor of Expanded Liquid Rubidium up to 1400 K and 200 bar“
 in: Liquid Metals 1976, Eds. R. Evans and D.A. Greenwood, Inst. Phys. Conf. Ser. No. 30, 126 (1977)
15. **H.P. Pfeifer, W. Freyland, F. Hensel**
 „Equation of State and Transport Data on Expanded Liquid Rubidium up to 1700 °C and 400 bar“
 Ber. Bunsenges. Phys. Chem. 83, 204 (1979)
16. **P. Münster, W. Freyland**
 „Optical Absorption in Solid and Liquid CsAu“
 Phil. Mag. B 39, 93 (1979)
17. **W. Freyland, F. Hensel, W. Gläser**
 „High Temperature - High Pressure Apparatus for Neutron Diffraction on Fluids: Structure Factor of Expanded Fluid Rubidium“
 Ber. Bunsenges. Phys. Chem. 83, 884 (1979)
18. **W. Freyland**
 „Magnetic Susceptibility of Metallic and Nonmetallic Expanded Fluid Cesium“,
 Phys. Rev. B 20, 5104 (1979)

19. **W. Freyland**
 „Magnetic Interaction and M-NM Transition in Fluid Cesium“
 J. Non-Cryst. Solids 35 + 36, 1313 (1980)
20. **W. Freyland, M. Cutler**
 „Magnetic Susceptibility of Expanded Fluid Selenium“
 J. Chem. Soc. Faraday II, 76, 756 (1980)
21. **E. Schneider, G. Franz, W. Freyland**
 „Investigation of the Structure Factor of Liquid Rubidium up to Temperatures of 2000 K and Pressures of 140 bar“
 in: Amorphous and Liquid Metals, Nato Advanced Study Institute, Eds. E. Lüscher and H. Cougal, 1980, p. 599
22. **W. Martin, P. Lamparter, S. Steeb, W. Freyland**
 „Structure of Molten Au-Cs Alloys by Means of Neutron Diffraction“
 in: Amorphous and Liquid Metals, Nato Advanced Study Institute, Eds. E. Lüscher and H. Cougal, 1980, p. 619
23. **R. Dupree, D.J. Kirby, W. Freyland, W.W. Warren, Jr.**
 „Observation of NMR of the Formation of Localized Electronic States in an Ionic Liquid Alloy“
 Phys. Rev. Lett. 45, 130 (1980)
24. **W. Freyland**
 „Electronic Correlation and the M-NM Transition in Fluid Alkalimetals“,
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25. **G. Franz, W. Freyland, F. Hensel**
 „Thermodynamic and Electric Transport Properties of Fluid Cesium and Rubidium in the M-NM Transition Region“
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 J. Phys. Colloq. C8 41, 70 (1980)
26. **G. Franz, W. Freyland, W. Gläser, F. Hensel, E. Schneider**
 „Structure of Expanded Liquid Rubidium by Neutron Diffraction“
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 J. Phys. Colloq. C8 41, 194 (1980)
27. **R. Dupree, D.J. Kirby, W. Freyland, W.W. Warren, Jr.**
 „¹³³Cs NMR Investigation of Liquid Cs-Au Alloys“
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 J. Phys. Colloq. C8 41, 16 (1980)
28. **W. Martin, W. Freyland, P. Lamparter, S. Steeb**
 „Structure and Density of Gold-Cesium-Melts -
 „I. Neutron Diffraction with Gold- and with Cesium-Melts“
 Phys. Chem. Liq. 10, 49 (1980)

