

Literatur

- [1] J. Armstrong, N. Bloembergen, J. Ducuing, P. Pershan. Interactions between light waves in a nonlinear dielectric. *Phys. Rev.* **127**, 1918 (1962).
- [2] N. Bloembergen, P. Pershan. Light waves at the boundary of non-linear media. *Phys. Rev.* **128**, 606 (1962).
- [3] N. Bloembergen, R. Chang, S. Jha, C. Lee. Optical second-harmonic generation in reflection from media with inversion symmetry. *Phys. Rev.* **174**, 813 (1968).
- [4] N. Bloembergen, R. Chang, C. Lee. Second-harmonic generation of light in reflection from media with inversion symmetry. *Phys. Rev. Lett.* **16**, 986 (1967).
- [5] J. Sipe, D. Moss, H. van Driel. Phenomenological theory of optical second- and third-harmonic generation from cubic centrosymmetric crystals. *Phys. Rev. B* **35**, 1129 (1987).
- [6] V. Shannon, D. Koos, G. Richmond. The observation of rotational anisotropy in the SH intensity from a Ag(111) electrode. *J. Chem. Phys.* **87**, 1440 (1987).
- [7] D. Koos, V. Shannon, G. Richmond. Surface-dipole and electric-quadrupole contributions to anisotropic 2nd-harmonic generation from noble-metal surfaces. *Phys. Rev. B* **47**, 4730 (1993).
- [8] A. Friedrich, C. Shannon, B. Pettinger. A study of the influence of halide adsorption on a reconstructed Au(111) electrode by 2nd harmonic generation. *Surf. Sci.* **251**, 587–591 (1991).
- [9] B. Pettinger, J. Lipkowski, S. Mirwald, A. Friedrich. Specific adsorption at Au(111) electrodes studied by 2nd harmonic-generation. *J. Electroanal. Chem.* **329**, 289–311 (1992).
- [10] B. Pettinger, S. Mirwald, J. Lipkowski. In situ SHG studies of ionic and molecular adsorption on surface-structure of Au(111)-electrodes. *Ber. Bunsenges. Phys. Chem. Chem. Phys.* **97**, 395–398 (1993).
- [11] J. Lipkowski, L. Stolberg, D. F. Yang, B. Pettinger, S. Mirwald, F. Henglein, D. M. Kolb. Molecular adsorption at metal-electrodes. *Electrochim. Acta* **39**, 1045–1056 (1994).

- [12] S. Mirwald, B. Pettinger, J. Lipkowski. Sulfate adsorption at Au(111) electrodes - an optical 2nd harmonic generation study. *Surf. Sci.* **335**, 264–272 (1995).
- [13] Z. C. Shi, J. Lipkowski, S. Mirwald, B. Pettinger. Electrochemical and second harmonic generation study of bromide adsorption at the Au(111) electrode surface. *J. Chem. Soc.-Faraday Trans.* **92**, 3737–3746 (1996).
- [14] A. C. Chen, Z. C. Shi, D. Bizzotto, J. Lipkowski, B. Pettinger, C. Bilger. Iodide adsorption at the Au(111) electrode surface. *J. Electroanal. Chem.* **467**, 342 (1999).
- [15] B. Pettinger, C. Bilger. A novel approach to analyze the optical second harmonic generation anisotropy at surfaces employing interference techniques. Example: the Au(110) electrode. *Chem. Phys. Lett.* **286**, 355–360 (1998).
- [16] B. Pettinger, C. Bilger, J. Lipkowski, W. Schmickler. Second harmonic generation anisotropy from single crystalline electrode surfaces. In A. Wieckowski, Herausgeber, *Interfacial Electrochemistry*, Kapitel 22, Seiten 373–404. Marcel Dekker, New York (1999).
- [17] A. Bard, L. Faulkner. *Electrochemical Methods: Fundamentals and Applications*. Wiley & Sons, New York, 2. Auflage (2001).
- [18] S. Trasatti. In B. E. Conway, J. O. Bockris, Herausgeber, *Modern Aspects of Electrochemistry*, Band 13, Seite 81. Plenum, New York (1979).
- [19] A. Frumkin, N. Polianovskaya, N. Grigoryev, I. Bagotskaya. Electrocapillary phenomena on gallium. *Electrochim. Acta* **10**, 793 (1965).
- [20] K. Rybalka, D. Leikis. Effect of the character of the anion on the differential capacity of the electrical double layer on lead. *Elektrokhimiya* **3**, 1135 (1967).
- [21] A. Hamelin, J. Lecoer. Behavior of monocrystalline gold electrodes in diluted sodium fluoride solutions. *Collect. Czech. Chem. Commun.* **36**, 714–& (1971).
- [22] G. Vallette, A. Hamelin. Structure and properties of electrochemical double film on interphase of aqueous sodium-fluoride solutions and silver. *J. Electroanal. Chem.* **45**, 301 (1973).
- [23] A. Hamelin. The crystallographic orientation of gold surfaces at the gold aqueous-solution interphases. *J. Electroanal. Chem.* **142**, 299–316 (1982).

