

## Literaturverzeichnis

- [Aes96] M. Aeschlimann, M. Bauer und S. Pawlik. *Competing nonradiative channels for hot electron induced surface photochemistry*. Chem. Phys. **205**, (1996) 127.
- [Aes00] M. Aeschlimann, M. Bauer, S. Pawlik, R. Knorren, G. Bouzerar und K. H. Bennemann. *Transport and dynamics of optically excited electrons in metals*. Appl. Phys. A **71**, (2000) 485.
- [All87] Philip B. Allen. *Theory of Thermal Relaxation of Electrons in Metals*. Phys. Rev. Lett. **59**, (1987) 1460.
- [All99] Philip B. Allen. *Handbook of Superconductivity*. Academic Press, New York, 1999 478.
- [All01] Philip B. Allen. *Electron spin-flip relaxation by one magnon processes: Application to the gadolinium surface band*. Phys. Rev. B **63**, (2001) 214410.
- [All02] D. A. Allwood, Gang Xiong, M. D. Cooke, C. C. Faulkner, D. Atkinson, N. Vernier und R. P. Cowburn. *Submicrometer Ferromagnetic NOT Gate and Shift Register*. Science **296**, (2002) 407.
- [Ana91] D. C. Anacker und J. L. Erskine. *Analysis of microchannel plate response in relation to pulsed laser time-of-flight photoemission spectroscopy*. Rev. Sci. Instr. **62**, (1991) 1246.
- [Ani74] S. I. Anisimov, B. L. Kapeliovich und T. L. Perel'man. *Electron emission from metal surfaces exposed to ultrashort laser pulses*. Sov. Phys. JETP **39**, (1974) 375.
- [Ash76] N. W. Ashcroft und N. D. Mermin. *Solid State Physics*. Holt, Rinehart and Winston, 1976.
- [Asp94] A. Aspelmeier, F. Gerhardter und K. Baberschke. *Magnetism and structure of ultrathin Gd films*. J. Magn. Magn. Mater. **132**, (1994) 22.
- [Ayv02] V. Ayvazan, N. Baboi und I. Bohnet *et al.* . *Generation of GW Radiation Pulses from a VUV Free-Electron Laser Operating in the Femtosecond Regime*. Phys. Rev. Lett. **88**, (2002) 104802.

- [Bac75] R. Z. Bachrach, F. C. Brown und S. B. M. Hagström. *Photoelectron spectroscopy by time-of-flight technique using synchrotron radiation*. J. Vac. Sci. Technol. **12**, (1975) 309.
- [Bal67] G. C. Baldwin und S. I. Friedman. *Time-of-Flight Electron Velocity Spectrometer*. Rev. Sci. Instr. **38**, (1967) 519.
- [Bal98] T. Balasubramanian und E. Jensen. *Large value of the electron-phonon coupling parameter ( $\lambda = 1.15$ ) and the possibility of surface superconductivity at the Be(0001) surface*. Phys. Rev. B **57**, (1998) R6866.
- [Bau02] A. Bauer, A. Mühlig, D. Wegner und G. Kaindl. *Lifetime of surface states on (0001) surfaces of lanthanide metals*. Phys. Rev. B **65**, (2002) 75421.
- [Bau05] A. Bauer, D. Wegner und G. Kaindl. *Lifetime Widths of Surface States on Magnetic Lanthanide Metals*. arXiv:cond-mat 0502581.
- [Bea96] E. Beaurepaire, J.-C. Merle, A. Daunois und J.-Y. Bigot. *Ultrafast Spin Dynamics in Ferromagnetic Nickel*. Phys. Rev. Lett. **76**, (1996) 4250.
- [Bec61] J. A. Becker, E. J. Becker und R. G. Brandes. *Reactions of Oxygen with Pure Tungsten and Tungsten Containing Carbon*. J. Appl. Phys. **32**, (1961) 411.
- [Bec89] R. S. Becker, B. S. Swarzenruber, J. S. Vickers und T. Klitsner. *Dimer-atom-stacking-fault (DAS) and non-DAS (111) semiconductor surfaces: A comparison of Ge(111)-c(2 x 8) to Si(111)-(2 x 2), -(5 x 5), -(7 x 7), and -(9 x 9) with scanning tunneling microscopy*. Phys. Rev. B **39**, (1989) 1633.
- [Ber64] C. N. Berglund und W. E. Spicer. *Photoemission Studies of Copper and Silver: Theory*. Phys. Rev. **136**, (1964) A1030.
- [Ber00] W. Berthold, U. Höfer, P. Feulner und D. Menzel. *Influence of Xe adlayer morphology and electronic structure on image-potential state lifetimes of Ru(0001)*. Chem. Phys. **251**, (2000) 123.
- [Ber04] W. Berthold, F. Reberstrost, P. Feulner und U. Höfer. *Influence of Ar, Kr, and Xe layers on the energies and lifetimes of image-potential states on Cu(100)*. APA **78**, (2004) 131.
- [Big04] J.-Y. Bigot, L. Guidoni, E. Beaurepaire und P. N. Saeta. *Femtosecond Spectro-temporal Magneto-optics*. Phys. Rev. Lett. **93**, (2004) 77401.
- [Bod98] M. Bode, M. Getzlaff, S. Heinze, R. Pascal und R. Wiesendanger. *Magnetic exchange splitting of the Gd(0001) surface state studied by variable-temperature scanning tunneling spectroscopy*. Appl. Phys. A **66**, (1998) S121.
- [Bog04] K. Boger, M. Weinelt und T. Fauster. *Scattering of Hot Electrons by Adatoms at Metal Surfaces*. Phys. Rev. Lett. **92**, (2004) 126803.