29. **W. Martin, W. Freyland, P. Lamparter, S. Steeb**
 „Structure and Density of Gold-Cesium-Melts -
 II. Neutron Diffraction with Molten Gold-Cesium Alloys“
 Phys. Chem. Liq. 10, 61 (1980)
30. **W. Martin, W. Freyland, P. Lamparter, S. Steeb**
 „Structure and Density of Gold-Cesium-Melts -
 III. Neutron Diffraction with Au-Cs-Melts in the Small q Region“
 Phys. Chem. Liq. 10, 77 (1980)
31. **W. Freyland**
 „Metal-Nonmetal Transition in Fluid Alkali Metals“
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32. **M. Edeling, W. Freyland**
 „Molecular Structure of Expanded Liquid Selenium up to 1400 °C“
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33. **W. Freyland**
 „Non-tetrahedrally bonded binary compounds „
 „IA-IB Compounds“ and „IA-V Compounds“
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 (Springer Verlag Berlin, 1983)
34. **R. Dupree, D.J. Kirby, W. Freyland**
 „A ^{133}Cs -NMR Study of the Chemical Bonding of the Solid Compound
 Semiconductor Cs_3Sb “
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35. **H. Redslob, G. Steinleitner, W. Freyland**
 „Transition to Semiconducting Characteristics in Liquid Alkalimetal-Antimony
 Alloys“
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36. **R. Dupree, D.J. Kirby, W. Freyland**
 „NMR Study of Changes in Bonding and the Metal-Nonmetal Transition in Liquid
 Cesium-Antimony Alloys“
 Phil. Mag. B46, 595 (1982)
37. **P. Lamparter, W. Martin, S. Steeb, W. Freyland**
 „Neutron Diffraction Study on the Structure of Liquid Cs-Sb Alloys“
 Z. Naturforsch. 38a, 329 (1983)
38. **N. Nicoloso, W. Freyland**
 „ESR Studies of Electron Localization in Molten Alkali Metal-Alkali Halide
 Solutions“
 J. Phys. Chem. 87, 1997 (1983)

39. **L. Bottyan, R. Dupree, W. Freyland**
 „Effect of Electron Correlation on the Magnetic Properties of Expanded Liquid Sodium“
 J. Phys. F: Metal Phys. 13, 173 (1983)
40. **W. Freyland, K. Garbade, E. Pfeiffer**
 „Optical Study of Electron Localization Approaching a Polarization Catastrophe in Liquid $K_x\text{-KCl}_{1-x}$ “
 Phys. Rev. Lett. 51, 1304 (1983)
41. **N. Nicoloso, W. Freyland**
 „Magnetic Susceptibility of Liquid Alkali Metal-Alkali Halide Solutions“
 Z. Phys. Chemie N.F. 135, 39 (1983)
42. **B. Nakowsky, N. Nicoloso, W. Freyland**
 „Para- and Diamagnetic Polyhalide Anions in Liquid CsI-I_2 “
 Ber. Bunsenges. Phys. Chem. 88, 297 (1984)
43. **W. Freyland, K. Garbade, H. Heyer, E. Pfeiffer**
 „Color Centers and Clustering in Liquid Alkali Metal-Alkali Halide Solutions Approaching the NM-M Transition: An Optical Study“
 J. Phys. Chem. 88, 3745 (1984)
44. **R. Dupree, L. Bottyan, W. Freyland, A.T. Rogers**
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45. **P. Lamparter, W. Martin, S. Steeb, W. Freyland**
 „Neutron Diffraction Study on the Structure of Liquid Cs-Sb Alloys“
 J. Non-Cryst. Solids 61-62, 279 (1984)
46. **N. Nicoloso, W. Freyland**
 „Magnetic Susceptibility and Optical Absorption Studies of Rb-Au Alloys“
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47. **W. Freyland, F. Hensel, W. Gläser**
 „Apparatus for Neutron Diffraction Measurements on Fluids up to 2000 K and Elevated Pressures“
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48. **J. J. Egan and W. Freyland**
 „Thermodynamic Properties of Liquid Non-Metallic Na-NaBr Solutions: An EMF-Study“
 Ber. Bunsenges. Phys. Chem. 89, 381 (1985)