- [24] A. Hamelin. Study of the (210) face of gold in aqueous-solutions. *J. Electroanal. Chem.* **138**, 395–400 (1982).
- [25] A. Hamelin. On the importance of surface-structure in electrochemistry - the well-defined au (111) single-crystal electrode surface - comments. *J. Electroanal. Chem.* **195**, 175–176 (1985).
- [26] B. E. Conway. Electrochemical surface science - the study of monolayers of ad-atoms and solvent molecules at charged metal interfaces. *Prog. Surf. Sci.* **16**, 1 (1984).
- [27] B. E. Conway, B. V. Tilak. Behaviour and characterization of kinetically involved chemisorbed intermediates in electrocatalysis of gas evolution reactions. *Adv. Catal.* **38**, 1 (1992).
- [28] F. Silva, A. Martins. Surface structural effects on specific adsorption of oxoanions on gold single crystal electrodes. *J. Electroanal. Chem.* **467**, 335–341 (1999).
- [29] S. Gilman, M. W. Breiter. Anodic oxidation of methanol on Pt. II. Interpretation of potentiostatic current-potential curves in acidic solution. *J. Electrochem. Soc.* **109**, 1099 (1962).
- [30] M. W. Breiter. Anodic oxidation of formic acid on Pt. II. Interpretation of potentiostatic current-potential curves. Reaction mechanism in perchloric acid solutions. *Electrochim. Acta* **8**, 457 (1963).
- [31] R. R. Adzic, W. E. O'Grady, S. Srinivasan. Oxidation of HCOOH on (100), (110) and (111) single-crystal platinum electrodes. *Surf. Sci.* **94**, L191 (1980).
- [32] B. E. Conway, B. MacDougall, H. A. Kozłowska. Anodic displacement of adsorbed H in electrochemisorption of organic-molecules at platinum. *J. Chem. Soc., Faraday Trans. 1* **68**, 1566 (1972).
- [33] S. Wu, J. Lipkowski, T. Tyliczszak, A. H. Hitchcock. Effect of anion adsorption on early stages of copper electrocrystallization at Au(111) surface. *Prog. Surf. Sci.* **50**, 227–236 (1995).
- [34] P. Broekmann, M. Wilms, M. Kruft, C. Stuhlmann, K. Wandelt. In-situ STM investigation of specific anion adsorption on Cu(111). *J. Electroanal. Chem.* **467**, 307–324 (1999).

- [35] H. Angerstein-Kozłowska, B. E. Conway, A. Hamelin, L. Stoicoviciu. Elementary steps of electrochemical oxidation of single-crystal planes of Au. Part I. Chemical basis of processes involving geometry of anions and the electrode surfaces. *Electrochim. Acta* **31**, 1051–1061 (1986).
- [36] H. Angerstein-Kozłowska, B. E. Conway, A. Hamelin, L. Stoicoviciu. Elementary steps of electrochemical oxidation of single-crystal planes of Au. Part II: A chemical and structural basis of oxidation of the (111) plane. *J. Electroanal. Chem.* **228**, 429–453 (1987).
- [37] Y. R. Shen. *The Principles of Nonlinear Optics*. Wiley & Sons, New York (1984).
- [38] A. V. Petukhov, A. Liebsch. Isotropic and anisotropic bulk contributions to 2nd-harmonic generation from simple metals. *Surf. Sci.* **294**, 381–402 (1993).
- [39] J. Sipe, V. Mizrahi, G. Stegemann. Fundamental difficulty in the use of 2nd-harmonic generation as a strictly surface probe. *Phys. Rev. B* **35**, 9091 (1987).
- [40] P. Guyot-Sionnest, Y. R. Shen. Local and nonlocal surface nonlinearities of surface optical 2nd-harmonic generation. *Phys. Rev. B* **35**, 4420 (1987).
- [41] J. A. Rudnick, E. A. Stern. Second-harmonic radiation from metal surfaces. *Phys. Rev. B* **4**, 4274 (1971).
- [42] S. Janz, K. Pedersen, H. van Driel. Dispersion and anisotropy of the optical 2nd-harmonic response of single-crystal Al surfaces. *Phys. Rev. B* **44**, 3943 (1991).
- [43] M. Corvi, W. Schaich. Hydrodynamic-model calculation of 2nd-harmonic generation at a metal surface. *Phys. Rev. B* **33**, 3688 (1986).
- [44] N. D. Lang, W. Kohn. Theory of metal surfaces - charge density and surface energy. *Phys. Rev. B* **1**, 4555–4568 (1970).
- [45] E. Leiva, W. Schmickler. Second harmonic generation at single crystal surfaces of metals in the vacuum and in a solution. *Surf. Sci.* **291**, 226–232 (1993).
- [46] N. A. Shumilova, G. V. Zhutaeva. *Encyclopedia of Electrochemistry of the Elements*, Band 8, Seite 1. Marcel Dekker, New York (1978).
- [47] E. R. Savinova, S. Wasle, K. Doblhofer. Structure and activity relations in the hydrogen peroxide reduction at silver electrodes in alkaline NaF/NaOH electrolytes. *Electrochim. Acta* **44**, 1341–1348 (1998).