- [Bon99] M. Bonn, S. Funk, Ch. Hess, D. N. Denzler, C. Stampfl, M. Scheffler, M. Wolf und G. Ertl. *Phonon vs electron mediated desorption and oxidation of CO on Ru(0001)*. Science **285**, (1999) 1042.
- [Bon00] M. Bonn, D. N. Denzler, S. Funk und M. Wolf. *Ultrafast electron dynamics at metal surfaces: Competition between electron-phonon coupling and hot-electron transport*. Phys. Rev. B **61**, (2000) 1101.
- [Bov04] U. Bovensiepen, A. Melnikov, I. Radu, O. Krupin, K. Starke, M. Wolf und E. Matthias. *Coherent surface and bulk vibrations induced by femtosecond laser excitation of the Gd(0001) surface state*. Phys. Rev. B **69**, (2004) 235417.
- [Bra95] M. Brandbyge, Per Hedegård, T. F. Heinz, A. Misewich und D. M. Newns. *Electronically driven adsorbate excitation mechanism in femtosecond-pulse laser desorption*. Phys. Rev. B **52**, (1995) 6042.
- [Bro87] S. D. Brorson, J. G. Fujimoto und E. P. Ippen. *Femtosecond Electronic Heat-Transport Dynamics in Thin Gold Films*. Phys. Rev. Lett. **59**, (1987) 1962.
- [Cao96] Jianming Cao. *Time-resolved two-photon photoemission studies of electron dynamics at metal surfaces*. Dissertation, University of Rochester (1996).
- [Cao98] J. Cao, Y. Gao, H. E. Elsayed-Ali, R. J. D. Miller und D. A. Mantell. *Femtosecond photoemission study of ultrafast electron dynamics in single-crystal Au(111) films*. Phys. Rev. B **58**, (1998) 10948.
- [Car97] A. Carlsson, B. Hellsing, S.-Å. Lindgren und L. Walldén. *High-resolution photoemission from a tunable quantum well: Cu(111)/Na*. Phys. Rev. B **56**, (1997) 1593.
- [Cav93] R. R. Cavanagh, D. S. King und J. C. Stephenson. *Dynamics of Nonthermal Reactions: Femtosecond Surface Chemistry*. J. Phys. Chem. **97**, (1993) 786.
- [Cha97] Y. M. Chang, L. Xu und H. W. K. Tom. *Observation of Coherent Surface Optical Phonon Oscillations by Time-Resolved Surface Second-Harmonic Generation*. Phys. Rev. Lett. **78**, (1997) 4649.
- [Che91] T. K. Cheng, J. Vidal, H. J. Zeiger, G. Dresselhaus, M. S. Dresselhaus und E. P. Ippen. Applied Physics Letters **59**, (1991) 1923.
- [Cho90] G. C. Cho, W. Kütt und H. Kurz. Phys. Rev. Lett. **65**, (1990) 764.
- [Coh99a] Coherent Laser Group, Santa Clara. *Operator's Manual, RegA Model 9050 Laser* (1999).
- [Coh99b] Coherent Laser Group, Santa Clara. *Preliminary Documents: Ver A, Mira SEED* (1999).
- [Coq77] B. Coqblin. *The electronic structure of rare-earth metals and alloys*. Academic Press, London, 1977.

- [Cov93] S. Cova, M. Ghioni, F. Zappa und A. Lacaita. *Constant-fraction circuits for picosecond photon timing with microchannel plate photomultipliers*. Rev. Sci. Instr. **64**, (1993) 118.
- [CT03] M. Colarieti-Tosti, S. I. Simak, R. Ahuja, L. Nordström, O. Eriksson, D. Aberg, S. Edvardsson und M. S. S. Brooks. *Origin of Magnetic Anisotropy of Gd Metal*. Phys. Rev. Lett. **91**, (2003) 157201.
- [Dan98] S. Yu. Dan'kov, A. M. Tishin, V. K. Pecharsky und K. A. Gschneidner, Jr. *Magnetic phase transitions and the magnetothermal properties of gadolinium*. Phys. Rev. B **57**, (1998) 3478.
- [Den99] Daniel N. Denzler. *Untersuchungen zur Ultrakurzzeitdynamik photostimulierter Oberflächenreaktionen und der Energierelaxation in Metallen*. Diplomarbeit, Freie Universität Berlin (1999).
- [Dol89] A. E. Dolbak, B. Z. Olshanetsky, S. I. Stenin, S. A. Teys und T. A. Gavrilova. *Effect of Nickel on clean Silicon surfaces: Transport and structure*. Surf. Sci. **218**, (1989) 37.
- [Don96] M. Donath, B. Gubanka und F. Passek. *Temperature-Dependent Spin Polarization of Magnetic Surface State on Gd(0001)*. Phys. Rev. Lett. **77**, (1996) 5138.
- [Dru00] P. Drude. Ann. Phys. (Leipzig) **1**, (1900) 566.
- [Du93] Q. Du, R. Superfine, E. Freysz und Y. R. Shen. *Vibrational spectroscopy of water at the vapor/water interface*. Phys. Rev. Lett. **70**, (1993) 2313.
- [EA87] H. E. Elsayed-Ali, T. B. Norris, M. A. Pessot und G. A. Mourou. *Time-Resolved Observation of Electron-Phonon Relaxation in Copper*. Phys. Rev. Lett. **58**, (1987) 1212.
- [EA93] H. E. Elsayed-Ali und T. Juhasz. *Femtosecond time-resolved thermomodulation of thin gold films with different crystal structures*. Phys. Rev. B **47**, (1993) 13599.
- [Ech00] P. M. Echenique, J. M. Pitarke, E. V. Chulkov und A. Rubio. *Theory of inelastic lifetimes of low-energy electrons in metals*. Chem. Phys. **251**, (2000) 1.
- [Ech04] P. M. Echenique, R. Berndt, E. V. Chulkov, Th. Fauster, A. Goldmann und U. Höfer. *Decay of electronic excitations at metal surfaces*. Surf. Sci. Rep. **52**, (2004) 219.
- [Eig02] A. Eiguren, B. Hellsing, F. Reinert, G. Nicolay, E. V. Chulkov, V. M. Silkin, S. Hüfner und P. M. Echenique. *Role of Bulk and Surface Phonons in the Decay of Metal Surface States*. Phys. Rev. Lett. **88**, (2002) 066805.
- [Eig03] A. Eiguren, B. Hellsing, E. V. Chulkov und P. M. Echenique. *Phonon-mediated decay of metal surface states*. Phys. Rev. B **67**, (2003) 235423.