49. **W. Freyland, F. Hensel**
 „The M-NM Transition in Expanded Metals“
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50. **N. Nicoloso and W. Freyland**
 „CESR of Expanded Liquid Sodium“
 J. Phys. F.: Metal Physics 15, L257 (1985)
51. **W. Freyland**
 „Electron Localization and Metal-Nonmetal Transition in Alkali-Metal / Alkali-Halide Melts“
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52. **D. Nattland, H. Heyer, W. Freyland**
 „M-NM Transition in Liquid Alkali Metal-Alkali-halide Melts: Electrical Conductivity and Optical Reflectivity Study“
 Z. Phys. Chem. N.F. 149, 1 (1986)
53. **R. Dupree, A.T. Rogers and W. Freyland**
 „NMR-Study of Electron Localization in some Alkali-Antimony-Alloys“
 Phil. Mag. B 53, 247 (1986)
54. **K. Garbade and W. Freyland**
 „PVT-Measurements of Fluid $K_x\text{-}KCl_{1-x}$ Solutions“
 Proc. Int. Conf. LAM VI 1986, Z. Phys. Chemie N.F. 156, 169 (1988)
55. **C.v.d. Marel, P. Heitjans, B. Bader, P. Freiländer, A. Schirmer and W. Freyland**
 „NMR and Magnetic Susceptibility Measurements on Liquid Lithium up to High Temperatures“
 Proc. Int. Conf. LAM VI, 1986, Z. Phys. Chemie N.F. 157, 593 (1988)
56. **G.M. Haarberg, K.S. Osen, J.J. Egan, H. Heyer and W. Freyland**
 „Electronic Transport in Molten Salt Rich Na-NaX Solutions (X=Br, J)“
 Ber. Bunsenges. Phys. Chem. 92, 139 (1988)
57. **E. Pfeiffer, K. Garbade and W. Freyland**
 „Small Angle X-Ray Scattering (SAXS) and PVTx-Behaviour of Fluid K_xKCl_{1-x} Solutions“
 Proc. Int. Sympos. Molten Salts, 1987, p. 200-209 (Electrochemical Soc. Inc., Pennington) Vol. 87-7
58. **D. Nattland and W. Freyland**
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 „PVTx Measurements and Thermodynamic Equation of State of Fluid K_xKCl_{1-x}
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60. **M.-L. Saboungi, J. Ellefson, G.K. Johnson and W. Freyland**
 „Liquid Potassium-Antimony Alloys - Investigation of some Thermodynamic
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61. **D. Nattland and W. Freyland**
 „Ellipsometric Study of the Complex Dielectric Function of K_xKCl_{1-x} Approaching the
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62. **W. Freyland**
 „Bulk and Surface Characteristics of Metal-Molten-Salt Solutions“
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63. **R. Juchem, S. Müller, D. Nattland and W. Freyland**
 „Interfacial Segregation and the Wetting Transition in Fluid Metal-Salt-Systems“
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64. **T. Rauch, D. Nattland and W. Freyland**
 „Variation of F-Center Concentration in Dilute K-KCl Solution: Comparison of an
 Optical Study with Thermodynamic Prediction“
 Journal de Physique IV, Colloque C5 (1991) 147
65. **T. Schindelbeck, D. Nattland and W. Freyland**
 „Dipolar Atoms in Na-NaX Solutions? - An Optical Study - „
 Journal de Physique, colloque C5 (1991) 155
66. **H. Chadli, S. C. Müller, D. Nattland, W. Freyland**
 Ellipsometrische Untersuchungen des Benetzungsverhaltens von fluidem Rb-RbCl,
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67. **H. Heyer, J.J. Egan and W. Freyland**
 „Electrical Conductivity and Thermodynamic Properties of Liquid $Na_{3+\delta}Sb$ Alloys“
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68. **S. Gross and W. Freyland**
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69. **H. Tostmann and W. Freyland**
 „Rapid Solidification of Microemulsions of Liquid Alloys in Molten Salts“
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70. **R. Juchem, D. Nattland and W. Freyland**
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 „Electron Localization in Metal Molten Salt Solutions: An Optical Study with *in situ*
 Variation of Composition“
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 „EMF-Study of the Thermodynamics of Liquid K_xKCl_{1-x} “
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73. **W. Freyland**
 „Electron Localization and Metal-Nonmetal Transition in Alkali Metal-Alkali-Halide
 Melts“
 Z. Phys. Chemie, 184 (1994) 139

74. **M. Bachtler and W. Freyland**
 „Impedance Spectroscopic Investigation of the Reduction Mechanism of Tantalum-
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75. **G.A. Voyiatzis, E.A. Pavlatou, G. Papatheodorou, M. Bachtler and W. Freyland**
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77. **B. von Blanckenhagen, D. Nattland and W. Freyland**
 „Direct Spectroscopic Observation of Localized Band Gap States in Liquid Na-NaI“
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78. **S.C. Müller, H. Tostmann, D. Nattland and W. Freyland**
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80. **Bachtler and W. Freyland, G.A. Voyiatzis and G.N. Papatheodorou**
 „Electrochemical and Simultaneous Spectroscopic Study of Reduction Mechanism and Electronic Conduction During Electrodeposition of Tantalum in Molten Alkali Chlorides“;
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 „Alkali Metal - Alkali Halide Melts“
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83. **D. Nattland, P.D. Poh, S.C. Müller and W. Freyland**
 „Interfacial Wetting in a Liquid Binary Alloy“
 J. Phys.: Condens. Matter **7** (1995) L457-L462