- [48] E. R. Savinova, D. Zemlyanov, B. Pettinger, A. Scheybal, R. Schlögl, K. Doblhofer. On the mechanism of Ag(111) sub-monolayer oxidation: a combined electrochemical, in situ SERS and ex situ XPS study. *Electrochim. Acta* **46**, 175–183 (2000).
- [49] J. M. M. Droog, F. Huisman. Electrochemical formation and reduction of silver-oxides in alkaline media. *J. Electroanal. Chem.* **115**, 211–224 (1980).
- [50] M. Lopez Teijelo, J. Vilche, A. Arvia. Comparative voltammetric behaviour of the silver-oxide electrode prepared on vitreous carbon and silver substrates. *J. Appl. Electrochem.* **18**, 691 (1988).
- [51] M. Hepel, M. Tomkiewicz. Study of the initial stages of anodic oxidation of polycrystalline silver in KOH solutions. *J. Electrochem. Soc.* **131**, 1288 (1984).
- [52] C. Alonso, R. Salvarezza, J. Vara, A. Arvia. The mechanism of silver(I)-oxide formation on polycrystalline silver in alkaline solution - determination of nucleation and growth-rates. *Electrochim. Acta* **35**, 489 (1990).
- [53] J. Droog. Oxygen electrosorption on Ag(111) and Ag(110) electrodes in NaOH solution. *J. Electroanal. Chem.* **115**, 225 (1980).
- [54] S. L. Chen, B. L. Wu, C. S. Cha. Application of time-resolved EQCM to the study of the mechanism of silver(I) oxide formation on a polycrystalline silver electrode in alkaline solution. *J. Electroanal. Chem.* **416**, 53–59 (1996).
- [55] S. L. Chen, B. L. Wu, C. S. Cha. The time-resolved EQCM and study of the kinetics of silver(I) oxide formation on a polycrystalline silver electrode in alkaline solution. *J. Electroanal. Chem.* **420**, 111–118 (1996).
- [56] C. Melendres, S. Xu, B. Tani. A laser Raman-spectroscopic study of anodic corrosion films on silver and copper. *J. Electroanal. Chem.* **162**, 343 (1984).
- [57] J. Hamilton, J. Farmer, R. Anderson. In situ Raman-spectroscopy of anodic films formed on copper and silver in NaOH solution. *J. Electrochem. Soc.* **133**, 739 (1986).
- [58] M. L. A. Temperini, G. I. Lacconi, D. Sala. Raman-spectroscopy investigation of the silver-oxide silver electrode - influence of experimental conditions. *J. Electroanal. Chem.* **227**, 21 (1987).
- [59] D. Hecht, P. Borthen, H. H. Strehblow. An X-ray absorption fine structure study of the initial stages of the anodic oxidation of silver. *Surf. Sci.* **365**, 263–277 (1996).

