

Literaturverzeichnis

- [1] GRÜNWARD, R. ; TRIBUTSCH, H.: Mechanisms of Instability in Ru-Based Dye Sensitization Solar Cells. *J. Phys. Chem. B* 101 (1997), S. 2564 – 2575
- [2] MACHT, B.: *Degradationsprozesse in Ru(bpca)₂(NCS)₂-sensibilisierten Farbstoffsolarzellen auf Titandioxidbasis*, Freie Universität Berlin, Dissertation, 2002
- [3] HORROCKS, B. R. ; MIRKIN, M. V. ; BARD, A. J.: Scanning Electrochemical Microscopy. 25) Application to Investigation of the Kinetics of Heterogenous Electron Transfer at Semiconductor (WSe₂ and Si) Electrodes. *J. Phys. Chem.* 98 (1994), Nr. 37, S. 9106 – 9114
- [4] MAEDA, H. ; IKEDA, K. ; HASHIMOTO, K. ; AJITO, K. ; MORITA, M ; FUJISHIMA, A.: Microscopic Observation of TiO₂ Photocatalysis Using Scanning Electrochemical Microscopy. *J. Phys. Chem. B* 103 (1999), S. 3213 – 3217
- [5] WILLIAMS, D. E. ; KUCERNAK, A. R. J. ; PEAT, R.: Photoelectrochemical Imaging - Part I. Background and Theory. *Electrochim. Acta* 38 (1993), Nr. 1, S. 57 – 69
- [6] RAZZINI, G. ; MAFFI, S. ; MUSSATI, G. ; BICELLI, L. P. ; MITSU, G.: Photo-Electrochemical Imaging of Hydrogen-Induced Damage in Stainless Steel. *Corr. Sci.* 39 (1997), Nr. 4, S. 613 – 625
- [7] BUTLER, M. A.: Photoelectrochemical Imaging. *J. Electrochem. Soc.* 131 (1984), Nr. 9, S. 2185 – 2191
- [8] PEAT, R. ; RILEY, A. ; WILLIAMS, D. E. ; PETER, L. M.: In Situ Photocurrent Imaging of Surface Heterogeneities during the Photocorrosion of n-GaAs at the Electrolyte Interface. *J. Electrochem. Soc.* 136 (1989), Nr. 11, S. 3352 – 3355
- [9] CHAPARRO, A. M. ; SALVADOR, P. ; MIR, A.: The scanning microscope for semiconductor characterization (SMSC): comparative study of the influence of surface defects on the photoelectrochemical behaviour of n-WSe₂ and n-MoSe₂ layered compounds. *J. Electroanal. Chem.* 411 (1996), S. 79 – 85
- [10] LEAMY, H. J.: Charge collection scanning electron microscopy. *J. Appl. Phys.* 53 (1982), Nr. 6, S. R51 – R86
- [11] LEWERENZ, H. J. ; FERRIS, S. D. ; DOHERTY, C. J. ; LEAMY, H. J.: Charge Collection Microscopy on p-WSe₂: Recombination Sites and Minority Carrier Diffusion Length. *J. Electrochem. Soc.* 128 (1982), Nr. 2, S. 418 – 423

- [12] GAVILANES PÉREZ, M. I. ; RUMBERG, A. ; SCHEER, R.: Charge Carrier Collection of Chalcopyrite Solar Cells at Grain Boundaries and Buried Junctions. *16th European Photovoltaic Solar Energy Conference* Bd. 1. Glasgow, UK : Stephens & Associates, 2000, S. 321 – 324
- [13] JIANG, C.-S. ; NAKAYAMA, T. ; AONO, M.: Anomalous electron tunneling through a Ag island on the GaAs(110) surface observed by the current image tunneling spectroscopy (CITS). *Appl. Surf. Sci.* 123/124 (1998), S. 166 – 170
- [14] HIESGEN, R. ; MEISSNER, D.: Nanoscale Semiconductor Interface Characterization by Photo-STM. *Adv. Mater.* 10 (1998), Nr. 8, S. 619 – 623
- [15] MATTHES, T.: *Photonenunterstützte Rastertunnelmikroskopie / Spektroskopie auf Halbleitern mit geringer Oberflächenzustandsdichte*, Universität Konstanz, Dissertation, 1998
- [16] MATTHES, Th. W. ; SOMMERHALTER, Ch. ; RETTENBERGER, A. ; BÖHMISCH, M. ; BONEBERG, J. ; LUX-STEINER, M. C. ; LEIDERER, P.: Investigation of photoinduced tunneling current and local surface photovoltage by STM. *Appl. Surf. Sci.* 123/124 (1998), S. 187 – 191
- [17] SOMMERHALTER, Ch. ; MATTHES, Th. W. ; BONEBERG, J. ; LUX-STEINER, M. C. ; LEIDERER, P.: Investigation of acceptors in p-Type WS₂ by standard and photo-assisted scanning tunneling microscopy / spectroscopy. *Appl. Surf. Sci.* 144-145 (1999), S. 564 – 569
- [18] DUNN, R. C.: Near-Field Scanning Optical Microscopy. *Chem. Rev.* 99 (1999), S. 2891 – 2927
- [19] DIESINGER, H. ; BSIESY, A. ; HERINO, R. ; HUANT, S.: Photocurrent mapping with submicron resolution on the silicon-electrolyte junction by using near-field optics. *J. Appl. Phys.* 89 (2001), S. 3328 – 3330
- [20] WEST, A. R.: *Grundlagen der Festkörperchemie*. 1. Auflage. Weinheim, New York, Cambridge, Basel : VCH Verlagsgesellschaft mbH, 1992
- [21] SZE, S. M.: *Physics of Semiconductor Devices*. 1. Auflage. New York, Chichester, Brisbane, Toronto, Singapore : Wiley & Sons Inc., 1981
- [22] GEHRTSEN, C. ; KNESER, H. O. ; VOGEL, H.: *Physik: Ein Lehrbuch zum Gebrauch neben Vorlesungen*. 16. Auflage. Berlin, Heidelberg, New York, London, Paris : Springer-Verlag, 1989
- [23] BARROW, M. G.: *Physikalische Chemie Gesamtausgabe*. Bd. Teilband II. 5. Auflage. Braunschweig, Wiesbaden : Vieweg & Sohn, 1984
- [24] IBACH, H. ; LÜTH, H.: *Festkörperphysik: Einführung in die Grundlagen*. 3. Auflage. Berlin, Heidelberg, New York : Springer Verlag, 1990
- [25] LEWERENZ, H. J. ; JUNGBLUT, H.: *Photovoltaik Grundlagen und Anwendungen*. 1. Auflage. Berlin, Heidelberg : Springer Verlag, 1995

-
- [26] MAYER-KUCKUK, T.: *Atomphysik, Eine Einführung*. 3. Auflage. Stuttgart : Teubner, 1985 (Teubner Studienbücher: Physik)
- [27] GOETZBERGER, A. ; VOSS, B. ; KNOBLOCH, J.: *Sonnenenergie: Photovoltaik*. 2. Auflage. Stuttgart : Teubner-Studienbücher, 1997
- [28] LIDE, D. R.: *CRC Handbook of Chemistry and Physics*. 72th Edition. Boca Raton, Ann Arbor, Boston : CRC Press, 1992
- [29] VETTER, K. J.: *Elektrochemische Kinetik*. 1. Auflage. Berlin, Göttingen, Heidelberg : Springer-Verlag, 1961
- [30] WÜRFEL, P.: *Physik der Solarzellen*. 1. Auflage. Heidelberg, Berlin, Oxford : Spektrum Akademischer Verlag, 1995
- [31] SCHRODER, D. K.: *Semiconductor Material and Device Characterization*. 1. Auflage. New York, Chichester, Brisbane, Toronto, Singapore : Wiley & Sons Inc., 1990
- [32] HAMANN, C. H. ; VIELSTICH, W.: *Elektrochemie*. 3. Auflage. Weinheim, New York, Chichester : Wiley-VCH, 1998
- [33] BARD, A. J. ; FAULKNER, L. R.: *Electrochemical Methods: Fundamentals and Applications*. 2. Auflage. New York, Chichester, Weinheim, Brisbane, Singapore, Toronto : John Wiley & Sons, Inc., 2001
- [34] PLESKOV, Y. V. ; GUREVICH, Y. Y.: *Semiconductor Photoelectrochemistry*. 1. Auflage. New York and London : Consultants Bureau, 1986
- [35] KOVAL, C. A. ; HOWARD, J. N.: Electron Transfer at Semiconductor Electrode - Liquid Electrolyte Interfaces. *Chem. Rev.* 92 (1992), S. 411 – 433
- [36] NOZIK, A. J.: Photoelectrochemical cells. *Phil. Trans. R. Soc. Lond. A* 295 (1980), S. 453 – 470
- [37] GERISCHER, H.: The Impact of Semiconductors on the Concepts of Electrochemistry. *Electrochim. Acta* 35 (1990), S. 1677 – 1699
- [38] HELLER, A.: Conversion of Sunlight into Electrical Power and Photoassisted Electrolysis of Water in Photoelectrochemical Cells. *Acc. Chem. Res.* 14 (1981), S. 154 – 162
- [39] VAN DER PAUW, L. J.: A Method of Measuring the Resistivity and Hall Effect of Discs of Arbitrary Shape. *Phil. Res. Rep.* 13 (1958), S. 1 – 9
- [40] VAN DER PAUW, L. J.: A Method of Measuring the Resistivity and Hall Effect on Lamellae of Arbitrary Shape. *Phil. Tech. Rev.* 20 (1958), S. 220 – 224
- [41] GOBRECHT, H.: *Bergmann-Schäfer: Lehrbuch der Experimentalphysik*. Bd. II: Elektrizität und Magnetismus. 6. Auflage. Berlin, New York : de Gruyter, 1971