- [Ein05] A. Einstein. *Über einen die Erzeugung und Verwandlung des Lichtes betreffenden heuristischen Gesichtspunkt*. Ann. Phys. **17**, (1905) 132.
- [Eka00] W. Ekardt, W.-D. Schöne und R. Keyling. *The determination of the lifetime of hot electrons in metals by time-resolved two-photon photoemission: the role of transport effects, virtual states, and transient excitons*. Appl. Phys. A **71**, (2000) 529.
- [Ell01] R. Ell, U. Morgner, F. X. Kärtner, J. G. Fujimoto, E. P. Ippen, V. Scheuer, G. Angelow, T. Tschudi, M. J. Lederer, A. Boiko und B. Luther-Davies. *Generation of 5 fs pulses and octave-spanning spectra directly from a Ti:sapphire laser*. Opt. Lett. **26**, (2001) 373.
- [Fan92a] W. S. Fann, R. Storz, H. W. K. Tom und J. Bokor. *Direct Measurement of Nonequilibrium Electron-Energy Distributions in Subpicosecond Laser-Heated Gold Films*. Phys. Rev. Lett. **68**, (1992) 2834.
- [Fan92b] W. S. Fann, R. Storz, H. W. K. Tom und J. Bokor. *Electron Thermalization in Gold*. Phys. Rev. B **46**, (1992) 13592.
- [Far93] M. Farle, K. Baberschke, U. Stetter, A. Aspelmeier und F. Gerhardter. *Thickness-dependent Curie temperature of Gd(0001)/W(110) and its dependence on the growth conditions*. Phys. Rev. B **47**, (1993) 11571.
- [Far98] M. Farle und K. Baberschke. Curie Temperatures and Magnetic Anisotropies as a Function of Growth Conditions for Gd(0001)/W(110) In M. Donath, P. A. Dowben und W. Nolting (Hg.), *Magnetism and Electronic Correlations in Local-Moment Systems: Rare-Earth Elements and Compounds*. World Scientific, Singapore, 1998 35.
- [Fat98] N. Del Fatti, R. Bouffanais, F. Vallée und C. Flytzanis. *Nonequilibrium Electron Interactions in Metal Films*. Phys. Rev. Lett. **81**, (1998) 922.
- [Fat00] N. Del Fatti, C. Voisin, M. Achermann, S. Tzotzakis, D. Christofilos und F. Vallée. *Nonequilibrium electron dynamics in noble metals*. Phys. Rev. B **61**, (2000) 16956.
- [Fed94] A. V. Fedorov, K. Starke und G. Kaindl. *Temperature-dependent exchange splitting of unoccupied electronic states in Gd(0001)*. Phys. Rev. B **50**, (1994) 2739.
- [Fed02] A. V. Fedorov, T. Valla, F. Liu, P. D. Johnson und M. Weinert. *Spin-resolved photoemission study of photohole lifetimes in ferromagnetic gadolinium*. Phys. Rev. B **65**, (2002) 212409.
- [Fei82] Peter J. Feibelman. *Electronic structure of clean and carbon-covered close-packed rhodium and ruthenium surfaces*. Phys. Rev. B **26**, (1982) 5347.

- [Feu78] B. Feuerbacher, B. Fitton und R. F. Willis. *Photoemission and the Electronic Properties of Surfaces*. John Wiley, 1978.
- [Ful83] P. Fulde und J. Jensen. *Electronic heat capacity of the rare-earth metals*. Phys. Rev. B **27**, (1983) 4085.
- [Gah00] C. Gahl, K. Ishioka, Q. Zhong, A. Hotzel und M. Wolf. *Structure and dynamics of excited electronic states at the adsorbate/metal interface: C<sub>6</sub>F<sub>6</sub>/Cu(111)*. Faraday Discuss. **117**, (2000) 191.
- [Gah04] Cornelius Gahl. *Elektronentransfer- und Solvatisierungsdynamik in Eis adsorbiert auf Metalloberflächen*. Dissertation, Freie Universität Berlin (2004).
- [Gar96] G. A. Garrett, T. F. Albrecht, J. F. Whitaker und R. Merlin. *Coherent THz Phonons Driven by Light Pulses and the Sb Problem: What is the Mechanism?* Phys. Rev. Lett. **77**, (1996) 3661.
- [Get98] M. Getzlaff, M. Bode, S. Heinze, R. Pascal und R. Wiesendanger. *Temperature-dependent exchange splitting of the magnetic Gd(0001) surface state*. J. Magn. Magn. Mater. **184**, (1998) 155.
- [Gil90] T. L. Gilton, J. P. Cowin, G. D. Kubiak und A. V. Hamza. *Intense surface photoemission: Space charge effects and self-acceleration*. J. Appl. Phys. **68**, (1990) 4802.
- [Gla64] C. J. Glassbrenner und G. A. Slack. *Thermal Conductivity of Silicon and Germanium from 3 K to the Melting Point*. Phys. Rev. **134**, (1964) A1058.
- [Goo02] Goodfellow GmbH, Bad Nauheim. *Goodfellow Katalog* (2002).
- [Gro92] R. H. M. Groeneveld, R. Sprik und A. Langendijk. *Effect of a nonthermal electron distribution on the electron-phonon energy relaxation process in noble metals*. Phys. Rev. B **45**, (1992) 5079.
- [Gro95] R. H. M. Groeneveld, R. Sprik und A. Langendijk. *Femtosecond spectroscopy of electron-electron and electron-phonon energy relaxation in Ag and Au*. Phys. Rev. B **51**, (1995) 11433.
- [Gui02] Luca Guidoni, Eric Beaurepaire und Jean-Yves Bigot. *Magneto-optics in the Ultrafast Regime: Thermalization of Spin Populations in Ferromagnetic Films*. Phys. Rev. Lett. **89**, (2002) 17401.
- [Gus98] V. E. Gusev und O. B. Wright. *Ultrafast nonequilibrium dynamics of electrons in metals*. Phys. Rev. B **57**, (1998) 2878.
- [Har74] B. N. Harmon und A. J. Freeman. *Spin-polarized energy-band structure, conduction-electron polarization, spin densities, and the neutron magnetic form factor of ferromagnetic gadolinium*. Phys. Rev. B **10**, (1974) 1979.

- [Has96] M. Hase, K. Mizoguchi, H. Harima, S. Nakashima, A. Tano, K. Sakai und M. Hanygo. Applied Physics Letters **69**, (1996) 2474.
- [Has00] M. Hase, K. Ishioka, M. Kitajima, K. Ushida und S. Hishita. Applied Physics Letters **76**, (2000) 1258.
- [Has02] Muneaki Hase, Masahiro Kitajima, Shin ichi Nakashima, und Kohji Mizoguchi. *Dynamics of Coherent Anharmonic Phonons in Bismuth Using High Density Photoexcitation*. Phys. Rev. Lett. **88**, (2002) 067401.
- [Has03] M. Hase, M. Kitajima, A. M. Contantinescu und H. Petek. Nature **426**, (2003) 51.
- [Has05] Muneaki Hase, Kunie Ishioka, Jure Demsar, Kiminori Ushida und Masahiro Kitajima. *Ultrafast dynamics of coherent optical phonons and nonequilibrium electrons in transition metals*. Phys. Rev. B **71**, (2005) 184301.
- [Hel95] G. Held und D. Menzel. *Isotope effects in structure and kinetics of water adsorbates on Ru(001)*. Surf. Sci. **327**, (1995) 301.
- [Hen02] M. A. Henderson. *The interaction of water with solid surfaces: Fundamental aspects revisited*. Surf. Sci. Rep. **46**, (2002) 1.
- [Her87] H. Hertz. *Über einen Einfluss des ultravioletten Lichts auf die elektrische Entladung*. Ann. Phys. **31**, (1887) 983.
- [Her96] T. Hertel, E. Knoesel, M. Wolf und G. Ertl. *Ultrafast Electron Dynamics at Cu(111): Response of an Electron Gas to Optical Excitation*. Phys. Rev. Lett. **76**, (1996) 535.
- [Her02] T. Hertel, R. Fasel und G. Moos. *Charge-carrier dynamics in single-wall carbon nanotube bundles: a time-domain study*. Appl. Phys. A **75**, (2002) 449.
- [Hes00a] Ch. Hess, M. Bonn, S. Funk und M. Wolf. *Hot-band excitation of CO chemisorbed on Ru(001) studied with broadband-IR sum-frequency generation*. Chem. Phys. Lett. **325**, (2000) 139.
- [Hes00b] Ch. Hess, S. Funk, M. Bonn, D. N. Denzler, M. Wolf und G. Ertl. *Femtosecond dynamics of chemical reactions at surfaces*. Appl. Phys. A **71**, (2000) 477.
- [Hes00c] Ch. Hess, M. Wolf und M. Bonn. *Direct Observation of Vibrational Energy Delocalization on Surfaces: CO on Ru(001)*. Phys. Rev. Lett. **85**, (2000) 4341.
- [Hüf96] S. Hüfner. *Photoelectron Spectroscopy*. Springer, Berlin, 1996.
- [Höf97] U. Höfer, I. L. Shumay, Ch. Reuß, U. Thormann, W. Wallauer und T. Fauster. *Time-resolved coherent photoelectron spectroscopy of quantized electronic states on metal surfaces*. Science **277**, (1997) 1480.