- [60] R. Weast, M. Astle, Herausgeber. *CRC Handbook of Chemistry and Physics*. CRC Press, Boca Raton (1982).
- [61] D. Lützenkirchen-Hecht, H. H. Strehblow. Surface analytical investigations of the electrochemical double layer on silver electrodes in alkaline media. *Electrochim. Acta* **43**, 2957–2968 (1998).
- [62] D. Hecht, H. H. Strehblow. XPS investigations of the electrochemical double layer on silver in alkaline chloride solutions. *J. Electroanal. Chem.* **440**, 211–217 (1997).
- [63] D. Lützenkirchen-Hecht, H. H. Strehblow. Bromide adsorption on silver in alkaline solution: A surface analytical study. *Ber. Bunsen-Ges. Phys. Chem. Chem. Phys.* **102**, 826–832 (1998).
- [64] E. R. Savinova, D. Zemlyanov, A. Scheybal, T. Schedel-Niedrig, K. Doblhofer, R. Schlögl. Ex situ X-ray photoelectron spectroscopy study of the interface between a Ag(111) electrode and an alkaline electrolyte. 1. Influence of the electrode potential on the adsorption of oxygen species. *Langmuir* **15**, 6546–6551 (1999).
- [65] E. R. Savinova, P. Kraft, B. Pettinger, K. Doblhofer. In situ Raman spectroscopy studies of the interface between silver(111) electrodes and alkaline NaF electrolytes. *J. Electroanal. Chem.* **430**, 47–56 (1997).
- [66] N. Iwasaki, Y. Sasaki, Y. Nishina. Ag electrode-reaction in NaOH solution studied by insitu Raman-spectroscopy. *Surf. Sci.* **198**, 524 (1988).
- [67] G. Beltramo, E. Santos, W. Schmickler. Second harmonic generation from silver single-crystal electrodes. *J. Electroanal. Chem.* **447**, 71–80 (1998).
- [68] E. Santos. *private commun.* (2001).
- [69] A. Bewick, B. Thomas. Optical and electrochemical studies of the underpotential deposition of metals. Part I. Thallium deposition on single crystal silver electrodes. *J. Electroanal. Chem.* **65**, 911 (1975).
- [70] T. Wandlowski. Phase transitions in uracil adlayers on Ag, Au and Hg electrodes - substrate effects. *J. Electroanal. Chem.* **395**, 83 (1995).
- [71] X. Bao, M. Muhler, B. Pettinger, Y. Uchida, G. Lehmpfuhl, R. Schlögl, G. Ertl. The effect of water on the formation of strongly bound oxygen on silver surfaces. *Catal. Lett.* **32**, 171–183 (1995).

- [72] A. Scheybal. *Adsorption und Oberflächenoxidbildung auf der Ag(111)-Elektrode in alkalischen Elektrolyten*. Dissertation, Technical University, Berlin (2002).
- [73] C. Hamann, W. Vielstich. *Elektrochemie*. Wiley-VCH, Weinheim, 3. Auflage (1998).
- [74] N. Marinkovic, J. Marinkovic, R. Adzic. In situ infrared spectroscopic investigations of sulfate adsorption at the Ag(111) electrode surface. *J. Electroanal. Chem.* **467**, 291–298 (1999).
- [75] S. Shaikhutdinov, E. Savinova, A. Scheybal, K. Doblhofer, R. Schlögl. Ex situ scanning tunneling microscopy study of under-potential oxidation of a Ag(111) electrode in an alkaline electrolyte. *J. Electroanal. Chem.* **500**, 208–212 (2001).
- [76] K. J. Stevenson, X. P. Gao, D. W. Hatchett, H. S. White. Voltammetric measurement of anion adsorption on Ag(111). *J. Electroanal. Chem.* **447**, 43–51 (1998).
- [77] B. M. Jovic, V. D. Jovic, G. R. Stafford. Cyclic voltammetry on Ag(111) and Ag(100) faces in sodium hydroxide solutions. *Electrochem. Commun.* **1**, 247–251 (1999).
- [78] P. Guyot-Sionnest, A. Tadjeddine. Study of Ag(111) and Au(111) electrodes by optical second harmonic generation. *J. Chem. Phys.* **92**, 734 (1990).
- [79] B. Pettinger, J. Lipkowski, S. Mirwald. In-situ SHG studies of adsorption induced surface reconstruction of Au(111) electrodes. *Electrochim. Acta* **40**, 133–142 (1995).
- [80] D. Zemlyanov, E. Savinova, A. Scheybal, K. Doblhofer, R. Schlögl. XPS observation of OH groups incorporated in an Ag(111) electrode. *Surf. Sci.* **418**, 441–456 (1998).
- [81] E. Savinova, A. Scheybal, M. Danckwerts, U. Wild, B. Pettinger, K. Doblhofer, R. Schlögl, G. Ertl. Structure and dynamics of the interface between a Ag single crystal electrode and an aqueous electrolyte. *Faraday Discussions 2002* **121**, 181–198 (2002).
- [82] M. Barteau, R. Madix. In D. King, B. Woodruff, Herausgeber, *The Chemical Physics of Solid Surfaces and Heterogeneous Catalysis*, Seite 95. Elsevier, Amsterdam (1982).