- [42] HECHT, E.: *Optik*. 1. Auflage. München, New York, Amsterdam, Tokyo : Addison-Wesley (Deutschland), 1989
- [43] MACHT, B. ; TURRIÓN, M. ; BARKSCHAT, A. ; SALVADOR, P. ; ELLMER, K. ; TRIBUTSCH, H.: Patterns of efficiency and degradation in dye sensitization solar cells measured with imaging techniques. *Sol. Energy Mater. Sol. Cells* 73 (2002), S. 163–173
- [44] HAGEN, A. ; BARKSCHAT, A. ; DOHRMANN, J. K. ; TRIBUTSCH, H.: Imaging UV photoactivity and photocatalysis of TiO₂-films. *Sol. Energy Mater. Sol. Cells* 77 (2003), S. 1–13
- [45] BARKSCHAT, A. ; MOEHL, T. ; MACHT, B. ; TRIBUTSCH, H.: Stability and Reactivity of Sensitizer Molecules in Nanocrystalline (TiO₂, ZnO) Solar Cells. *Phys. Chem. Chem. Phys.* eingereicht (2003)
- [46] CHAPARRO, A. M. ; SALVADOR, P. ; MIR, A.: The scanning microscope for semiconductor characterization: photocurrent, photovoltage and electrolyte electroreflectance imaging at the n-MoSe₂/I⁻ interface. *J. Electroanal. Chem.* 424 (1997), S. 153 – 157
- [47] TURRIÓN, M. ; MACHT, B. ; SALVADOR, P. ; TRIBUTSCH, H.: Imaging Techniques for the Study of Photodegradation of Dye Sensitization Cells. *Z. Phys. Chem.* 212 (1999), S. 51 – 57
- [48] BARKSCHAT, A.: *Photoelektrochemische Abscheidung von Platin an p-Indiumphosphid und Untersuchungen mit der optischen Scanning-Mikroskopie (SMSC)*, Freie Universität Berlin, Diplomarbeit, 1998
- [49] BARKSCHAT, A. ; DOHRMANN, J. K. ; TRIBUTSCH, H.: Imaging of catalytic activity of platinum on p-InP for photocathodical hydrogen evolution. *Sol. Energy Mater. Sol. Cells* 80 (2003), S. 391 – 403
- [50] BARKSCHAT, A. ; POHLMANN, L. ; DOHRMANN, J. K. ; TRIBUTSCH, H.: Photoelectrochemically induced periodical deposition patterns of platinum on p-InP. Part 1: experiment and observations. *Phys. Chem. Chem. Phys.* 5 (2003), S. 1259 – 1263
- [51] HULL, D. M. ; STEWART, A.: Laserbeam Profiles - Principles and Definitions. *Lasers & Applications* 4 (1985), S. 75 – 80
- [52] SCHRECK, E. ; HILLER, B. ; SINGH, G. P.: Calibration of micron-size thermocouples for measurements of surface temperature. *Rev. Sci. Instrum.* 64 (1993), Nr. 1, S. 218 – 220
- [53] STIJNS, E.: Measuring the Spot Size of a Gaussian Beam with an Oscillating Wire. *IEEE Journal of Quantum Electronics* QE-16 (1980), S. 1298 – 1299
- [54] SZIRÁNYI, T. ; BARCZIKAY, P. ; KOVÁCS, T.: Measurement theory of laser-beam diameter of about 1 μm by moving CCD sensor. *International Journal of Optoelectronics* 3 (1988), Nr. 2, S. 187 – 194

-
- [55] KIMURA, S. ; MUNAKATA, C.: Measurement of a Gaussian laser beam spot size using a boundary diffraction wave. *Appl. Optics* 27 (1988), Nr. 1, S. 84 – 88
- [56] SUZAKI, Y. ; TACHIBANA, A.: Measurement of the μm Sized Radius of a Gaussian Laser Beam Using the Scanning Knife-Edge. *Appl. Optics* 14 (1975), S. 2809 – 2810
- [57] FIRESTER, A. H. ; HELLER, M. E. ; SHENG, P.: Knife-Edge Scanning Measurements of Subwavelength Focused Light Beams. *Appl. Optics* 16 (1977), S. 1971 – 1974
- [58] POCE-FATOU, J. A. ; MARTÍN, J. ; ALÁNTARA, R. ; FERNÁNDEZ-LORENZO, C.: A precision method for laser focusing on laser beam induced current experiments. *Rev. Sci. Instrum.* 73 (2002), Nr. 11, S. 3895 – 3900
- [59] MAFFI, S. ; LENARDI, C. ; BOZZINI, B. ; BICELLI, L. P.: Photoelectrochemical imaging of non-planar surfaces: the influence of geometrical and optical factors on image formation. *Meas. Sci. Technol.* 13 (2002), S. 1398 – 1403
- [60] JENKINS, F. A. ; WHITE, H. E.: *Fundamentals of Optics*. 3. Auflage. New York : McGraw-Hill Book Company Inc., 1957
- [61] KLEBER, W.: *Einführung in die Kristallographie*. 12. Auflage. Berlin : VEB Verlag Technik, 1977
- [62] FALBE, J. (Hrsg.) ; REGITZ, M. (Hrsg.): *Römpp Chemie Lexikon*. 9. Auflage, Paperback-Ausgabe. Stuttgart, New York : Georg Thieme Verlag, 1995
- [63] MUSIOL, G. ; RANFT, J. ; REIF, R. ; SEELIGER, D.: *Kern- und Elementarteilchenphysik*. 1. Auflage. Weinheim, New York, Cambridge, Basel : VCH Verlagsgesellschaft, 1988
- [64] JAKUBKE, H.-D. ; JESCHKEIT, H.: *Brockhaus ABC: Chemie*. 5. Auflage. Leipzig : F. A. Brockhaus Verlag, 1987
- [65] ENGELHARDT, E.: *Hochdruck-Flüssigkeits-Chromatographie*. 1. Auflage. Berlin, Heidelberg, New York : Springer-Verlag, 1975 (Anleitungen für die chemische Laboratoriumspraxis Band XIV)
- [66] REDDINGTON, E. ; SAPIENZA, A. ; GURAU, B. ; VISWANATHAN, R. ; SARANGAPANI, S. ; SMOTKIN, E. ; MALLOUK, T. E.: Combinatorial Electrochemistry: A Highly Parallel, Optical Screening Method for Discovery of Better Electrocatalysts. *Science* 280 (1998), S. 1735 – 1737
- [67] BEIN, T.: Effiziente Assays für kombinatorische Methoden zur Entdeckung von Katalysatoren. *Angew. Chem.* 111 (1999), S. 335 – 338
- [68] SCHLÖGL, R.: Kombinatorische Chemie in der heterogenen Katalyse: ein neuer wissenschaftlicher Ansatz oder „des Kaisers neue Kleider“ ? *Angew. Chem.* 110 (1998), S. 2467 – 2470
- [69] REETZ, M. T.: Kombinatorische und evolutionsgesteuerte Methoden zur Bildung enantioselektiver Katalysatoren. *Angew. Chem.* 113 (2001), S. 292 – 320