- [Hil87] R. W. Hill, S. J. Collocott, K. A. Gschneidner Jr. und F. A. Schmidt. *The heat capacity of high-purity gadolinium from 0.5 to 4 K and the effects of interstitial impurities*. J. Phys. F: Met. Phys. **17**, (1987) 1867.
- [Him81] F. J. Himpsel, K. Christmann, P. Heimann und D. E. Eastman. *Experimental energy-band dispersions and lifetimes for ruthenium*. Phys. Rev. B **23**, (1981) 2548.
- [Hof97] W. Hoffmann und C. Benndorf. *Investigations on the influence of substrate geometry of flat and stepped ruthenium surfaces Ru(0001) and Ru(1018) on the adsorption kinetics of H<sub>2</sub>O and D<sub>2</sub>O*. Surf. Sci. **377**, (1997) 681.
- [Hoh97a] J. Hohlfeld, E. Matthias, R. Knorren und K. H. Bennemann. *Nonequilibrium Magnetization Dynamics of Nickel*. Phys. Rev. Lett. **78**, (1997) 4861.
- [Hoh97b] J. Hohlfeld, G. Müller, S.-S. Wellershoff und E. Matthias. *Time-resolved thermoreflectivity of thin gold films and its dependence on film thickness*. Appl. Phys. B **64**, (1997) 387.
- [Hoh98] Julius Hohlfeld. *Ultrafast Electron-, Lattice- and Spin-Dynamics in Metals*. Dissertation, Freie Universität Berlin (1998).
- [Hoh00] J. Hohlfeld, S. S. Wellershoff, J. Gütde, U. Conrad, V. Jähnke und E. Matthias. *Electron and lattice dynamics following optical excitation of metals*. Chem. Phys. **251**, (2000) 237.
- [Hot99] Arthur Hotzel. *Femtosekunden-Elektronendynamik der Adsorbat-bedeckten Cu(111)-Oberfläche*. Dissertation, Freie Universität Berlin (1999).
- [Hot05] Arthur Hotzel. Charged particle in two crossed light beams (in vacuum) (2005). Private Mitteilung.
- [Hu03] Wangyu Hu, Huiyu Deng, Xiaojian Yuan und Masahiro Fukumoto. *Point-defect properties in HCP rare earth metals with analytic modified embedded atom potentials*. Eur. Phys. J. B **34**, (2003) 429.
- [Iba02] H. Ibach und H. Lüth. *Festkörperphysik*. Springer, 2002.
- [Jac89] P. Jacobsson und B. Sundqvist. *Thermal conductivity and electrical resistivity of gadolinium as functions of pressure and temperature*. Phys. Rev. B **40**, (1989) 9541.
- [Jel66] F. J. Jelinek, B. C. Gerstein, M. Griffel, R. E. Skochdopole und F. H. Spedding. *Re-Evaluation of Some Thermodynamic Properties of Gadolinium Metal*. Phys. Rev. **149**, (1966) 489.
- [Juh93] T. Juhasz, H. E. Elsayed-Ali, G. O. Smith, C. Suárez und W. E. Bron. *Direct measurements of the transport of nonequilibrium electrons in gold films with different crystal structures*. Phys. Rev. B **48**, (1993) 15488.



- [Kag57] M. I. Kaganov, I. M. Lifschits und L. V. Tanatarov. *Relaxation between Electrons and the Crystalline Lattice*. Sov. Phys. JETP **4**, (1957) 173.
- [Kam02] T. Kampfrath, R. G. Ulbrich, F. Leuenberger, M. Münzenberg, B. Sass und W. Felsch. *Ultrafast magneto-optical response of iron thin films*. Phys. Rev. B **65**, (2002) 104429.
- [Kan98] A. P. Kanavin, I. V. Smetanin, V. A. Isakov, Yu. V. Afanasiev, B. N. Chichkov, B. Wellegehausen, S. Nolte, C. Momma und T. Tschentscher. *Heat transport in metals irradiated by ultrashort laser pulses*. Phys. Rev. B **57**, (1998) 14698.
- [Kas56] T. Kasuya. *A Theory of Metallic Ferro- and Antiferromagnetism on Zener's Model*. Prog. Theor. Phys. **16**, (1956) 45.
- [Kat86] K. Kato. *Second-harmonic generation to 2048 Å in  $\beta$ -Ba<sub>2</sub>O<sub>4</sub>*. IEEE Journal of Quantum Electronics **22**, (1986) 1013.
- [Kav84] M. Kaveh und N. Wisner. Adv. Phys. **33**, (1984) 257.
- [Kel91] U. Keller, G. W. t'Hooft, W. H. Knox und J. E. Cunningham. *Femtosecond pulses from a continuously self-starting passively mode-locked Ti:sapphire laser*. Opt. Lett. **16**, (1991) 1022.
- [Kev86] S. D. Kevan. *Direct measure of surface impurity scattering by angle-resolved photoemission*. Phys. Rev. B **33**, (1986) 4364.
- [Kin95] I. Kinoshita, A. Misu und T. Munataka. *Electronic excited state of NO adsorbed on Cu(111): A two-photon photoemission study*. J. Chem. Phys. **102**, (1995) 2970.
- [Kit96] Ch. Kittel. *Introduction to Solid State Physics*. John Wiley & Sons, 1996, 7. Aufl.
- [Kno97] Ernst Knoesel. *Ultrakurzzeit-Dynamik elektronischer Anregungen auf Metalloberflächen*. Dissertation, Freie Universität Berlin (1997).
- [Kno98] E. Knoesel, A. Hotzel und M. Wolf. *Ultrafast dynamics of hot electrons and holes in copper: Excitation, energy relaxation, and transport effects*. Phys. Rev. B **57**, (1998) 12812.
- [Kno00] R. Knorren, K. H. Bennemann, R. Burgermeister und M. Aeschlimann. *Dynamics of excited electrons in copper and ferromagnetic transition metals: Theory and experiment*. Phys. Rev. B **61**, (2000) 9427.
- [Kno01] R. Knorren, G. Bouzerar und K. H. Bennemann. *Theory for transport and temperature effects on two-photon photoemission: Application to Cu*. Phys. Rev. B **63**, (2001) 125122.