- [83] C. Au, S. Singh-Boparai, M. Roberts, R. Joyner. Chemisorption of oxygen at Ag(110) surfaces and its role in adsorbate activation. *J. Chem. Soc. Faraday Trans. 1* **79**, 1779 (1983).
- [84] C. Campbell, M. Paffett. The interactions of O₂, CO and CO₂ with Ag(110). *Surf. Sci.* **143**, 517 (1984).
- [85] V. Bukhtiyarov, A. Boronin, I. Prosvirin, V. Savchenko. Stages in the modification of a silver surface for catalysis of the partial oxidation of ethylene. 2. Action of the reaction medium. *J. Catal.* **150**, 268 (1994).
- [86] C. Campbell. Atomic and molecular oxygen adsorption on Ag(111). *Surf. Sci.* **157**, 43 (1985).
- [87] V. Bukhtiyarov, A. Boronin, V. Savchenko. Stages in the modification of a silver surface for catalysis of the partial oxidation of ethylene. *J. Catal.* **150**, 262 (1994).
- [88] C. Carlisle, D. King, M.-L. Bocquet, J. Cerda, P. Sautet. Imaging the Surface and the Interface Atoms of an Oxide Film on Ag(111) by Scanning Tunneling Microscopy: Experiment and Theory. *Phys. Rev. Lett.* **84**, 3899 (2000).
- [89] C. Carlisle, T. Fujimoto, W. Sim, D. King. Atomic imaging of the transition between oxygen chemisorption and oxide film growth on Ag(111). *Surf. Sci.* **470**, 15–31 (2000).
- [90] L. Tjeng, M. Meinders, J. van Elp, J. Ghijsen, G. Sawatzky, R. Johnson. Electronic structure of Ag₂O. *Phys. Rev. B* **41**, 3190 (1990).
- [91] M. Bowker. Plasma-induced oxidation of Ag(110). *Surf. Sci.* **155**, L276 (1985).
- [92] E. Bosco, S. Rangarajan. Some adsorption-nucleation-based models for electrochemical phase formation. *J. Chem. Soc. Faraday Trans. 1* **77**, 1673–1696 (1981).
- [93] E. Bosco, S. Rangarajan. Electrochemical phase formation (ecpf) nucleation growth vis-a-vis adsorption models. *J. Electroanal. Chem.* **129**, 25–51 (1981).
- [94] M. Fleischman, H. Thirsk. The growth of thin passivating layers on metallic surfaces. *J. Electrochem. Soc.* **110**, 688 (1963).
- [95] M. Avrami. Kinetics of phase change I. *J. Chem. Phys.* **7**, 1103 (1939).

- [96] J. Rosenmund, K. Doblhofer. The effects of uncompensated solution resistance and rate of the homogeneous electron transfer reaction on electrochemoluminescence transients. *J. Electroanal. Chem.* **396**, 77–83 (1995).
- [97] L. Pohlmann, C. Donner, H. Baumgärtel. Predator-prey-like behavior of the condensation process in two-dimensional adsorbate systems. *J. Phys. Chem. B* **101**, 10198–10204 (1997).
- [98] C. Donner, L. Pohlmann, H. Baumgärtel. Film formation considering the time-dependent concentration of noncondensed molecules. *Surf. Sci.* **345**, 363–372 (1996).
- [99] G. Valette, A. Hamelin. Structure and properties of electrochemical double film on interphase of aqueous sodium-fluoride solutions and silver. *J. Electroanal.* **45**, 301 (1973).
- [100] L. Doubova, S. Trasatti. Crystal face specificity of fluoride adsorption on Ag electrodes: The (111) face. *Electrochim. Acta* **42**, 785–791 (1997).
- [101] G. Valette. Double layer on silver single-crystal electrodes in contact with electrolytes having anions which are slightly specifically adsorbed. 3. The (111) face. *J. Electroanal. Chem.* **269**, 191 (1989).
- [102] M. Bacchetta, S. Trasatti, L. Doubova, A. Hamelin. Specific adsorption of fluoride ions on the (110) face of a silver single crystal electrode. *J. Electroanal. Chem.* **255**, 237–249 (1988).
- [103] C. Hamann, W. Vielstich. *Elektrochemie*, Kapitel 4, Seite 159. Wiley-VCH, Weinheim, 3. Auflage (1998).
- [104] M. Pourbaix, N. de Zoubov, J. van Muylder. *Atlas d'Equilibres Electrochimiques*. Gauthier-Villars, Paris (1963).
- [105] A. Krasnopoler, A. Johnson, E. Stuve. Hydrogen bonding and molecular orientation in water fluorine adlayers on silver(110). *Surf. Sci.* **328**, 186 (1995).
- [106] A. Krasnopoler, E. Stuve. Long-range and short-range stabilization of water by fluorine on Ag(110). *Surf. Sci.* **303**, 355 (1994).
- [107] K. Bange, T. Madey, J. Sass, E. Stuve. The adsorption of water and oxygen on Ag(110) - a study of the interactions among water molecules, hydroxyl-groups and oxygen-atoms. *Surf. Sci.* **183**, 334 (1987).