- [70] WILSON, J. A. ; YOFFE, A. D.: The Transition Metal Dichalcogenides, Discussion and Interpretation of the Observed Optical, Electrical and Structural Properties. *Adv. Phys.* 18 (1969), S. 193 – 335
- [71] ALLRED, A. L.: Electronegativity Values from Thermochemical Data. *J. Inorgan. Nucl. Chem.* 17 (1961), S. 215 – 221
- [72] MCWEENY, R.: *Coulsons Chemische Bindung*. 2. Auflage. Stuttgart : Hirzel Verlag, 1984
- [73] HIND, S. P. ; LEE, P. M.: KKR calculations of the energy bands in NbSe₂, MoS₂ and α - MoTe₂. *J. Phys. C* 13 (1980), S. 349 – 357
- [74] GOODENOUGH, J. B. ; RAMASESHA, S. K.: Physik der nicht tetraedrisch gebundenen binären Verbindungen III. MADELUNG, O. (Hrsg.) ; SCHULZ, M. (Hrsg.) ; WEISS, H. (Hrsg.): *Landolt-Börnstein, Neue Serie* Bd. 17g. Berlin, Heidelberg, New York, Tokyo : Springer Verlag, 1984, S. 601
- [75] JÄGERMANN, W.: Surface Studies of Layered Materials in Relation to Energy Converting Interfaces. ARUCHAMY, A. (Hrsg.): *Photoelectrochemistry and Photovoltaics of Layered Semiconductors*. 1. Auflage. Dordrecht, Boston, London : Kluwer Academic Publishers, 1992, S. 195 – 295
- [76] MISAWA ; KANEMATSU: Physik der nicht tetraedrisch gebundenen binären Verbindungen III. MADELUNG, O. (Hrsg.) ; SCHULZ, M. (Hrsg.) ; WEISS, H. (Hrsg.): *Landolt-Börnstein, Neue Serie III* Bd. 19c. Berlin, Heidelberg, New York, Tokyo : Springer Verlag, 1984, S. 273
- [77] WIBERG, N.: *Hollemann-Wiberg: Lehrbuch der Anorganischen Chemie*. 91. - 100. Auflage. Berlin, New York : de Gruyter, 1985
- [78] GOODENOUGH, J. B. ; RAMASESHA, S. K.: Physik der nicht tetraedrisch gebundenen binären Verbindungen III. MADELUNG, O. (Hrsg.) ; SCHULZ, M. (Hrsg.) ; WEISS, H. (Hrsg.): *Landolt-Börnstein, Neue Serie* Bd. 17g. Berlin, Heidelberg, New York, Tokyo : Springer Verlag, 1984, S. 299 – 301
- [79] AL-HILLI, A. A. ; EVANS, B. L.: The Preparation and Properties of Transition Metal Dichalcogenide Single Crystals. *J. Cryst. Growth* 15 (1972), S. 93 – 101
- [80] SCHNEEMEYER, L. F. ; SIENKO, M. J.: Crystal Data for Mixed-Anion Molybdenum Dichalcogenides. *Inorg. Chem.* 19 (1980), S. 789 – 791
- [81] MENTZEN, B. F. ; SIENKO, M. J.: Preparation and X-Ray Study of Mixed-Anion Tungsten Dichalcogenides. *Inorg. Chem.* 15 (1976), S. 2198 – 2202
- [82] AGARWAL, M. K. ; PATEL, P. D. ; TALELE, L. T. ; LAXMINARAYANA, D.: Optical Band Gaps of Molybdenum Sulphoselenide (MoS_xSe_(2-x)) 0 < x < 2) Single Crystals from Spectral Response. *Phys. Stat. Sol. (a)* 90 (1985), S. K107 – K 111

-
- [83] AGARWAL, M. K. ; PATEL, P. D. ; VIJAYAN, O.: Electrical Studies on (Mo/W)Se₂ Single Crystals: III. Anisotropy in Resistivity. *Phys. Stat. Sol. (a)* 78 (1983), S. 103 – 108
- [84] AGARWAL, M. K. ; YOUSEFI, G. H.: Electrical transport properties of mixed transition metal dichalcogenide single crystals. *J. Mater. Sci. Lett.* 9 (1990), S. 686 – 687
- [85] BOCKRATH, B. C. ; PARFITT, D. S.: Exfoliated MoS₂ catalysts in coal liquefaction. *Catalysis Letters* 33 (1995), S. 201 – 207
- [86] BOCKRATH, B. C. ; PARFITT, D. S.: Application of exfoliation techniques to the preparation of MoS₂ liquefaction catalysts. PAJARES, J. A. (Hrsg.) ; TASCÓN, J.M.D. (Hrsg.): *Coal Science*. 1. Auflage. Elsevier Science B. V., 1995, S. 1343 – 1346
- [87] DESHPANDE, M. P. ; GUPTA, S. K. ; AGARWAL, A. ; AGARWAL, M. K.: Transport and optical property measurements in indium intercalated molybdenum diselenide single crystals grown by DVT technique. *Synth. Met.* 123 (2001), S. 73 – 81
- [88] DESHPANDE, M. P. ; SOLANKI, G. K. ; AGARWAL, M. K.: Optical band gap in tungsten diselenide single crystals intercalated by indium. *Mater. Lett.* 43 (2000), S. 66 – 72
- [89] EL-MAHALAWY, S. H. ; EVANS, B. L.: Temperature Dependence of the Electrical Conductivity and Hall Coefficient in 2H-MoS₂, MoSe₂, WSe₂ and MoTe₂. *Phys. Stat. Sol. (b)* 79 (1977), S. 713 – 722
- [90] MCEVOY, A. J.: An Intercalation and Photointercalation Reaction of WSe₂. *J. Electroanal. Chem.* 195 (1985), S. 207 – 211
- [91] MCEVOY, A. J. ; ETMAN, M. ; MEMMING, R.: Interface Charging and Intercalation Effects on d-Band Transition Metal Diselenide Photoelectrodes. *J. Electroanal. Chem.* 190 (1985), S. 225 – 241
- [92] LIANG, W. Y.: Optical anisotropy in layer compounds. *J. Phys. C* 6 (1973), S. 551 – 565
- [93] LEWERENZ, H. J. ; HELLER, A. ; DISALVO, F. J.: Relationship between Surface Morphology and Solar Conversion Efficiency of WSe₂ Photoanodes. *J. Am. Chem. Soc.* 102 (1980), Nr. 6, S. 1877 – 1880
- [94] LEWERENZ, H. J. ; HELLER, A. ; LEAMY, H. J. ; FERRIS, S. D.: Carrier Recombination at Steps in Surfaces of Layered Compound Photoelectrodes. NOZIK, A. J. (Hrsg.): *Photoeffects at Semiconductor-Electrolyte Interfaces* Bd. 146. 1. Auflage. Washington DC : American Chemical Society, 1981, S. 17 – 35
- [95] MATTHEISS: Band Structures of Transition-Metal-Dichalcogenide Layer Compounds. *Phys. Rev. B* 8 (1973), Nr. 8, S. 3719 – 3740

- [96] TRIBUTSCH, H.: Electronic Structure, Coordination Photoelectrochemical Pathways and Quantum Energy Conversion by Layered Transition Metal Chalcogenides. ARUCHAMY, A. (Hrsg.): *Photoelectrochemistry and Photovoltaics of Layered Semiconductors*. 1. Auflage. Dordrecht, Boston, London : Kluwer Academic Publishers, 1992, S. 83 – 119
- [97] FONVILLE, R. M. M. ; GEERTSMA, W. ; HAAS, C.: On the Nature of the Top of the Valence Band in Layered Mo and W Dichalcogenides. *Phys. Stat. Sol. (b)* 85 (1978), S. 621 – 627
- [98] WILLIAMS, P. M. ; SHEPHERD, F. R.: He II photoemission studies of transition metal dichalcogenides. *J. Phys. C* 6 (1973), S. L36 – L40
- [99] TRIBUTSCH, H.: Layer-Type Transition Metal Dichalcogenides - a New Class of Electrodes for Electrochemical Solar Cells. *Ber. Bunsenges. Phys. Chem.* 81 (1977), S. 361 – 369
- [100] TRIBUTSCH, H. ; BENNET, J. C.: Electrochemistry and Photoelectrochemistry of MoS₂ Layer Crystals. I. *J. Electroanal. Chem.* 81 (1977), S. 97 – 111
- [101] LEWERENZ, H. J. ; GERISCHER, H. ; LÜBKE, M.: Photoelectrochemistry of WSe₂ Electrodes. *J. Electrochem. Soc.* 131 (1984), Nr. 1, S. 100 – 104
- [102] KAUTEK, W. ; GERISCHER, H. ; TRIBUTSCH, H.: The Role of Surface Orientation in the Photoelectrochemical Behaviour of Layer Type d-Band Semiconductors. *Ber. Bunsenges. Phys. Chem.* 83 (1979), S. 1000 – 1008
- [103] CLARK, A. ; WILLIAMS, R. H.: The optical absorption properties of synthetic MoS₂. *J. Phys. D* 1 (1968), S. 1222 – 1224
- [104] TRIBUTSCH, H. ; GERISCHER, H. ; CLEMEN, C. ; BUCHER, E.: On the Photopotential Output of Electrochemical Solar Cells Based on Layer-Type d-Band Semiconductors. *Ber. Bunsenges. Phys. Chem.* 83 (1979), S. 655 – 658
- [105] BERGMANN, H. ; CZESKA, B. ; HAAS, I. ; KATSCHEK, H. ; MOHSIN, B. ; WANDNER, K.-H.: Compounds with S, Se. KATSCHEK, H. (Hrsg.): *Gmelin Handbook of Inorganic and Organometallic Chemistry* Bd. Molybdenum Suppl. B 8. 8. Auflage. Berlin, Heidelberg, New York : Springer Verlag, 1995
- [106] FORTIN, E. ; SEARS, W. M.: Photovoltaic Effect and Optical Absorption in MoS₂. *J. Phys. Chem. Solids* 43 (1982), Nr. 9, S. 881 – 884
- [107] PRAMANIK, P. ; BHATTACHARYA, S.: Deposition of Molybdenum Chalcogenide Thin Films by the Chemical Deposition Technique and the Effect of Bath Parameters on these Thin Films. *Mat. Res. Bull.* 25 (1990), S. 15 – 23
- [108] CABRERA, C. R. ; ABRUÑA, H. D.: Synthesis and Photoelectrochemistry of Polycrystalline Films of p-WSe₂, p-WS₂ and p-MoSe₂. *J. Electrochem. Soc.* 135 (1988), Nr. 6, S. 1436 – 1442

