

6 Literaturverzeichnis

- /Anwa 98/ Anwand, Q.; Parascandola, S.; Richer, E.; Brauer, G.; Coleman, P.G.; Möller, W.: Slow Positron implantation spectroscopy of high current ion nitrided austenitic stainless steel; Nucl. Instr. Meth. in Physics Research B 136-138 (1998) 768
- /Aver 88/ Averbach, A.S.; Diaz de la Rubia, T.; Benedek, R.: Nucl. Instr. Meth. in Physics Research B 33 (1988) 693
- /Barg 88/ Bargel, H.J.; Schulze, G.: Werkstoffkunde; VDI-Verlag GmbH, Düsseldorf, 5.Auflage (1988)
- /Berg 00/ Berg, M.; Budtz-JØrgensen, C.V.; Reitz, H.; Schweitz, K.O.; Chevallier, J.; KringshØj, P.; BØttiger, J.: On plasma nitriding of steels; Surf. Coat. Technol. 124 (2000) 25-31
- /Berg 75/ Bergmann, Schäfer: Lehrbuch der Experimentalphysik, Band IV, Aufbau der Materie; Walter de Gruyter Verlag, Berlin (1975)
- /Beth 30/ Bethe, H.A.; Ann. Phys. 5, 325 (1930)
- /Bloc 33/ Bloch, F.; Ann. Phys. 16, 285 (1933)
- /Bohr 13/ Bohr, N.; Phil. Mag. 25 (1913) 10
- /Brig 96/ Briglia, T.; Terwagne, G.; Bodart, F.; Quaeyhaegens, C.; D'Haen, J.; Stals, L.M.: Study of nitrogen-implanted stainless steels by CEMS and TEM; Surf. Coat. Technol. 80 (1996) 105-108
- /Bull 96/ Bull, S.J.; Jones, A.M.; McCabe, A.R.: Improving the mechanical properties of steels using low energy, high temperature nitrogen ion implantation; Surf. Coat. Technol. 83 (1996) 257-262
- /Camp 99/ Camps, E.; Muhl, S.; Romero, S.; Garcia, J.L.: Microwave plasma nitrided austenitic AISI-304 stainless steel, Surf. Coat. Technol. 106 (1998) 121-128
- /Chu 00/ Chu, P.K.; Tian, X.B.; Zeng, Z.M.; Tang, B.Y.; Kwok, T.K.: Fast pulsing plasma immersion ion implantation for tribological applications; Surf. Coat. Technol. 128-129 (2000) 226-230
- /Coll 93/ Collins, G.A.; Hutchings, R.; Tendys, J.: Plasma immersion ion implantation – the role of diffusion; Surf. Coat. Technol. 59 (1993) 267
- /Coll 95/ Collins, G.A.; Hutchings, R.; Short, K.T.; Tendys, J.; Li, X.; Samandi, M.: Nitriding of austenitic stainless steel by plasma immersion ion implantation; Surf. Coat. Technol. 74-75 (1995) 417
- /Dear 89/ Dearnley, P.A.; Namvar, A.; Hibberd, G.G.A.; Bell, T.: Some observations on plasma nitriding austenitic stainless steel; Proc. 1st Int. Conference on plasma surface engineering, Garmisch-Partenkirchen, 1988, DGM Informationsgesellschaft, Oberursel (1989) 219