- [108] H. Donle, G. Volkert. Dipolmomente und Ultraviolettabsorption organischer Moleküle. *Z. Phys. Chem. B* **8**, 60 (1930).
- [109] K. Wolf. Über die Dipolmomente einiger organischer Moleküle. *Physik. Z.* **31**, 227 (1930).
- [110] N. Fedorovich, B. Damaskin, E. Stenina, S. Beniaminov. Mechanism of the effect of two-dimensional condensed camphor layers on electroreduction reactions. *Sov. Electrochem.* **15**, 1226–1229 (1979).
- [111] L. Holleck, H. Exner. Die Reduktion aromatischer Nitroverbindungen an der Quecksilber-Tropfkathode. 1. Die Wirkung oberflächenaktiver Stoffe und die Primärreaktion der Nitrogruppenreduktion. *Z. Elektrochem.* **56**, 46–51 (1952).
- [112] L. Holleck, B. Kastening, R. Williams. Über die Wirkungsweise von Inhibitoren bei polarographischer Reduktion organischer Verbindungen. *Z. Elektrochem.* **66**, 396–401 (1962).
- [113] S. Sathyanarayana. Polarographic maxima at the desorption potentials of organic molecules. *J. Electroanal. Chem.* **10**, 56 (1965).
- [114] E. B. Weronski, M. Michalski. Adsorption and concomitant phenomena. 2. Polarographic investigations of surface activity of aliphatic alcohols and camphor. *Electrochim. Acta* **14**, 241 (1969).
- [115] S. Sathyanarayana, K. Baikerikar. Interpretation of differential capacitance curves obtained during a two-dimensional association of organic molecules. *J. Electroanal. Chem.* **21**, 449 (1969).
- [116] S. Sathyanarayana, K. Baikerikar. Kinetics of adsorption of camphor, camphene, pinene and nonylic acid at mercury-solution interface. *J. Electroanal. Chem.* **25**, 209 (1970).
- [117] A. C. Ramamurthy, S. Sathyanarayana. Novel aspects of adsorption of d-camphor 10-sulfonate ion at a mercury-solution interface. *J. Electroanal. Chem.* **73**, 253–259 (1976).
- [118] R. Sridharan, R. de Levie. On diffusion-controlled film formation and dissolution. *J. Electroanal. Chem.* **205**, 303 (1986).
- [119] E. Stenina, A. Frumkin, N. Nikolaeva-Fedorovich, I. Osipov. Polarographic maxima of the third kind. III. *J. Electroanal. Chem.* **62**, 11 (1975).

- [120] R. Philipp, U. Retter, J. Dittrich, E. Müller, F. Kuschel. Adsorption and film formation of camphor-10-sulfonate at the mercury solution interface. *Electrochim. Acta* **32**, 1671–1677 (1987).
- [121] R. Philipp, J. Dittrich, U. Retter, E. Müller. Two-dimensional nucleation according to an exponential law with diffusion-controlled growth in the adsorption of camphor-10-sulfonate at the mercury electrolyte interface. *J. Electroanal. Chem.* **250**, 159–164 (1988).
- [122] R. Philipp. Step-like change of the growth-rate of primarily nucleated centers in the film formation of camphor. *J. Electroanal. Chem.* **290**, 67–78 (1990).
- [123] U. Retter. 2-dimensional nucleation in the adsorption at the metal electrolyte interface. *J. Electroanal. Chem.* **296**, 445–451 (1990).
- [124] J. Lecoœur, J. Andro, R. Parsons. The behaviour of water at stepped surfaces of single crystal gold electrodes. *Surf. Sci.* **114**, 320–330 (1982).
- [125] L. Stolberg, J. Lipkowski. In J. Lipkowski, P. Ross, Herausgeber, *Adsorption of organic molecules at metal electrodes*, Kapitel 4. VCH, New York (1992).
- [126] E. Lust, A. Jänes, P. Miidla, K. Lust. Adsorption of pyridine on the (111), (001) and (011) faces of bismuth. *J. Electroanal. Chem.* **425**, 25 (1997).
- [127] S. Bare, M. Van Krieken, C. Buess-Herman, A. Hamelin. Effect of the crystallographic orientation of gold single crystal electrodes on the occurrence of 2D phase transitions in adsorbed organic monolayers. *J. Electroanal. Chem.* **445**, 7–11 (1998).
- [128] H. Striegler. *Rekonstruierte Elektrodenoberflächen im Kontakt mit organischen Verbindungen*. Dissertation, Universität Ulm, Germany (1998).
- [129] Y. J. Li, J. Osolonovitch, N. Mazouz, F. Plenge, K. Krischer, G. Ertl. Turing-type patterns on electrode surfaces. *Science* **291**, 2395–2398 (2001).
- [130] J. Osolonovitch, K. Krischer. private commun.
- [131] A. Hamelin, S. Rottgermann, W. Schmickler. The double-layer of single-crystal gold electrodes in liquid and solid $\text{HClO}_4 \cdot 5.5\text{H}_2\text{O}$. *J. Electroanal. Chem.* **230**, 281–287 (1987).
- [132] A. Hamelin. Cyclic voltammetry at gold single-crystal surfaces. 1. Behaviour at low-index faces. *J. Electroanal. Chem.* **407**, 1–11 (1996).