-
- [109] TONTI, D. ; VARSANO, F. ; DECKER, F. ; BALLIF, C. ; REGULA, M. ; REMSKAR, M.: Preparation and Photoelectrochemistry of Semiconducting WS₂ Thin Films. *J. Phys. Chem. B* 101 (1997), S. 2485 – 2490
- [110] AGARWAL, M. K. ; RAO, V. V. ; PATHAK, V. M.: Growth of n-Type and p-Type WSe₂ Crystals using SeCl₄ Transporter and Their Characterization. *J. Cryst. Growth* 97 (1989), S. 675 – 679
- [111] GOBRECHT, J. ; GERISCHER, H. ; TRIBUTSCH, H.: Electrochemical Solar Cell Based on the d-Band Semiconductor Tungsten-Diselenide. *Ber. Bunsenges. Phys. Chem.* 82 (1978), S. 1331
- [112] BERGMANN, H. ; CZESKA, B. ; HAAS, I. ; KATSCHER, H. ; MOHSIN, B. ; WANDNER, K.-H.: Compounds with S. KATSCHER, H. (Hrsg.): *Gmelin Handbook of Inorganic and Organometallic Chemistry* Bd. Molybdenum Suppl. B 7. 8. Auflage. Berlin, Heidelberg, New York : Springer Verlag, 1992
- [113] JEHN, H. ; BÄR, G. ; BEST, E. ; KOCH, E.: Metal, Chemical Reactions with Nonmetals Nitrogen to Arsenic. VON JOUANNE, J. (Hrsg.) ; KOCH, E. (Hrsg.): *Gmelin Handbook of Inorganic and Organometallic Chemistry* Bd. Tungsten Suppl. A 5b. 8. Auflage. Berlin, Heidelberg, New York : Springer Verlag, 1993
- [114] BUCHER, E.: Photovoltaic Properties of Solid State Junctions of Layered Semiconductors. ARUCHAMY, A. (Hrsg.): *Photoelectrochemistry and Photovoltaics of Layered Semiconductors*. 1. Auflage. Dordrecht, Boston, London : Kluwer Academic Publishers, 1992, S. 1 – 82
- [115] SCHÄFER, H.: *Chemische Transportreaktionen*. 1. Auflage. Weinheim : Verlag Chemie, 1962 (Monographien zu „Angewandte Chemie“ und „Chemie-Ingenieur-Technik“ Nummer 76)
- [116] BAGLIO, J. A. ; KAMIENIECKI, E. ; DECOLA, N. ; STRUCK, C.: Growth and Characterization of n-WS₂ and Niobium-Doped p-WS₂ Single Crystals. *J. Solid State Chem.* 49 (1983), S. 166 – 179
- [117] BAGLIO, J. A. ; CALABRESE, G. S. ; KAMIENIECKI, E. ; KERSHAW, R. ; KUBIAK, C. P. ; RICCO, A. J. ; WOLD, A. ; WRIGHTON, M. S. ; ZOSKI, G. D.: Characterization of n-Type Semiconducting Tungsten Disulfide Photoanodes in Aqueous and Nonaqueous Electrolyte Solutions. Photooxidation of Halides with High Efficiency. *J. Electrochem. Soc.* 129 (1982), Nr. 7, S. 1461 – 1472
- [118] SPÄH, R. ; ELROD, U. ; LUX-STEINER, M. ; BUCHER, E.: pn junctions in tungsten diselenide. *Appl. Phys. Lett.* 43 (1983), S. 79 – 81
- [119] VÖGT, M. ; LUX-STEINER, M. ; DOLATZOGLOU, P. ; REETZ, W. ; BUMÜLLER, B. ; BUCHER, E.: Improvements of WSe₂ Solar Cells by Doping ? 21th IEEE Photovoltaic Specialists Conference. New York, USA : IEEE, 1990 (PVSC), S. 519 – 524
-

- [120] UPADHYAYULA, L. C. ; LOFERSKI, J. J. ; WOLD, A. ; GIRIAT, W. ; KERSHAW, R.: Semiconducting Properties of Single Crystals of n- and p-Type Tungsten Diselenide (WSe₂). *J. Appl. Phys.* 39 (1968), Nr. 10, S. 4736 – 4740
- [121] LEMON, K. S. ; JAKOVIDIS, G. ; SINGH, A. ; TAHERI, E. H.: Production of Large Scale Polycrystalline MoS₂ Films. *Phys. Stat. Sol. (a)* 179 (2000), S. 329 – 335
- [122] PONOMAREV, E. A. ; NEUMANN-SPALLART, M. ; HODES, G. ; LÉVY-CLÉMENT, C.: Electrochemical Deposition of MoS₂ thin Films by reduction of tetrathiomolybdate. *Thin Solid Films* 280 (1996), S. 86 – 89
- [123] PONOMAREV, E. A. ; TENNE, R. ; KATTY, A. ; LÉVY-CLÉMENT, C.: Highly oriented photoactive polycrystalline MoS₂ layers obtained from electrochemically deposited thin films. *Sol. Energy Mater. Sol. Cells* 52 (1998), S. 125 – 133
- [124] RAY, S. C.: Structure and optical properties of molybdenum disulphide (MoS₂) thin film deposited by the dip technique. *J. Mater. Sci. Lett.* 19 (2000), S. 803 – 804
- [125] CHATZITHEODOROU, G. ; FIECHTER, S. ; KUNST, M. ; LUCK, J. ; TRIBUTSCH, H.: Low Temperature Chemical Preparation of Semiconducting Transition Metal Chalcogenide Films for Energy Conversion and Storage, Lubrification and Surface Protection. *Mat. Res. Bull.* 23 (1988), S. 1261 – 1271
- [126] GOURMELON, E. ; BERNÈDE, J. C. ; POUZET, J. ; MARSILLAC, S.: Textured MoS₂ thin films obtained on tungsten: Electrical properties of the W/MoS₂ contact. *J. Appl. Phys.* 87 (2000), Nr. 3, S. 1182 – 1186
- [127] TENNE, R. ; GALUN, E. ; ENNAOUI, A. ; FIECHTER, S. ; ELLMER, K. ; KUNST, M. ; KOELZOW, Ch. ; PETTENKOFER, Ch. ; TIEFENBACHER, S. ; SCHEER, R. ; JUNGBLUT, H. ; JAEGERMANN, W.: Characterization of oriented thin films of WSe₂ grown by van der Waals rheotaxy. *Thin Solid Films* 272 (1996), S. 38 – 42
- [128] GINLEY, D. S. ; BIEFELD, R. M.: Polycrystalline WSe₂ Photoelectrodes. *J. Electrochem. Soc.* 129 (1982), Nr. 1, S. 145 – 148
- [129] TRIBUTSCH, H.: Hole Reactions from d-Energy Bands of Layer Type Group VI Metal Dichalcogenides: New Perspectives for Electrochemical Solar Energy Conversion. *J. Electrochem. Soc.* 125 (1978), Nr. 7, S. 1086 – 1092
- [130] TRIBUTSCH, H.: Electrochemical Solar Cells Based on Layer-Type Transition Metal Compounds: Performance of Electrode Material. *Solar Energy Mater.* 1 (1979), S. 257 – 269
- [131] AUDAS, R. ; IRWIN, J. C.: Investigation of the performance of an MoS₂ | I⁻/I₂ | C electrochemical solar cell. *J. Appl. Phys.* 52 (1981), Nr. 11, S. 6954 – 6960
- [132] FAN, F. F. ; WHITE, H. S. ; WHEELER, B. L. ; BARD, A. J.: Semiconductor Electrodes. 31. Photoelectrochemistry and Photovoltaic Systems with n- and p-Type WSe₂ in Aqueous Solution. *J. Am. Chem. Soc.* 102 (1980), S. 5142 – 5148