- [Koe70] W. C. Koehler, H. R. Child, R. M. Nicklow, H. G. Smith, R. M. Moon und J. W. Cable. *Spin-wave dispersion relations in gadolinium*. Phys. Rev. Lett. **24**, (1970) 16.
- [Koo00] B. Koopmans, M. van Kampen, J. T. Kohlhepp und W. J. M. de Jonge. *Ultrafast Magneto-Optics in Nickel: Magnetism or Optics?* Phys. Rev. Lett. **85**, (2000) 844.
- [Koo03] B. Koopmans. Laser-Induced Magnetization Dynamics. In B. Hillebrands und K. Ounadjela (Hg.), *Spin Dynamics in Confined Magnetic Structures II*, Bd. 87 von *Topics Appl. Phys.* Springer, Berlin Heidelberg, 2003 253.
- [Kre98] T. J. Kreutz, T. Greber, P. Aebi und J. Osterwalder. *Temperature-dependent electronic structure of nickel metal*. Phys. Rev. B **58**, (1998) 1300.
- [Kru05] O. Krupin, G. Bihlmayer, K. Starke, S. Gorovikov, J. E. Prieto, K. Döbrich, S. Blügel und G. Kaindl. *Rashba effect at magnetic metal surfaces*. Phys. Rev. B **71**, (2005) 1R.
- [Kur02] Ph. Kurz, G. Bihlmayer und S. Blügel. *Magnetism and electronic structure of hcp Gd and the Gd(0001) surface*. J. Phys.: Condens. Matter **14**, (2002) 6353.
- [Kur04] Ph. Kurz, G. Bihlmayer und S. Blügel. Energy position of Gd(0001) surface as function of interlayer relaxation. Private Mitteilung (2004).
- [Kus71] S. S. Kushwaha und A. Kumar. *An electron gas model for the lattice dynamics of lanthanides*. J. Phys. C: Solid St. Phys. **4**, (1971) 1674.
- [Leg80] S. Legvold. *Ferromagnetic Materials*, Bd. 1. North Holland, Amsterdam, 1980 .
- [Lei02] C. Lei, M. Bauer, K. Read, R. Tobey, Y. Liu, T. Popmintchev, M. M. Murnane und H. C. Kapteyn. *Hot-electron-driven charge transfer processes on O<sub>2</sub>/Pt(111) surface probed by ultrafast extreme-ultraviolet pulses*. Phys. Rev. B **66**, (2002) 245420.
- [Li93] Dongqi Li, J. Zhang, P. A. Dowben und M. Onellion. *Altering the Gd(0001) surface electronic structure with hydrogen adsorption*. Phys. Rev. B **48**, (1993) 5612.
- [Li94] Dongqi Li, P. A. Dowben, J. E. Ortega und F. J. Himpsel. *Unoccupied surface electronic structure of Gd(0001)*. Phys. Rev. B **49**, (1994) 7734.
- [Lin75] P.-A. Lindgård, B. N. Harmon und A. J. Freeman. *Theoretical Magnon Dispersion Curves for Gd*. Phys. Rev. Lett. **35**, (1975) 383.
- [Lis05] M. Lisowski, P. A. Loukakos, A. Melnikov, I. Radu, L. Ungureanu, M. Wolf und U. Bovensiepen. *Femtosecond Electron and Spin Dynamics in Gd(0001) Studied by Time-Resolved Photoemission and Magneto-optics*. Phys. Rev. Lett. **95**, (2005) 137402.

- [Lob01] Ahmed I. Lobad und Antoinette J. Taylor. *Coherent phonon generation mechanism in solids*. Phys. Rev. B **64**, (2001) 180301.
- [Lou83] R. Loudon. *Quantum Theory of Light*. Oxford University Press, New York, 1983.
- [Lug94] A. V. Lugovsky, T. Usmanov und A. V. Zinoviev. *Laser-induced non-equilibrium phenomena on a metal surface*. J. Phys. D: Appl. Phys. **27**, (1994) 628.
- [Mad78] O. Madelung. *Solid State Theory*. Springer, 1978 S. 175.
- [Mah70a] G. D. Mahan. *Angular Dependence of Photoemission in Metals*. Phys. Rev. Lett. **24**, (1970) 1068.
- [Mah70b] G. D. Mahan. *Theory of Photoemission in Simple Metals*. Phys. Rev. **B2**, (1970) 4334.
- [Mai02] K. Maiti, M. C. Malagoli, A. Dallmeyer und C. Carbone. *Finite Temperature Magnetism in Gd: Evidence against a Stoner Behavior*. Phys. Rev. Lett. **88**, (2002) 167205.
- [Mat98] R. Matzdorf. *Investigation of line shapes and line intensities by high-resolution UV-photoemission spectroscopy - Some case studies on noble-metal surfaces*. Surf. Sci. Rep. **30**, (1998) 153.
- [Mat99] E. Matthias und F. Träger. *Nonlinear Optics at Interfaces*. Appl. Phys. B **68**, (1999) 287.
- [Mau81] D. Mauri und M. Landolt. *4f-5d Resonant Scattering in Spin-Polarized Photoemission*. Phys. Rev. Lett. **47**, (1981) 1322.
- [McD95] B. A. McDougall, T. Balasubramanian und E. Jensen. *Phonon contribution to the quasiparticle lifetimes in Cu measured by angle-resolved photoemission*. Phys. Rev. B **51**, (1995) 13891.
- [McM68] W. L. McMillan. *Transition Temperature of Strong-Coupled Superconductors*. Phys. Rev. **167**, (1968) 331.
- [Mei82] F. Meier, D. Pescia und M. Baumberger. *Experimental Evidence for Spin Depolarization in Photoemission*. Phys. Rev. Lett. **49**, (1982) 747.
- [Mel02] A. Melnikov, O. Krupin, U. Bovensiepen, K. Starke, M. Wolf und E. Matthias. *SHG on ferromagnetic Gd films: indication of surface-state effects*. Appl. Phys. B **74**, (2002) 723.
- [Mel03] A. Melnikov, I. Radu, U. Bovensiepen, O. Krupin, K. Starke, E. Matthias und M. Wolf. *Coherent Optical Phonons and Parametrically Coupled Magnons Induced by Femtosecond Laser Excitation of the Gd(0001) Surface*. Phys. Rev. Lett. **91**, (2003) 227403.