- [133] R. Janek, W. Fawcett, A. Ulman. Impedance Spectroscopy of Self-Assembled Monolayers on Au(111): Evidence for Complex Double-Layer Structure in Aqueous NaClO₄ at the Potential of Zero Charge. *J. Phys. Chem. B* **101**, 8550–8558 (1997).
- [134] H. Striegler, D. Krznic, D. Kolb. Two-dimensional condensation of camphor and its derivatives on Au(111) electrodes. *J. Electroanal. Chem.* **in press** (2002).
- [135] J. Barth, H. Brune, G. Ertl, R. Behm. Scanning tunneling microscopy observations on the reconstructed Au(111) surface: Atomic structure, long-range superstructure, rotational domains, and surface defects. *Phys. Rev. B* **42**, 9307–9318 (1990).
- [136] J. Wang, A. Davenport, H. Isaacs, B. Ocko. Surface charge-induced ordering of the Au(111) surface. *Science* **255**, 1416 (1992).
- [137] J. Wang, G. Watson, B. Ocko. Uniaxial incommensurate phases at the Au(111) electrode. *Physica A* **200**, 679–687 (1993).
- [138] S. Wu, J. Lipkowski, O. Magnussen, B. Ocko, T. Wandlowski. The driving force for $(p \times \sqrt{3}) \leftrightarrow (1 \times 1)$ phase transition of Au(111) in the presence of organic adsorption: a combined chronocoulometric and surface X-ray scattering study. *J. Electroanal. Chem.* **446**, 67–77 (1998).
- [139] D. Eberhardt, E. Santos, W. Schmickler. Impedance studies of reconstructed and non-reconstructed gold single crystal surfaces. *J. Electroanal. Chem.* **419**, 23–31 (1996).
- [140] A. Dakkouri, D. Kolb. Reconstruction of gold surfaces. In A. Wieckowski, Herausgeber, *Interfacial Electrochemistry*, Kapitel 10, Seiten 151–173. Marcel Dekker, New York (1999).
- [141] D. Kolb, J. Schneider. Surface Reconstruction in Electrochemistry - Au(100)-(5x20), Au(111)-(1x23) and Au(110)-(1x2). *Electrochim. Acta* **31**, 929 (1986).
- [142] K. H. Bouhadir, D. S. Hausman, D. J. Mooney. Synthesis of cross-linked poly(aldehyde guluronate) hydrogels. *Polymer* **40**, 3575–3584 (1999).
- [143] M. Cyfert, B. Latko, M. Wawrzeczyk. Oxidation of tris(1,10-phenanthroline)iron(II) ion by iodate and periodate ions in neutral medium. *Int. J. Chem. Kinet.* **28**, 103–108 (1996).