-
- [133] MENEZES, S. ; SCHNEEMEYER, L. F. ; LEWERENZ, H. J.: Efficiency Losses from Carrier-type Inhomogeneity in WSe₂ Electrodes. *Appl. Phys. Lett.* 38 (1981), Nr. 11, S. 949
- [134] KLINE, G. ; KAM, K. ; CANFIELD, D. ; PARKINSON, B. A.: Efficient and Stable Photoelectrochemical Cells Constructed with WSe₂ and MoSe₂ Photoanodes. *Sol. Energy Mater. Sol. Cells* 4 (1981), S. 301 – 308
- [135] BAGLIO, J. A. ; CALABRESE, G. S. ; HARRISON, D. J. ; KAMIENIECKI, E. ; RICCO, A. J. ; WRIGHTON, M. S. ; ZOSKI, G. D.: Electrochemical Characterization of p-Type Semiconducting Tungsten Disulfide Photocathodes: Efficient Photoreduction Processes at Semiconductor / Liquid Electrolyte Interfaces. *J. Am. Chem. Soc.* 105 (1983), S. 2246 – 2256
- [136] HELLER, A.: Chemical Control of Surface and Grain Boundary Recombination in Semiconductors. NOZIK, A. J. (Hrsg.): *Photoeffects at Semiconductor-Electrolyte Interfaces* Bd. 146. 1. Auflage. Washington DC : American Chemical Society, 1981, S. 57 – 77
- [137] PARKINSON, B. A. ; FURTAK, T. E. ; CANFIELD, D. ; KAN, K.-K. ; KLINE, G.: Evaluation and Reduction of Efficiency Losses at Tungsten Diselenide Photoanodes. *Faraday Discuss. Chem. Soc.* 70 (1980), S. 233 – 245
- [138] RAZZINI, G. ; BICELLI, L. P. ; PINI, G. ; SCROSATI, B.: Electrochemical Solar Cells with Layer-Type Semiconductor Anodes: Chemical Treatments of the Crystal Surface. *J. Electrochem. Soc.* 128 (1981), Nr. 10, S. 2135
- [139] BICELLI, L. P. ; RAZZINI, G.: Surface Defects on n-MoSe₂ Electrodes Used in Photoelectrochemical Solar Cells. *Surf. Technol.* 20 (1983), S. 383 – 391
- [140] SAKATA, T. ; JANATA, E. ; JAEGERMANN, W. ; TRIBUTSCH, H.: Nanosecond Pulse Laser. *J. Electrochem. Soc.* 133 (1986), S. 339 – 345
- [141] JAKUBOWICZ, A. ; MAHALU, D. ; WOLF, M. ; TENNE, R.: WSe₂: Optical and electrical properties as related to surface passivation of recombination centers. *Phys. Rev. B* 40 (1989), Nr. 5, S. 2992 – 3000
- [142] TENNE, R. ; SPAHNI, W. ; CALZAFERRI, G.: Passivation of Recombination Centers in WSe₂ by Photoelectrochemical Etching. *J. Electroanal. Chem.* 189 (1985), S. 247 – 256
- [143] TENNE, R. ; WOLD, A.: Passivation of recombination centers in n-WSe₂ yields high efficiency (> 14%) photoelectrochemical cell. *Appl. Phys. Lett.* 47 (1985), S. 707 – 709
- [144] PRASAD, G. ; SRIVASTAVA, O. N.: The high-efficiency (17.1%) WSe₂ photo-electrochemical solar cell. *Appl. Phys. A* 21 (1988), S. 1028 – 1030
- [145] MAHALU, D. ; PEISACH, M. ; JAEGERMANN, W. ; WOLD, A. ; TENNE, R.: Controlled Photocorrosion of WSe₂: Influence of Molecular Oxygen. *J. Phys. Chem.* 94 (1990), S. 8012 – 8013

- [146] SCHMIDT, K. H. ; MULLER, A.: Vibrational spectra and normal co-ordinate analysis of MoOSe_3^{2-} , WSe_3^{2-} , MoOSe_2^{2-} and MoOSe_2^{2-} . *Spectrochim. Acta* 28A (1972), Nr. 10, S. 1892 – 1840
- [147] YOSHIKE, N. ; KONDO, S.: Electrochemical properties of $\text{WO}_3 \cdot x \text{H}_2\text{O}$. I. The influence of water adsorption and hydroxylation. *J. Electrochem. Soc.* 130 (1983), Nr. 11, S. 2283 – 2287
- [148] MAHALU, D. ; MARGULIS, L. ; WOLD, A. ; TENNE, R.: Preparation of WSe_2 surfaces with high photoactivity. *Phys. Rev. B* 45 (1992), Nr. 4, S. 1943 – 1946
- [149] CHAPARRO, A. M. ; SALVADOR, P. ; MIR, A.: The scanning microscope for semiconductor characterization (SMSC): study of the influence of surface morphology on the photoelectrochemical behaviour of an n- MoSe_2 single crystal electrode by photocurrent and electrolyte electroreflectance imaging. *J. Electroanal. Chem.* 418 (1996), S. 175 – 183
- [150] SALVADOR, P. ; CHAPARRO, A. M. ; MIR, A.: Digital Imaging of the Effect of Photoetching on the Photoresponse of n-Type Tungsten Diselenide and Molybdenum Diselenide Single Crystal Electrodes. *J. Phys. Chem.* 100 (1996), S. 760 – 768
- [151] CHAPARRO, A. M. ; SALVADOR, P. ; MIR, A.: Localized photoelectrochemical etching with micrometric lateral resolution on transition metal diselenide photoelectrodes. *J. Electroanal. Chem.* 422 (1997), S. 35 – 44
- [152] OHMORI, T. ; CASTRO, R. J. ; CABRERA, C. R.: Surface Modification of MoSe_2 in Solution Using a Combined Technique of Scanning Tunneling Microscopy Indentation with Electrochemical Etching. *Langmuir* 14 (1998), S. 6287
- [153] FIECHTER, S. *Zur Auswertung überlassene Versuchsprotokolle zu Synthesexperimenten von Schichtgitterhalbleiterproben am Hahn-Meitner-Institut Berlin.* 1999 - 2001
- [154] ETMAN, M. ; NEUMANN-SPALLART, M.: Critical analysis of electrical contacts to layered semiconductors for use in (photo)electrochemical studies. *J. Electroanal. Chem.* 269 (1989), S. 411 – 422
- [155] DESHPANDE, M. P. ; AGARWAL, M. K. ; PATEL, P. D. ; LAKSHMINARAYANA, D.: Dependence of the electrochemical behaviour of p- WSe_2 single crystals on ohmic contacts. *J. Mater. Sci. Lett.* 18 (1999), S. 233 – 235
- [156] VETTER, K. J.: Die Gleichstrompolarisation des Jod-Jodid-Redoxpotentials an Platin bei Fremdelektrolytüberschuß. *Z. Phys. Chem.* 199 (1952), S. 22 – 34
- [157] ATKINS, P. W.: *Physikalische Chemie.* 2. Auflage. Weinheim : VCH Verlagsgesellschaft, 1990
- [158] MONK, P. M. S.: *Fundamentals of Electroanalytical Chemistry.* 1. Auflage. Chichester, New York, Weinheim, Brisbane : John Wiley & Sons LTD, 2001

-
- [159] KRON, G. ; RAU, U. ; DÜRR, M. ; MITEVA, T. ; NELLES, G. ; YASUDA, A. ; WERNER, J. H.: Diffusion Limitations to I_3^-/I^- Electrolyte Transport Through Nanoporous TiO_2 Networks. *Electrochemical and Solid-State Letters* 6 (2003), S. E11 – E14
- [160] WEISS, V.: *In situ-Untersuchung des Wachstums von reaktiv gesputterten MoS_x und WS_x -Schichten mit Hilfe der energiedispersiven Röntgenbeugung (EDXRD)*, Freie Universität Berlin, Dissertation, 2002
- [161] IVES, J. G. (Hrsg.) ; JANZ, G. J. (Hrsg.): *Reference Electrodes: Theory and Practice*. 1. Auflage. New York, London : Academic Press, 1961
- [162] LANG, W.: *Differential-Interferenzkontrast-Mikroskopie nach Nomarski*. Bd. Sonderdruck von 4 Beiträgen aus den Zeiss-Informationen. Oberkochen : Carl Zeiss AG, 1999
- [163] NOMARSKI, G.: Microinterféromètre différentielle à ondes polarisées. *J. Phys. Radium* 16 (1955), S. 9
- [164] HEINZE, J.: Elektrochemie mit Ultramikroelektroden. *Angew. Chem.* 105 (1993), S. 1327 – 1349
- [165] ZOSKI, C. G. ; BOND, A. M. ; ALLISON, E. T. ; OLDHAM, K. B.: How Long Does It Take a Microelectrode To Reach a Voltammetric Steady State ? *Anal. Chem.* 62 (1990), S. 37 – 45
- [166] SCHULZE, G. ; SIMON, J.: *Jander, Jahr: Maßanalyse*. 15. Auflage. Berlin, New York : de Gruyter, 1989
- [167] MOEHL, T.: *Vergleichende Untersuchungen von Sensibilisatoren in nanostrukturierten Injektionssolarzellen*, Freie Universität Berlin, Diplomarbeit, 2000
- [168] KIESEWETTER, T. ; TOMM, Y. ; TURRIÓN, M. ; TRIBUTSCH, H.: Composite materials for photovoltaics: A realistic aim ? *Sol. Energy Mater. Sol. Cells* 59 (1999), S. 309 – 323
- [169] BOUREZG, R. ; COUTURIER, G. ; SALARDENNE, J. ; LEVY, F.: Interface of n-type WSe_2 Photoanodes in aqueous solution. 1) Electrical Properties. *Phys. Rev. B* 46 (1992), Nr. 23, S. 15404 – 15410
- [170] MATTHÄUS, A. ; ENNAOUI, A. ; FIECHTER, S. ; TIEFENBACHER, S. ; KIESEWETTER, T. ; DIESNER, K. ; SIEBER, I. ; JAEGERMANN, W. ; TSIRLINA, T. ; TENNE, R.: Highly Textured Films of Layered Metal Disulfide 2H- WS_2 . *J. Electrochem. Soc.* 144 (1997), Nr. 3, S. 1013 – 1019
- [171] MÜLLER, U.: *Anorganische Strukturchemie*. 3. Auflage. Stuttgart : Teubner, 1996 (Teubner Studienbücher: Chemie)
- [172] FIECHTER, S. *mündliche Mitteilung*. 2003