- [Mel04] A. Melnikov, U. Bovensiepen, I. Radu, O. Krupin, K. Starke, E. Matthias und M. Wolf. *Picosecond magnetization dynamics of the Gd(0001) surface*. J. Magn. Mater. **272**, (2004) 1001.
- [Mer02] M. Mershdorf, C. Kennerknecht, K. Willig und W. Pfeiffer. *Transient electron energy distribution in supported Ag nanoparticles*. New J. Phys. **4**, (2002) 95.
- [Moo02] Gunnar Moos. *Zur Dynamik niederenergetischer Elektronen in metallischen Festkörpern*. Dissertation, Freie Universität Berlin (2002).
- [Mou92] P. F. Moulton. *Tunable Solid-state Lasers*. Proceedings of the IEEE **80**, (1992) 348.
- [Mul92] G. A. Mulhollan, K. Garrison und J. L. Erskine. *Surface Magnetism of Gd(0001): Evidence of Ferromagnetic Coupling to Bulk*. Phys. Rev. Lett. **69**, (1992) 3240.
- [Nis97] H. Nishino, W. Yang, Z. Dohnálek, V. A. Ukraintsev, W. J. Choyoke und J. T. Yates Jr. *Silicon crystal mounting and thermocouple mounting designs*. J. Vac. Sci. Technol. A **15**, (1997) 182.
- [Nol79] W. Nolting. Phys. Stat. Sol. (b) **96**, (1979) 11.
- [Nol95] Wolfgang Nolting. *Viel-Teilchen-Theorie*. Zimmermann-Neufang, Ulmen, 1995, 3. Aufl.
- [Ome00] Omega Engineering, Inc. *The Temperature Handbook*, 2. Aufl. (2000).
- [Pal85] Edward D. Palik (Hg.). *Handbook of optical Constants of Solids I*. Academic Press, London, 1985.
- [Pal91] Edward D. Palik (Hg.). *Handbook of optical Constants of Solids II*. Academic Press, London, 1991.
- [Pal98] Edward D. Palik (Hg.). *Handbook of optical Constants of Solids III*. Academic Press, San Diego, 1998.
- [Pan88] A. Pandian, S. V. Nagender Naidu und P. Rama Rao. J. Alloy. Phas. Diagr. **4**, (1988) 73.
- [Pau90] Oliver M. Paul. *Determination of energy-resolved inelastic mean free paths of electrons with spin-polarized secondary and Auger electron spectroscopy*. Dissertation, Eidgenössische Technische Hochschule Zürich (1990).
- [Ped02] K. Pedersen, Th. B. Kristensen, Th. G. Pedersen, Per Morgen, Zheshen Li und S. V. Hoffmann. *Optimum Cu buffer layer thickness for growth of metal overlayers on Si(111)*. Phys. Rev. B **66**, (2002) 153406.
- [Per00] A. Y. Perlov, S. V. Halilov und H. Eschrig. *Rare-earth magnetism and adiabatic magnon spectra*. Phys. Rev. B **61**, (2000) 4070.

- [Pet92] G. Petite, P. Agostini, R. Trainham, E. Mevel und P. Martin. *Origin of the high-energy electron emission from metals under laser irradiation*. Phys. Rev. B **45**, (1992) 12210.
- [Pet97] H. Petek und S. Ogawa. *Femtosecond Time-resolved Two-Photon Photoemission Studies of Electron Dynamics in Metals*. Prog. Surf. Sci. **56**, (1997) 239.
- [Pet99] H. Petek, H. Nagano und S. Ogawa. *Hot-electron dynamics in copper revisited: The d-band effect*. Appl. Phys. B **68**, (1999) 369.
- [Pet01] H. Petek, H. Nagano, M. J. Weida und S. Ogawa. *Surface Femtochemistry: Frustrated Desorption of Alkali Atoms from Noble Metals*. J. Phys. Chem. **105**, (2001) 6767.
- [Pfe95] G. Pfennig, H. Klewe-Nebenius und W. Seelmann-Eggebert. *Karlsruher Nuklidkarte*. Techn. Ber., Forschungszentrum Karlsruhe GmbH (1995).
- [Pin66] David Pines und Philippe Nozières. *The Theory of Quantum Liquids*, Bd. I. W. A. Benjamin, Inc., New, York, 1966.
- [Pri98] Gary A. Prinz. *Magnetoelectronics*. Science **282**, (1998) 1660.
- [Qui62] J. J. Quinn. *Range of Excited Electrons in Metals*. Phys. Rev. **126**, (1962) 1453.
- [Rao74] R. Ramji Rao und C. S. Menon. *Lattice dynamics, third order elastic constants and thermal expansion of gadolinium*. J. Phys. Chem. Solids **35**, (1974) 425.
- [Reh03] A. Rehbein, D. Wegner, G. Kaindl und A. Bauer. *Temperature dependence of lifetimes of Gd(0001) surface states*. Phys. Rev. B **67**, (2003) 033403.
- [Rei03] F. Reinert, B. Eltner, G. Nicolay, D. Ehm, S. Schmidt und S. HÃ¼fner. *Electron-Phonon Coupling and its Evidence in the Photoemission Spectra of Lead*. Phys. Rev. Lett. **91**, (2003) 186406.
- [Ret02] B. Rethfeld, A. Kaiser, M. Vicanek und G. Simon. *Ultrafast dynamics of nonequilibrium electrons in metals under femtosecond laser irradiation*. Phys. Rev. B **65**, (2002) 214303.
- [Rex99] S. Rex, V. Eyert und W. Nolting. *Temperature-dependent quasiparticle band-structure of ferromagnetic gadolinium*. J. Magn. Magn. Mater. **192**, (1999) 529.
- [Rhi03] H.-S. Rhie, H. A. Dürr und W. Eberhardt. *Femtosecond Electron and Spin Dynamics in Ni/W(110) Films*. Phys. Rev. Lett. **90**, (2003) 247201.
- [Ric18] O. W. Richardson. *A mechanical effect accompanying magnetization*. Phys. Rev. **26**, (1918) 248.
- [Rif93] D. M. Riffe, X. Y. Wang, M. C. Downer, D. L. Fisher, T. Tajima, J. L. Erskine und R. M. More. *Femtosecond thermionic emission from metals in the space-charge-limited regime*. J. Opt. Soc. Am. B **10**, (1993) 1424.