- [144] W. Levason, R. D. Oldroyd, M. Webster. Extended X-ray-absorption fine-structure studies of transitionmetal periodate and tellurate complexes - crystal-structure of $\text{Rb}_2\text{Na}_4[\text{OsO}_2(\text{H}_2\text{TeO}_6)_2]\cdot 16 \text{H}_2\text{O}$. *J. Chem. Soc.-Dalton Trans.* Seiten 2983–2988 (1994).
- [145] W. Levason, M. D. Spicer, M. Webster. Coordination chemistry of higher oxidation-states. 36. Periodato complexes of palladium(IV) and platinum(IV) - crystal-structure of $\text{K}_4\text{Na}_2[\text{Pt}(\text{OH})_2(\text{HIO}_6)_2]\cdot 10\text{H}_2\text{O}$. *J. Coord. Chem.* **23**, 67–76 (1991).
- [146] M. S. Elshahawi, A. B. Farag. Iodometric determination of gold and platinum by 168-fold and 126-fold chemical amplification reactions. *Anal. Chim. Acta* **307**, 139–144 (1995).
- [147] A. A. Ensafi, K. Zarei. Highly selective catalytic determination of ultra trace amounts of rhodium by linear sweep voltammetry. *Fresenius J. Anal. Chem.* **361**, 103–105 (1998).
- [148] H. I. Gokcel, G. Nisli. Static and flow-injection voltammetric determination of periodate by reduction at a rotating platinum wire electrode. *Anal. Chim. Acta* **292**, 99–105 (1994).
- [149] J. Jakmune, K. Grudpan. Flow injection amperometry for the determination of iodate in iodized table salt. *Anal. Chim. Acta* **438**, 299–304 (2001).
- [150] Z. B. Li, C. N. Li, Q. H. Xu, Y. J. Liu. Catalytic spectrophotometric determination of trace of iridium with Nile blue and periodate. *Chin. J. Anal. Chem.* **27**, 778–781 (1999).
- [151] S. P. Mushtakova, A. P. Gumenyuk, L. F. Kozhina, S. S. Shtykova. Catalytic determination of rhodium with photometric signal control. *J. Anal. Chem.* **54**, 662–665 (1999).
- [152] V. Rajendran, E. Csoregi, Y. Okamoto, L. Gorton. Amperometric peroxide sensor based on horseradish peroxidase and toluidine blue O-acrylamide polymer in carbon paste. *Anal. Chim. Acta* **373**, 241–251 (1998).
- [153] J. Li, F. R. Lang, B. Ganem. Enantioselective approaches to aminocyclopentitols: A total synthesis of (+)-6-epitrehazolin and a formal total synthesis of (+)-trehazolin. *J. Org. Chem.* **63**, 3403–3410 (1998).
- [154] M. Orban, I. Lengyel, I. R. Epstein. Systematic design of chemical oscillators. 72. A transition metal oscillator - oscillatory oxidation of manganese(II) by periodate in a CSTR. *J. Am. Chem. Soc.* **113**, 1978–1982 (1991).

- [155] G. Rabai, M. T. Beck, K. Kustin, I. R. Epstein. Systematic design of chemical oscillators. 49. Sustained and damped pH oscillation in the periodate thio-sulfate reaction in a continuous-flow stirred tank reactor. *J. Phys. Chem.* **93**, 2853–2858 (1989).
- [156] J. K. Sheehan, R. P. Boothandford, E. Chantler, I. Carlstedt, D. J. Thornton. Evidence for shared epitopes within the naked protein domains of human mucus glycoproteins - a study performed by using polyclonal antibodies and electron-microscopy. *Biochem. J.* **274**, 293–296 (1991).
- [157] M. H. Pournaghiazar, R. Ojani. Preparation of polypyrrole-coated platinum modified electrode in chloroform in the presence of various supporting electrolytes and its use for the catalytic-oxidation of hydroquinone in aqueous and chloroform solutions. *Talanta* **42**, 657–662 (1995).
- [158] J. Ambrose, R. G. Barradas, K. Belinko. Electrochemical formation of Ag(III) and Cu(III) periodate complexes in aqueous KOH solutions. *J. Electroanal. Chem.* **42**, 146–150 (1973).
- [159] L. Zhaohui, G. Dengping. Electrochemical properties of a periodate complex of Ag(III). *Electrochim. Acta* **35**, 451–454 (1990).
- [160] H. Desantana, M. L. A. Temperini. Spectroelectrochemical study of iodide, iodate and periodate on a silver electrode in alkaline aqueous-solution. *J. Electroanal. Chem.* **316**, 93–105 (1991).
- [161] M. Torimura, K. Kano, T. Ikeda, M. Goto, T. Ueda. On-line electrochemical detection of carbohydrates coupled with the periodate oxidation. *J. Chromatogr. A* **790**, 1–8 (1997).
- [162] K. Krischer, J. Oslonovitch, Y. Li. *to be published* (2002).
- [163] W. Roman. *Gmelins Handbuch der Anorganischen Chemie*, Band 8 (Iod), Seite 528. Verlag Chemie, Berlin, 8. Auflage (1933).
- [164] K. Krischer, Y. Li. private commun.