- [173] GREENWOOD, N. N. ; EARNSHAW, A.: *Chemie der Elemente*. 1. Korrigierter Nachdruck 1990 der 1. Auflage 1988. Weinheim, Basel, Cambridge, New York : VCH Verlagsgesellschaft mbH, 1990
- [174] TRIBUTSCH, H.: *Eine elektrochemische Methode zum Studium der spektralen Sensibilisierung und heterogener photochemischer Reaktionen an ZnO-Elektroden*, Technische Universität München, Dissertation, 1968
- [175] MEIER, H.: Sensitization of Electrical Effects in Solids. *J. Phys. Chem.* 69 (1964), Nr. 3, S. 719 – 729
- [176] GERISCHER, H. ; TRIBUTSCH, H.: Elektrochemische Untersuchungen zur spektralen Sensibilisierung von ZnO-Einkristallen. *Ber. Bunsenges. Phys. Chem.* 72 (1968), Nr. 1, S. 437 – 445
- [177] TRIBUTSCH, H. ; GERISCHER, H.: The Use of Semiconductor Electrodes in the Study of Photochemical Reactions. *Ber. Bunsenges. Phys. Chem.* 73 (1969), S. 850 – 854
- [178] TRIBUTSCH, H. ; GERISCHER, H.: Elektrochemische Untersuchungen über den Mechanismus der Sensibilisierung und Übersensibilisierung an ZnO-Einkristallen. *Ber. Bunsenges. Phys. Chem.* 73 (1969), Nr. 3, S. 251 – 260
- [179] DARE-EDWARDS, M. P. ; GOODENOUGH, J. B. ; HAMNETT, A. ; SEDDON, K. R. ; WRIGHT, R. D.: Sensitization of Semiconducting Electrodes with Ru-based Dyes. *Faraday Discuss. Chem. Soc.* 70 (1981), S. 285 – 300
- [180] O'REGAN, B. ; GRÄTZEL, M.: A low-cost, high-efficiency solar cell based on dye-sensitized colloidal TiO₂ films. *Nature* 353 (1991), S. 737 – 740
- [181] NAZEERUDDIN, M. K. ; GRÄTZEL, M.: Conversion of light to electricity by cis – X₂Bis(2, 2' – bipyridyl – 4, 4' – dicarboxylate)ruthenium(II) charge-transfer sensitizers (X = Cl⁻, Br⁻, I⁻, CN⁻, SCN⁻) on nanocrystalline TiO₂ electrodes. *J. Am. Chem. Soc.* 115 (1993), S. 6382 – 6390
- [182] HAGFELDT, A. ; GRÄTZEL, M.: Molecular Photovoltaics. *Acc. Chem. Res.* 33 (2000), S. 269 – 277
- [183] ARGAZZI, R. ; BIGNOZZI, C. A. ; HEIMER, T. A. ; CASTELLANO, F. N. ; MEYER, G. J.: Enhanced Spectral Sensitivity from Ruthenium(II) Polypyridyl Based Photovoltaic Devices. *Inorg. Chem.* 33 (1994), S. 5741 – 5749
- [184] KOHLE, O. ; RUILE, S. ; GRÄTZEL, M.: Ruthenium Charge-Transfer Sensitizers Containing 4,4'-Dicarboxy-2,2'-bipyridine. Synthesis, properties and Bonding Mode of Coordinated Thio- and Selenocyanates. *Inorg. Chem.* 35 (1996), S. 4779 – 4787
- [185] KERN, R. ; VAN DER BURG, N. ; CHMIEL, G. ; FERBER, J. ; HASENHINDL, G. ; HINSCH, A. ; KINDERMAN, R. ; KROON, J. ; MEYER, A. ; MEYER, T. ; NIEPMANN, R. ; VAN ROOSMALEN, J. ; SCHILL, C. ; SOMMELING, P. ; SPÄTH, M. ; UHLENDORF, I.: Long term stability of dye-sensitized solar cells for large area power applications. *Opto-Electr.* 8 (2000), Nr. 4, S. 284 – 288

-
- [186] WANG, P. ; ZAKEERUDDIN, S. M. ; MOSER, J. ; NAZEERUDDIN, M. K. ; SEKIGUCHI, T. ; GRÄTZEL, M.: A stable quasi-solid-state dye-sensitized solar cell with an amphiphilic ruthenium sensitizer and polymer gel electrolyte. *nature materials* 2 (2003), Nr. 6, S. 402 – 406
- [187] SIRIMANNE, P. M. ; SHIRATA, T. ; SOGA, T. ; JIMBO, T.: Charge Generation in a Dye-Sensitized Solid-state Cell under Different Modes of Illumination. *J. Solid State Chem.* 166 (2002), S. 142 – 147
- [188] SIRIMANNE, P. M. ; JERANKO, T. ; BOGDANOFF, P. ; FIECHTER, S.: On the photo-degradation of dye sensitized solid-state $TiO_2|dye|CuI$ cells. *Semicond. Sci. Technol.* 18 (2003), S. 708 – 712
- [189] DALTROZZO, E. ; TRIBUTSCH, H.: On the Mechanism of Spectral Sensitization: Rhodamin B Sensitized Electron Transfer to Zinc Oxide. *Photographic Science and Engineering* 19 (1975), Nr. 6, S. 308 – 314
- [190] MATSUMURA, M. ; NOMURA, Y. ; TSUBOMURA, H.: Dye-sensitization on the Photocurrent at Zinc Oxide Electrode in Aqueous Electrolyte Solution. *Bull. Chem. Soc. Jpn.* 50 (1977), Nr. 10, S. 2533 – 2537
- [191] MATSUMURA, M. ; MATSUDAIRA, S. ; TSUBOMURA, H. ; TAKATA, M. ; YANAGIDA, H.: Dye Sensitization and Surface Structures of Semiconductor Electrodes. *Ind. Eng. Chem. Prod. Res. Dev.* 19 (1980), Nr. 3, S. 416 – 421
- [192] RENSMO, H. ; KEIS, K. ; LINDSTRÖM, H. ; SÖDERGREN, S. ; SOLBRAND, A. ; HAGFELDT, A. ; LINDQUIST, S.-E.: High Light-to-Energy Conversion Efficiencies for Solar Cells Based on Nanostructured ZnO Electrodes. *J. Phys. Chem. B* 101 (1997), S. 2598 – 2601
- [193] BEDJA, I. ; KAMAT, P. V. ; HUA, X. ; LAPPIN, A. G. ; HOTCHANDANI, S.: Photosensitization of Nanocrystalline ZnO Films by Bis(2,2'-bipyridine)(2,2'-bipyridine-4,4'-dicarboxylic acid)ruthenium(II). *Langmuir* 13 (1997), S. 2398 – 2403
- [194] FUJISHIMA, A. ; HONDA, K.: Electrochemical Photolysis of Water at a Semiconductor Electrode. *Nature* 238 (1972), Nr. 7, S. 37 – 38
- [195] HOFFMANN, M. R. ; MARTIN, S. T. ; CHOI, W. ; BAHNEMANN, D. W.: Environmental Applications of Semiconductor Photocatalysis. *Chem. Rev.* 95 (1995), S. 69 – 96
- [196] BAHNEMANN, D. W. ; HILGENDORFF, M. ; MEMMING, R.: Charge Carrier Dynamics at TiO_2 Particles: Reactivity of Free and Trapped Holes. *J. Phys. Chem. B* 101 (1997), S. 4265 – 4275
- [197] OKHO, Y. ; IKEDA, K. ; RAO, T. N. ; HASHIMOTO, K. ; FUJISHIMA, A.: Photocatalytic Reaction Kinetics on TiO_2 thin Films under Light-Limited and Mass Transport-Limited Conditions. *Z. Phys. Chem.* 213 (1999), S. 33 – 42