- /Dimi 98/ Dimitrov, V.I.; D'Hean, J.; Knuyt, G.; Quaeyhaegens, C.; Stals, L.M.: A method for determination of the effective diffusion coefficient and sputtering rate during plasma diffusion treatment; Surf. Coat. Technol. 99 (1998) 234
- /Du 94/ Du, H.; Sproge, L.; Agren, J.: Proc. 2nd ASM 'Heat Treatment and Surface Egeneering' Conference, 1-3 June 1993; Materials Science Forum, Dortmund (1994) pp.163
- /Flis 89/ Flis, J.; Mankowski, J.; Rolinski, E.: Corrosion behaviour of stainless steel after plasma and ammoniac nitriding; Surface Egeneering (1989) Vol.5 No.2, 151
- /From 76/ Fromm, E.; Gebhardt, E.: Gase und Kohlenstoffe in Metallen; Springer-Verlag, Berlin (1976)
- /Gerb 86/ Gerber, G.; Quate, C.F.; Gerber, C.: Phys. Rev. Lett. (1986) 930
- /Gons 81/ Gonser, U.: Mößbauer Spectroscopy II; Topics in Applied Physics, Vol.25; Springer-Verlag, Berlin (1981)
- /Grim 97/ Grimme, D.: Edelstahl Rostfrei – Eigenschaften; Informationsstelle Edelstahl Rostfrei; Düsseldorf (1997)
- /Groß 92/ Große, G.: MOS90 Manual and Program Documentation, Version 2.2; München (1992)
- /Habi 80/ Habig, H.: Verschleiss und Härte von Werkstoffen; Hanser (1980)
- /Han 00/ Han, B.X.; Yan, S.; Le, X.Y.; Zhao, W.J.; Remnev, G.E., Opekounov, M.S.; Isakov, I.F.; Grushin, I.I.: The phase and microstructure changes in 45# Steel irradiated by intense pulsed ion bemas, Surface and Coatings technology 128-129 (2000) 387-393
- /Hauf 66/ Hauffe, K.: Reaktionen in und an festen Stoffen; Springer-Verlag, Berlin (1966)
- /Hollek 84/ Hollek, H.: Materialkundlich-Technische Reihe; Gebrüder Borntraeger, Berlin (1984), S. 45, 47
- /Horn 94/ Hornbogen, E.: Werkstoffkunde; Springer-Verlag, Berlin (1994)
- /Ichi 86/ Ichii, K.; Fujimura, K.; Takase, T.: Structure of the ion-nitrided layer of 18-8 stainless steel; Technology reports of Kansai University, No.27, March 1986, 135
- /Idir 99/ Idir, M.; Boubecker, B.; Sabot, R.; Goudeau, Ph.; Dinhut, J-F.; Grosseau-Poussard, J-F.: Structure and related corrosion behaviour in 1 MH₂SO₄ of b.c.c. 304L films prepared by iron beam sputtering, Surf. Coat. Technol. 122 (1999) 230-234
- /Kane 62/ Kanematsu, K., Journal Phys. Soc. Japan, 17 (1962) 85
- /Kell 88/ Keller, R.: Multiple Charged Ions with MUCIS; GSI Scientific Report (1988)
- /Kell 89/ Keller, R.: Ion Extraction: The Physics and Technology of Ion Sources; ed. I.G. Brown, John Wiley and sons, New York (1989)

- /Kinc 55/ Kinchin, G.H; Pease, R.S.: Rep. Progr. Phys. 18 (1955) 1
- /Klos 96/ Klose, S.: Diplomarbeit an der Uni Heidelberg
- /Koro 98/ Korotaev, A.D.; Ovchinnikov, S.V.; Pochivalov, Yu.I.; Tyumentsev, A.N.; Shchipakin, D.A.; Tretjak, M.V.; Isakov, I.F.; Remnev, G.E.: Structure-phase states of the metal surface and undersurface layers after the treatment by powerful ion beams; Surf. Coat. Technol. 105 (1998) 84-90
- /Krau 00/ Kraus, W.; Heinemann, B.; Speth, E.; Vollmer, O.; Beitrag zum 21th Symposium on Fusion Technology (SOFT), Madrid (2000)
- /Kuwa 91/ Kuwahara, H.; Matsuoka, H.; Takada, J.; Kikuchi, S.; Tomii, Y.; Tamura, I.: Plasma nitriding of Fe-18 Cr-9 Ni in the range of 723-823 K; Oxidation of metals, Vol. 36 (1991) 143
- /Lari 99/ Larisch, B.; Brsuky, U.; Spies, H.-J.: Plasma nitriding of stainless steel at low temperatures, Surface Coatings Technolgy 116-119 (1999) 205-211
- /Lee 99/ Lee, Y.P.; Chang, G.S.; Son, S.H.; Chae, K.H.; Whang, C.N.; Menthe, E.; Rie, K.-T.: Electronic structures and nitride formation on ion-implanted AISI 304L austenitic stainless steel., Surface Coatings Technology 112 (1999) 291-294
- /Leut 89/ Leutenecker, R.; Wagner, G.; Louis, T.; Gonser, U.; Guzman, L.; Molinari, A.: Phase transformations of a nitrogen-implanted austenitic stainless steel (X10 CrNi18-9); Materials Science and Engeneering, A 115 (1989) 229
- /Lind 63/ Lindhard, J.; Scharff, M.; Schiott, H.E.: Mat. Fys. Medd. Dan. Vid. Selsk. 33 (1963)
- /Matt 87/ Matthaei, E.: Härteprüfung mit kleinen Prüfkräften und ihre Anwendung bei Randschichten; DGM Informationsgesellschaft (1987)
- /Ment 99a/ Menthe, E.: Bildung, Struktur und Eigenschaften der Randschicht von austenitischen Stählen nach dem Plasmanitrieren, Herbert Utz Verlag, München (1999)
- /Ment 99b/ Menthe, E.; Rie, K.-T.: Further investigations of the structure and properties of austenitic stainless steel after plasma nitriding; Surf. Coat. Technol. 116-119 (1999) 199-204
- /Meye 84/ Meyers, M.A.; Chawla, K.K.: Mechanical Metallurgy; Prentice Hall Englewood Cliffs; New-York(1984) S.467 ff.
- /More 96/ Moreira, C.E.: Estudos sobre a transformacao de fase em nitretos de Fe induzidas por feixes de ions, Dissertation (1996), Universidade de Rio Grande de Sul, Porto Alegre (Brasilien)
- /Müll 91/ Müller, G.: Diplomarbeit TH-Darmstadt 1991, Institut für Kernphysik
- /Müll 98/ Müller, D.: Nitrierung von Edelstahl mit gepulsten Ionenstrahlen, Diplomarbeit Universität Heidelberg (1998), Physikalisch-Chemisches Institut, Abteilung Radiochemie