- [Rit65] R. H. Ritchie und J. C. Ashley. *The interaction of hot electrons with a free electron gas*. Journal of Physics and Chemistry of Solids **26**, (1965) 1689.
- [Roe75] L. W. Roeland, G. J. Cock, F. A. Muller, C. A. Moleman, K. A. M. Mc Ewen, R. C. Jordan und D. W. Jones. *Conduction electron polarization of gadolinium metal*. J. Phys. F **5**, (1975) L233.
- [Ros87] Giorgio Rossi. *d and f Metal Interface Formation on Silicon*. Surf. Sci. Rep. **7**, (1987) 1.
- [Rud54] M. A. Ruderman und C. Kittel. *Indirect Exchange Coupling of Nuclear Magnetic Moments by Conduction Electrons*. Phys. Rev. **96**, (1954) 99.
- [Sch59] R. E. Schlier und H. E. Farnsworth. *Structure and Adsorption Characteristics of Clean Surfaces of Germanium and Silicon*. J. Chem. Phys. **30**, (1959) 917.
- [Sch79] Goerge Schmidt. *Physics of High Temperature Plasmas*. Academic Press, 1979, 2. Aufl.
- [Sch81] H. Schober und P. H. Dederichs. *Phonon States of Elements. Electron States and Fermi Surfaces of Alloys*, Bd. III/13a von Landolt Börnstein New Series. Springer, Berlin, 1981 S. 130.
- [Sch87] R. W. Schoenlein, W. Z. Lin, J. G. Fujimoto und G. L. Eesley. *Femtosecond Studies of Nonequilibrium Electronic Processes in Metals*. Phys. Rev. Lett. **58**, (1987) 1680.
- [Sch93] H. Schlichting und D. Menzel. *Techniques for attainment, control, and calibration of cryogenic temperatures at small single-crystal samples under ultrahigh vacuum*. Rev. Sci. Instr. **64**, (1993) 2013.
- [Sch94] C. A. Schmuttenmaer, M. Aeschlimann, H. E. Elsayed-Ali und R. J. D. Miller. *Time-resolved two-photon photoemission from Cu(100): Energy dependence of electron relaxation*. Phys. Rev. B **50**, (1994) 8957.
- [Sch97] A. Scholl, L. Baumgarten, R. Jacquemin und W. Eberhardt. *Ultrafast Spin Dynamics of Ferromagnetic Thin Films Observed by fs Spin-Resolved Two-Photon Photoemission*. Phys. Rev. Lett. **79**, (1997) 5146.
- [Sch99] M. Schnürer, Z. Cheng, M. Hentschel, G. Tempa, P. Kálmán, T. Brabec und F. Krausz. *Absorption-Limited Generation of Coherent Ultrashort Soft-X-Ray Pulses*. Phys. Rev. Lett. **83**, (1999) 722.
- [Sch00] A. Schreyer, T. Schmitte, R. Siebrecht, P. Bödeker, H. Zabel, S. H. Lee, R. W. Erwin, C. F. Majkrzak, J. Kwo und M. Hong. *Neutron scattering on magnetic thin films: Pushing the limits*. Journal of Applied Physics **87**, (2000) 5443.
- [Sch03] W. Schattke und M. A. Van Hove (Hg.). *Solid-State Photoemission and Related Methods*. Wiley-VCH, 2003.

- [Sea79] M. P. Seah und W. A. Dench. *Quantitative Electron Spectroscopy of Surfaces: A Standard Data Base for Electron Inelastic Mean Free Paths in Solids*. Surf. Interface Anal. **1**, (1979) 2.
- [See22] T. J. Seebeck. *Magnetische Polarisation der Metalle und Erze durch Temperaturdifferenz*. Abhand. Deut. Akad. Wiss. (1822) 265.
- [Sei02a] A. P. Seitsonen. *Theoretical investigations into adsorption and co-adsorption on transition-metal surfaces as models to heterogeneous catalysis*. Dissertation, Technische Universität Berlin (2002).
- [Sei02b] Ari Paavo Seitsonen. *Theoretical Investigations into Adsorption and Co-Adsorption on Transition-Metal Surfaces as Models for Heterogeneous Catalysis*. Dissertation, Technische Universität Berlin (2002).
- [Sha99] J. Shah. *Ultrafast Spectroscopy of Semiconductors and Semiconductor Nanostructures*. Springer, Berlin, 1999, 2. Aufl.
- [She99] Y. R. Shen. *Surface contribution versus bulk contribution in surface nonlinear optical spectroscopy*. Appl. Phys. B **68**, (1999) 295.
- [Siw03] B.J. Siwick, J.R. Dwyer, R.E. Jordan und R.J.D. Miller. *An Atomic-Level View of Melting Using Femtosecond Electron*. Science **302**, (2003) 1382.
- [Skr90] H. L. Skriver und I. Mertig. *Electron-phonon coupling in the rare-earth metals*. Phys. Rev. B **41**, (1990) 6553.
- [Sme96] V. S. Smentkowski und J. T. Yates Jr. *Universal calibration of W5%Re vs W26%Re (type-C) thermocouples in the temperature range 32–2588 K*. J. Vac. Sci. Technol. A **14**, (1996) 260.
- [Smi93] N. V. Smith, P. Thiry und Y. Petroff. *Photoemission linewidths and quasiparticle lifetimes*. Phys. Rev. B **47**, (1993) 15476.
- [Son85] S. A. Sondhelm und R. C. Young. J. Phys. F: Met. Phys. **15**, (1985) L261.
- [Stö94] Horst Stöcker (Hg.). *Taschenbuch der Physik*. Harri Deutsch, Frankfurt am Main, 1994, 2. Aufl.
- [Stä04] Julia Stähler. *Korrelation zwischen Struktur und Elektronendynamik ultradünner Eisschichten auf Ru(001)*. Diplomarbeit, Freie Universität Berlin (2004).
- [Ste28] J. Q. Stewart. *The moment of momentum accompanying magnetic moment in iron and nickel*. Phys. Rev. **11**, (1928) 100.
- [Ste92] U. Stetter, M. Farle, K. Baberschke und W. G. Clark. Phys. Rev. B **45**, (1992) 503.