- [198] BARD, A. J.: Photoelectrochemistry. *Science* 207 (1980), S. 139 – 144
- [199] DOHERTY, S. ; FITZMAURICE, D.: Preparation and Characterization of Transparent Nanocrystalline TiO₂ Films possessing Well-Defined Morphologies. *J. Phys. Chem.* 100 (1996), S. 10732 – 10738
- [200] GÓMEZ, M. M. ; LU, J. ; SOLIS, J. L. ; OLSSON, E. ; HAGFELDT, A. ; GRANQVIST, C. G.: Dye-Sensitized Nanocrystalline Titanium-Oxide-Based Solar Cells Prepared by Sputtering: Influence of the Substrate Temperature During Deposition. *J. Phys. Chem. B* 104 (2000), S. 8712 – 8718
- [201] CHRISTENSEN, P.A. ; EAMEAIM, J. ; HAMNETT, A.: In situ FTIR studies of the photo-electrochemical behaviour of thermal TiO₂ films as a function of temperature. *Phys. Chem. Chem. Phys.* 1 (1999), S. 5315 – 5321
- [202] MINOURA, H. ; NASU, M. ; TAKAHASHI, Y.: Comparative Studies of Photoelectrochemical Behaviours of Rutile and Anatase Electrodes Prepared by OMCVD Technique. *Ber. Bunsenges. Phys. Chem.* 89 (1985), S. 1064 – 1069
- [203] RASHTI, M. A. ; BRODIE, D. E.: The photoresponse of high resistance anatase TiO₂ films prepared by the decomposition of titanium isopropoxide. *Thin Solid Films* 240 (1994), S. 163 – 167
- [204] MARCHENOIR, J. C. ; LOUP, J. P. ; MASSON, J.: Étude des couches poreuses formées par oxidation anodique du titane sous fortes tensions. *Thin Solid Films* 66 (1980), S. 357 – 369
- [205] HINSCH, A. ; KROON, J. M. ; KERN, R. ; UHLENDORF, I. ; HOLZBOCK, J. ; MEYER, T. ; FERBER, J.: Long-term Stability of Dye Sensitized Solar Cells. *Prog. Photovolt. Res. Appl.* 9 (2001), S. 425 – 438
- [206] CAO, F. ; OSKAM, G. ; SEARSON, P. C.: Electrical and Optical Properties of Porous Nanocrystalline TiO₂ Films. *J. Phys. Chem.* 99 (1995), S. 11974 – 11980
- [207] TRIBUTSCH, H.: Electrochemistry of Excited Molecules: Photo-Electrochemical Reactions of Chlorophylls. *Photochem. Photobiol.* 14 (1971), S. 95 – 112
- [208] SHKLOVER, V. ; OVCHINNIKOV, Yu. E. ; BRAGINSKY, L. S. ; ZAKEERUDDIN, S. M. ; GRÄTZEL, M.: Structure of Organic/Inorganic Interface in Assembled Materials Comprising Molecular Components. Crystal Structure of the Sensitizer Bis[(4,4'-carboxy-2,2'-bipyridine)(thiocyanato)]ruthenium(II). *Chem. Mater.* 10 (1998), S. 2533 – 2541
- [209] FINNIE, K. S. ; BARTLETT, J. R. ; WOOLFREY, J. L.: Vibrational Spectroscopic Study of the Coordination of (2,2'-Bipyridyl-4,4'-dicarboxylic acid)ruthenium(II) Complexes to the Surface of Nanocrystalline Titania. *Langmuir* 14 (1998), S. 2744 – 2749

-
- [210] MURAKOSHI, K. ; KANO, G. ; WADA, Y. ; YANIGADA, S. ; MIYAZAKI, H. ; MATSUMOTO, M. ; MURASAWA, S.: Importance of binding states between photosensitizing molecules and the TiO₂ surface for efficiency in a dye-sensitized solar cell. *J. Electroanal. Chem.* 396 (1995), S. 27 – 34
- [211] EICHBERGER, R. ; WILLIG, F.: Ultrafast Electron Injektion from Exited Dye Molecules into Semiconductor Electrodes. *Chem. Phys.* 141 (1990), S. 159 – 173
- [212] NAZEERUDDIN, M. K. ; PÉCHY, P. ; GRÄTZEL, M.: Efficient panchromatic sensitization of nanocrystalline TiO₂ films by a black dye based on a trithiocyanato-ruthenium complex. *Chem. Commun.* (1997), S. 1705 – 1706
- [213] GRÄTZEL, M.: Perspectives for Dye-sensitized Nanocrystalline Solar Cells. *Prog. Photovolt. Res. Appl.* 8 (2000), S. 171 – 185
- [214] SAUVÉ, G. ; CASS, M. E. ; DOIG, S. J. ; LAUERMANN, I. ; POMYKAL, K. ; LEWIS, N. S.: High Quantum Yield Sensitization of Nanocrystalline Titanium Dioxide Photoelectrodes with cis-Dicyanobis(4,4'-dicarboxy-2,2'-bipyridine)osmium(II) or Tris(4,4'-dicarboxy-2,2'-bipyridine)osmium(II) Complexes. *J. Phys. Chem. B* 104 (2000), S. 3488 – 3491
- [215] LINDSTRÖM, H. ; RENSMO, H. ; SÖDERGREN, S. ; SOLBRAND, A. ; LINDQUIST, S.-E.: Electron Transport Properties in Dye-Sensitized Nanoporous-Nanocrystalline TiO₂ Films. *J. Phys. Chem.* 100 (1996), S. 3084 – 3088
- [216] KEBEDE, Z. ; LINDQUIST, S.-E.: The obstructed diffusion of the I₃⁻ ion in mesoscopic TiO₂ membranes. *Sol. Energy Mater. Sol. Cells* 51 (1998), S. 291 – 303
- [217] NUSBAUMER, H. ; ZAKEERUDDIN, S. M. ; MOSER, J. ; GRÄTZEL, M.: An Alternative Efficient Redox Couple for the Dye-Sensitized Solar Cell System. *Chem. Eur. J.* 9 (2003), S. 3756 – 3763
- [218] KOHLE, O. ; GRÄTZEL, M. ; MEYER, A. F. ; MEYER, T. B.: The Photovoltaic Stability of Bis(isothiocyanato)ruthenium(II)-bis-2,2'-bipyridine-4,4'-dicarboxylic Acid and Related Sensitizers. *Adv. Mater.* 9 (1997), Nr. 11, S. 904 – 906
- [219] HOGGARD, P. E. ; PORTER, G. B.: Photoanation of the Tris(2,2'-bipyridine)ruthenium(II) Cation by Thiocyanate. *J. Am. Chem. Soc.* 100 (1978), Nr. 5, S. 1457 – 1436
- [220] NAZEERUDDIN, M. K. ; ZAKEERUDDIN, S. M. ; HUMPHRY-BAKER, R. ; JIROUSEK, M. ; LISKA, P. ; VLACHOPOULOS, N. ; SHKLOVER, V. ; FISCHER, Christian-H. ; GRÄTZEL, M.: Acid-Base Equilibria of (2,2'-Bipyridyl-4,4'-dicarboxylic acid)ruthenium(II) Complexes and the Effect of Protonation on Charge-Transfer Sensitization of Nanocrystalline Titania. *Inorg. Chem.* 38 (1999), S. 6298 – 6305
- [221] JANDER, G. ; BLASIUS, E.: *Lehrbuch der analytischen und präparativen anorganischen Chemie*. 11. Auflage. Stuttgart : S. Hirzel Verlag, 1979
-