84. **Th. Schindelbeck and W. Freyland**
 „ESR-Study of Spin Dynamics in K_xKCl_{1-x} Melts ($10^{-4} \leq x \leq 10^{-1}$) Approaching the M-NM Transition“
 J. Non-Crystalline Solids, **205-207** (1996) 48

85. **U. Beck, Th. Koslowski and W. Freyland**
 „Electronic Structure of Metal-Molten Salt Solutions: Electron Localization and the Metal-Nonmetal Transition“
 J. Non-Crystallin-Solids, **205-207** (1996) 52

86. **P.R. Bandy, U. Stöhr and W. Freyland**
 „Elektrochemische Untersuchungen zur Metallabscheidung (Ta, Nb) in Salzschnmelzen“
 Internationales Seminar, Universität Karlsruhe, 1995

87. **D. Nattland, S.C. Müller, P.D. Poh and W. Freyland**
 „Wetting Phenomena at the Liquid-Vapour Interface of Gallium-Bismuth Alloys studied by Spectroscopic Ellipsometry“
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88. **T. Schindelbeck and W. Freyland**
 „Spin Dynamics and Susceptibility Approaching the NM-M-Transition in K_xKCl_{1-x} “
 J. Phys. Condens. Matter **7**, (1995), L469-L473

89. **K. Diehl and W. Freyland**
 „Optical Reflectivity of Fluid Cs-CsH: A High Temperature-High Pressure Study“
 Z. Phys. Chem. **193**, (1996) 49-59

90. **H. Tostmann, D. Nattland and W. Freyland**
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91. **T. Schindelbeck and W. Freyland**
 „Electron Localization and Metal-Nonmetal Transition in Fluid K_xKCl_{1-x} : An ESR Study of the Magnetic Properties with in situ Variation of x ($10^{-4} \leq x \leq 10^{-1}$)“
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93. **K. Bala, B. von Blanckenhagen und W. Freyland**
 „Elektronische Defektzustände in Metall-Salzschnmelzen: Untersuchungen der optischen Absorption am Beispiel von Cs_xCsCl_{1-x} Schnmelzen“,
 Wiss. Abschlußber., 31. Internat. Seminar, Univ. Karlsruhe, 1996

94. **H. Tostmann, D. Nattland and W. Freyland**
 „In Situ Characterization of Oxide Films on Liquid Alkali Metals Using Second Harmonic Generation (SHG)“
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95. **F. Endres, W. Freyland and B. Gilbert**
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 „Electrochemical Impedance and Cyclic Voltammetry Study of the Influence of Oxide on the Redox Chemistry of Niobium and Tantalum in Chloride Melts“
 Electrochimica Acta, **43**, 569 (1998)

97. **E. Schellkes, M. Holz and W. Freyland**
 High Temperature ^{93}Nb -NMR Study of Liquid NbCl_5 and its Mixtures with Various Alkalichlorides.
 D.H. Kerridge and E.G. Polyakov (eds.), Refractory Metals in Molten Salts, Kluwer Academic Publishers, Printed in the Netherlands, (1998), p. 43-60

98. **W. Freyland and D. Nattland**
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99. **W. Freyland**
 „Interfacial Phenomena in Ionic Fluids“
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100. **D. Nattland, H. Chadli, C. A. Zell, S.C. Müller, B. von Blanckenhagen and W. Freyland**
 „Interfacial Properties of Liquid Alloys: An Experimental Study on Ga-Bi and Ga-Ge“
 Ber. Bunsenges. Phys. Chem. **102**, 1151-1155 (1998) No. 9

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102. **C.A. Zell, F. Endres and W. Freyland**
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103. **Brodowsky, H.; Freyland, W.; Schaller, H.-J.**
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104. **B. v. Blanckenhagen, D. Nattland and W. Freyland**
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 „Electrochemical Impedance Investigations of Redox Mechanisms of Refractory
 Metal Compounds in Molten Salts. I. Niobium Chloride and Oxychloride in
 CsCl-NaCl Eutectic Melt“,
 Electrochimica Acta **44** (13) 2199-2207 (1999)

107. **B. von Blanckenhagen, D. Nattland, K. Bala and W. Freyland**
 „Systematic Study of Electron Localization in Saltrich $M_x(MX)_{1-x}$ Melts (M=Na, K,
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 „EC-STM-Untersuchung der Kupferabscheidung aus einer Raumtemperatur Salzschnmelze”.
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