- [Ste02] T. E. Stevens, J. Kuhl und R. Merlin. *Coherent phonon generation and the two stimulated Raman tensors*. Phys. Rev. B **65**, (2002) 144304.
- [Str85] D. Strickland und G. Mourou. *Compression of amplified chirped optical pulses*. Opt. Commun. **56**, (1985) 219.
- [Str96] L. M. Struck, L. J. Richter, S. A. Buntin, R. R. Cavanagh und J. C. Stephenson. *Femtosecond Laser-Induced Desorption of CO from Cu(100): Comparison of Theory and Experiment*. Phys. Rev. Lett. **77**, (1996) 4576.
- [Sua95] C. Suarez, W. E. Bron und T. Juhasz. *Dynamics and Transport of Electronic Carriers in Thin Gold Films*. Phys. Rev. Lett. **75**, (1995) 4536.
- [Sun94] C.-K. Sun, F. Vallée, L. H. Acioli, E. P. Ippen und J. G. Fujimoto. *Femtosecond-tunable measurement of electron thermalization in gold*. Phys. Rev. B **50**, (1994) 15337.
- [Tel86] W. Telieps und E. Bauer. Phys. Chem. **90**, (1986) 197.
- [Thi87] P. A. Thiel und T. E. Madey. *The interaction of water with solid surfaces: fundamental aspects*. Surf. Sci. Rep. **7**, (1987) 211.
- [Tsa85] T.-W. E. Tsang, K. A. Gschneidner, Jr., F. A. Schmidt und D. K. Thome. *Low-temperature heat capacity of electrotransport-purified scandium, yttrium, gadolinium, and lutetium*. Phys. Rev. B **31**, (1985) 235.
- [Tur05] I. Turek, J. Kudrnovský, G. Bihlmayer und S. Blügel. *Ab initio theory of exchange interactions and the Curie temperature of bulk Gd*. J. Phys.: Condens. Matter .
- [Val99] T. Valla, A. V. Fedorov, P. D. Johnson und S. L. Hulbert. *Many-Body Effects in Angle-Resolved Photoemission: Quasiparticle Energy and Lifetime of a Mo(110) Surface State*. Phys. Rev. Lett. **83**, (1999) 2085.
- [Vat91] A. Vaterlaus, T. Beutler und F. Meier. *Spin-lattice relaxation time of ferromagnetic gadolinium determined with time-resolved spin-polarized photoemission*. Phys. Rev. Lett. **67**, (1991) 3314.
- [Vat92] A. Vaterlaus, T. Beutler, D. Guarisco, M. Lutz und F. Meier. *Spin-lattice relaxation in ferromagnets studied by time-resolved spin-polarized photoemission*. Phys. Rev. B **46**, (1992) 5280.
- [Vol03] R. Vollmer, M. Etzkorn, P. S. Anil Kumar, H. Ibach und 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**, (2003) 147201.
- [Von99] T. Vondrak und X.-Y. Zhu. *Two-Photon Photoemission Study of Heterogeneous Electron Transfer: C<sub>6</sub>F<sub>6</sub> on Cu(111)*. J. Phys. Chem. B **103**, (1999) 3449.



- [Wea81] J. H. Weaver, C. Krafka, D. W. Lynch und E. E. Koch (Hg.). *Physics Data - Optical Properties of Metals*. Fachinformationszentrum Karlsruhe, 1981.
- [Weg04] Daniel Wegner. *Rastertunnelspektroskopie an Lanthanidmetalloberflächen: korrelierte elektronische Struktur und Dynamik angeregter Zustände*. Dissertation, Freie Universität Berlin (2004).
- [Wes95] E. Weschke und G. Kaindl. *4f- and surface electronic structure of lanthanide metals*. J. Electron Spectr. Rel. Phenom. **75**, (1995) 233.
- [Wes96] E. Weschke, C. Schüssler-Langeheine, R. Meier, A. V. Fedorov, K. Starke, F. Hübinger und G. Kaindl. *Temperature Dependence of the Exchange Splitting of the Surface State on Gd(0001): Evidence against Spin-Mixing Behaviour*. Phys. Rev. Lett. **77**, (1996) 3415.
- [Wes97] E. Weschke, C. Schüßler-Langeheine, R. Meier, A. V. Fedorov, K. Starke, F. Hübinger und G. Kaindl. *Evidence for Stoner-like behaviour of the surface state on Gd(0001)*. Surf. Sci. **377**, (1997) 487.
- [Wol98] M. Wolf und M. Aeschlimann. *Femtosekunden-Dynamik in Metallen - Das kurze Leben heißer Elektronen*. Phys. Bl. **54**, (1998) 145.
- [Wol99] M. Wolf, A. Hotzel, E. Knoesel und D. Velic. *Direct and indirect excitation mechanisms in two-photon photoemission spectroscopy of Cu(111) and CO/Cu(111)*. Phys. Rev. B **59**, (1999) 5926.
- [Wol01] S. A. Wolf, D. D. Awschalom, R. A. Buhrman, J. M. Daughton, S. von Molnár, M. L. Roukes, A. Y. Chtchelkanova und D. M. Treger. *Spintronics: A Spin-Based Electronics Vision for the Future*. Science **294**, (2001) 1488.
- [Wu91] Ruqian Wu, Chun Li, A. J. Freeman und C. L. Fu. *Structural, electronic, and magnetic properties of rare-earth metal surfaces: hcp Gd(0001)*. Phys. Rev. B **44**, (1991) 9400.
- [Yan94] Y.-N. Yang und E. D. Williams. *High atom density in the "1 x 1" phase and origin of the metastable reconstructions on Si(111)*. Phys. Rev. Lett. **72**, (1994) 1862.
- [Yeh88] Pochi Yeh. *Optical Waves in Layered Media*. John Wiley & Sons, 1988 86.
- [Yos57] Kei Yosida. *Magnetic Properties of Cu-Mn Alloys*. Phys. Rev. **106**, (1957) 893.
- [Zei92] H. J. Zeiger, J. Vidal, T. K. Cheng, E. P. Ippen, G. Dresselhaus und M. S. Dresselhaus. *Theory for dispersive excitation of coherent phonons*. Phys. Rev. B **45**, (1992) 768.
- [Zha98] Z. H. Zhang, S. Hasegawa und S. Ino. *Epitaxial growth of Cu onto Si(111) surfaces at low temperature*. Surf. Sci. **415**, (1998) 363.

- [Zha00] G. P. Zhang und W. Hübner. *Laser-Induced Ultrafast Demagnetization in Ferromagnetic Metals*. Phys. Rev. Lett. **85**, (2000) 3025.
- [Zha02] G. Zhang, W. Hübner, E. Beaurepaire und J.-Y. Bigot. Laser-Induced Ultrafast Demagnetization: Femtomagnetism, a New Frontier? In B. Hillebrands und K. Ounadjela (Hg.), *Spin Dynamics in Confined Magnetic Structures I*, Bd. 83 von *Topics Appl. Phys.* Springer, Berlin Heidelberg, 2002 245.
- [Zho02] Q. Zhong, C. Gahl und M. Wolf. *Two-photon photoemission spectroscopy of pyridine adsorbed on Cu(111)*. Surf. Sci. **496**, (2002) 21.

## Eigene Publikationen

Veröffentlichungen im Rahmen dieser Arbeit:

- M. Lisowski, P. A. Loukakos, U. Bovensiepen, J. Stähler, C. Gahl und M. Wolf. *Ultrafast dynamics of electron thermalization, cooling and transport effects in Ru(001)*. Appl. Phys. A **78**, (2004) 165.
- M. Lisowski, P. A. Loukakos, U. Bovensiepen und M. Wolf. *Femtosecond dynamics and transport of optically excited electrons in epitaxial Cu films on Si(111)-7×7*. Appl. Phys. A **79**, (2004) 739.
- M. Lisowski, P. A. Loukakos, A. Melnikov, I. Radu, L. Ungureanu, M. Wolf und U. Bovensiepen. *Femtosecond Electron and Spin Dynamics in Gd(0001) Studied by Time-Resolved Photoemission and Magneto-optics*. Phys. Rev. Lett. **95**, (2005) 137402.