- [222] HESSE, M. ; MEIER, H. ; ZEEH, B.: *Spektroskopische Methoden in der organischen Chemie*. 2. Auflage. Stuttgart, New York : Georg Thieme Verlag, 1984
- [223] SUSLICK, K. S.: Die chemischen Wirkungen von Ultraschall. *Spektrum der Wissenschaft* (1989), Nr. 4, S. 60 – 66
- [224] KLAER, J. ; BRUNS, J. ; HENNINGER, R. ; SIEMER, K. ; KLENK, R. ; ELLMER, K. ; BRÄUNIG, D.: Efficient CuInS₂ thin-film solar cells prepared by asequential process. *Semicond. Sci. Technol.* 13 (1998), S. 1456 – 1458
- [225] SÖLLNER, J. ; DESCHLER, M. ; JÜRGENSEN, H. ; KALISCH, H. ; TAUDT, W. ; HAMADEH, H. ; HEUKEN, M. ; BLIESKE, U. ; SAAD, M. ; BAUKNECHT, A. ; KAMPSCHULTE, T. ; ALBERT, J. ; LUX-STEINER, M. C.: Production scale MOCVD growth of II-IV semiconductors. *J. Cryst. Growth* 184/185 (1998), S. 158 – 162
- [226] BIRKMIRE, R. W.: Compound polycrystalline solar cells: Recent progress and Y2K perspective. *Sol. Energy Mater. Sol. Cells* 65 (2001), S. 17 – 28
- [227] SIEMER, K. ; KLAER, J. ; LUCK, I. ; BRUNS, J. ; KLENK, R. ; BRÄUNIG, D.: Efficient CuInS₂ solar cells from a rapid thermal process (RTP). *Sol. Energy Mater. Sol. Cells* 67 (2001), S. 159 – 166
- [228] HENNINGER, R. ; KLAER, J. ; SIEMER, K. ; BRUNS, J. ; BRÄUNIG, D.: Electroreflectance of CuInS₂ thin film solar cells and dependence on process parameters. *J. Appl. Phys.* 89 (2001), Nr. 5, S. 3049 – 3054
- [229] SCHEER, R. ; LUCK, I. ; HESSLER, S. ; SEHNERT, H. ; LEWERENZ, H. J.: Binary Phase Segregation in CuInS₂ Thin Films for Efficient Solar Energy Conversion. *1st World Conference on Photovoltaic Energy Conversion* Bd. 1. Waikoloa, HI, USA : IEEE, 1994, S. 160 – 163
- [230] ALT, M. ; LEWERENZ, H. J. ; SCHEER, R.: CuInS₂ thin film growth monitoring by *in situ* electric conductivity measurements. *J. Appl. Phys.* 81 (1996), Nr. 2, S. 956 – 959
- [231] FURLONG, M. J. ; LINCOT, D. ; FROMENT, M. ; CORTÈS, R. ; TIWARI, A. N. ; KREJCI, M. ; ZOGG, H.: Heteroepitaxial Growth of Chemical Bath Deposited CdS on Single Crystal CuInSe₂ Substrates. *14th European Photovoltaic Solar Energy Conference*. Barcelona : Stephens & Associates, 1997, S. 1291 – 1294
- [232] FRIESER, R.G.: Characterization of Thermally Grown SiO₂ Surfaces by Contact Angle Measurements. *J. Chem. Soc.* 121 (1974), Nr. 5, S. 669 – 672
- [233] ADACHI, S. ; ARAI, T. ; KOBAYASHI, K.: Chemical treatment effect of Si(111) surfaces in F-based aqueous solutions. *J. Appl. Phys.* 80 (1996), Nr. 9, S. 5422 – 5426
- [234] LI, L. ; BENDER, H. ; ZOU, G. ; MERTENS, P. W. ; MEURIS, M. A. ; HEYNS, M. M.: Improvement of High Temperature Water Rinsing and Drying for HF-Last Wafer Cleaning. *J. Electrochem. Soc.* 143 (1996), Nr. 1, S. 223 – 237

-
- [235] OSAKABE, S. ; ADACHI, S.: Study of GaAs(001) Surfaces Treated in Aqueous HCl Solutions. *Jpn. J. Appl. Phys.* 36 (1997), S. 7119 – 7125
- [236] OSAKABE, S. ; ADACHI, S.: Chemical Treatment Effect of (001) GaAs Surfaces in Alkaline Solutions. *J. Electrochem. Soc.* 144 (1997), Nr. 1, S. 290 – 294
- [237] CASSIE, A. B. D. ; BAXTER, S.: Wettability of Porous Surfaces. *Trans. Faraday Soc.* 40 (1944), S. 546 – 551
- [238] SCHWARTZ, L. W. ; GAROFF, G.: Contact Angle Hysteresis on Heterogeneous Surfaces. *Langmuir* 1 (1985), S. 219 – 230
- [239] KUSHIYA, K. ; NII, T. ; SUGIYAMA, I. ; SATO, Y. ; INAMORI, Y. ; TAKESHITA, H.: Application of Zn-Compound Buffer Layer for Polycrystalline CuInSe₂ Thin-Film Solar Cells. *Jpn. J. Appl. Phys.* 35 (1996), Nr. 8, S. 4383 – 4388
- [240] LOKHANDE, C. D. ; SANKAPAL, B. R. ; PATHAN, H. M. ; MÜLLER, M. ; GIERSIG, M. ; TRIBUTSCH, H.: Some structural studies on successive ionic layer adsorption and reaction (SILAR)-deposited CdS thin films. *Appl. Surf. Sci.* 181 (2001), S. 277 – 282
- [241] GAWALLEK, L. ; SALZMANN, C. ; KLAER, J. ; BRUNS, J. ; KANIS, M. ; ELLMER, K.: Characterization of CuInS₂ Solar Cells with CdS-Buffer Layers Prepared by Reactive Magnetron Sputtering. *2nd World Conference and Exhibition on Photovoltaic Solar Energy Conversion*. Vienna, Austria, 1998, S. 553 – 556
- [242] NAKADA, T. ; KUME, T. ; KUNIOKA, A.: Superstrate-Type CuInSe₂ Thin Film Solar Cells with Selenide Buffer Layers. *25th IEEE Photovoltaic Specialists Conference* Bd. 1. Washington, DC, USA : IEEE, 1996, S. 893 – 896
- [243] GORDILLO, G. ; CAICEDO, L. M. ; CEDIEL, G. ; LANDAZÁBAL, F. ; SANDINO, J. W.: Preparation and Characterization of In_xSe_y Thin Films Deposited by Co-Evaporation. *Phys. Stat. Sol (b)* 220 (2000), S. 296 – 273
- [244] OLSEN, L. C. ; ADDIS, F. W. ; GREER, D. ; LEI, W. ; ABULFOTAH, F.: Noncadmium ZnO/CIS and ZnSe/CIS solar cells. *1st World Conference on Photovoltaic Energy Conversion* Bd. 1. Waikoloa, HI, USA : IEEE, 1994, S. 194 – 197
- [245] NII, T. ; SUGIYAMA, I. ; KASE, T. ; SATO, Y. ; KANIYAMA, Y. ; KURIYAGAWA, S. ; KUSHIYA, K. ; TAKESHITA, H.: Effects of Cd-free Buffer Layer for CuInSe₂ Thin-Film Solar Cells. *1st World Conference on Photovoltaic Energy Conversion* Bd. 1. Waikoloa, HI, USA : IEEE, 1994, S. 254 – 257
- [246] ENNAOUI, A. ; WEBER, M. ; LOKHANDE, C. D. ; SCHEER, R. ; LEWERENZ, H. J.: Growth and Band Lineup of Chemical Bath Deposited ZnSe on Polychrystalline Evaporated CuInSe₂ thin films. *2nd World Conference and Exhibition on Photovoltaic Solar Energy Conversion*. Vienna, Austria, 1998, S. 628 – 631
- [247] OLSEN, L. C. ; LEI, W. ; ADDIS, F. W. ; SHAFARMAN, W. N. ; CONTRERAS, M. A. ; RAMANATHAN, K.: High Efficiency CIGS and CIS Cells with CVD ZnO Buffer Layers. *26th IEEE Photovoltaic Specialists Conference*. Anaheim, Ca, USA : IEEE, 1997, S. 363 – 366
-

- [248] CZEKELIUS, C. ; HILGENDORFF, M. ; SPANHEL, L. ; BEDJA, I. ; LERCH, M. ; MÜLLER, G. ; BLOECK, U. ; SU, D.-S. ; GIERSIG, M.: A Simple Colloidal Route to Nanocrystalline ZnO/CuInS₂ Bilayers. *Adv. Mater.* 11 (1999), Nr. 8, S. 643 – 646
- [249] ENNAOUI, A. ; WEBER, M. ; SCHEER, R. ; LEWERENZ, H. J.: Chemical-bath ZnO buffer layer for CuInS₂ thin-film solar cells. *Sol. Energy Mater. Sol. Cells* 54 (1998), S. 277 – 286
- [250] MANE, R. S. ; LOKHANDE, C. D.: Chemical deposition method for metal chalcogenide thin films. *Mater. Chem. Phys.* 65 (2000), S. 1 – 31
- [251] LOKHANDE, C. D. ; ENNAOUI, A. ; PATIL, P. S. ; GIERSIG, M. ; MÜLLER, G. ; DIESNER, K. ; TRIBUTSCH, H.: Process and characterisation of chemical bath deposited manganese sulphide (MnS) thin films. *Thin Solid Films* 330 (1998), S. 70 – 75
- [252] LOKHANDE, C. D. ; SANKAPAL, B. R. ; MANE, R. S. ; PATHAN, H. M. ; MÜLLER, M. ; GIERSIG, M. ; TRIBUTSCH, H. ; GANESHAN, V.: Structural characterization of chemically deposited Bi₂S₃ and Bi₂S₃ thin films. *Appl. Surf. Sci.* 187 (2002), S. 108 – 115
- [253] CONRAD ELECTRONIC GMBH.: *C-Control/Basic Steuercomputer Bedienungsanleitung*. 1997
- [254] MOTOROLA INC.: *M68HC05 Microcontroller Applications Guide, Rev. 3.0*. 1998
- [255] KAINKA, B. ; FÖRSTER, M.: *C-Control Anwendungen*. 1. Auflage. Poing : Franzis Verlag, 1998
- [256] EL-AZHAR, A.: *Sulfurierung von WO₃-Schichten zu WS₂ für die Anwendung in einer Injektionssolarzelle*, Freie Universität Berlin, Masterarbeit, 2001