- /Müll 02/ Müller, D, Wolf, G.K., Stahl, B., Amaral, L., Behar, M., da Cunha, J.B.M, Phase transformation and corrosion behavior of stainless steel bombarded by pulsed energetic ion beams, Conference of Surface Modification of Materials, Marburg 2001, to be published
- /Neff 59/ Neff, H.: Grundlagen und Anwendung der Röntgenfeinstrukturanalyse; Verlag R.Oldenbourg, Graphische Betriebe München (1959)
- /Neub 96/ Neubeck, K.; Dissertation, Fachbereich Materialwissenschaften der TU-Darmstadt (1996), VDI-Verlag, Fortschrittsberichte Reihe 5, Nr. 437
- /Ober 91/ Oberflächen- und Materialtechnologie GmbH Lübeck: Cerid-Schichtwerkstoffe gegen Verschleiß und Korrosion (1991)
- /Para 00/ Parascondola, S; Dissertation: Nitrogen transport during ion nitriding of austenitic stainless steel, Forschungszentrum Rossendorf (2000)
- /Para 98/ Parascandola, S; Günzel, R.; Grötzschel, R.; Richter, E.; Möller, W.: Nucl. Instr. Meth. in Physics Research B 136-138 (1998) 1281
- /Peck 77/ Peckner, D.; Bernstein, I.M.: Handbook of Stainless Steels; McGraw-Hill, New York (1977)
- /Pere 98/ Perez, F.J.; Otero, E.; Hierro, M.P.; Gomez, C.; Pedraza, F.; Segovia, de J.L.; Roman, E.: High temperature corrosion protection of austenitic AISI 304 stainless steel by Si, Mo and Ce ion implantation; Surf Coat. Technol. 108-109 (1998) 127-131
- /Piek 98/ Piekoszewski, J; Werner, Z.; Langner, J.; Walis, L.: Modification of the surface properties of materials by pulsed plasma beams; Surf. Coat. Technol. 106 (1998) 228-233
- /Pogr 00/ Progrebnjak, A.D.; Ladysev, V.S.; Progrebnjak, N.A.; Michaliov, A.D.; Shablya, V.T.; Valyaev, A.N.; Valyaev, A.A.; Loboda, V.B.: A comparison of radiation damage and mechanical and tribological properties of α -Fe exposed to intense pulsed electron and ion beams; Vacuum (2000) 45-52
- /Pogr 99/ Progrebnjak, A.D.; Shablya, V.T.; Sviridenko, N.V.; Valyaev, A.N.; Plotnikov, S.V.; Kylyshkanov, M.K.: Study of deformation states in metals exposed to intense-pulsed-ion beams (IPIB); Surf. Coat. Technol. 111 (1999) 46-50
- /Port 92/ Porter, D.A.; Esterling, K.E.: Phase Transformations in Metals and Alloys, Chapman & Hall (1992) London
- /Rahm 77/ Rahmel, A.; Schwenk, W.: Korrosion und Korrosionsschutz von Stählen; Verlag Chemie, Weinheim (1977)
- /Rahm 90/ Rahmel, A.; Heitz, E.; Henkhaus, R.: Korrosionskunde im Experiment, Untersuchungsverfahren-Messtechnik-Aussagen, Verlag Chemie (1990)
- /Raus 87/ Rauschenbach, B.: Untersuchungen zu Problemen der Implantationsmetallurgie; Publikationen des Zentralinstituts für Kernforschung der DDR (1987) ZfK 627

- /Reim 95/ Reimann, C.T.: Some comments on pressure-pulse/shock-wave desorption in a real material; Nucl. Instr. Meth. in Physics Research B 95 (1995) 181-191
- /Remn 99/ Remnev, G.E.; Isakov, I.F.; Opekounov, M.S.; Matvienko, V.M.; Ryzhkov, V.A.; Struts, V.K.; Grushin, I.I.; Zakoutayev, A.N.; Potyomkin, A.V.; Tarbokov, V.A.; Pushkaryov, A.N.; Kutuzov, V.L.; Ovsyannikov, M.Yu.: High intensity pulsed ion beam sources and their industrial applications; Surf. Coat. Technol. 114 (1999) 206-212
- /Rich 00/ Richter, E.; Günzel, R.; Parascandola, Telbozova, T.; Kruse, O.; Möller, W.: Nitriding of stainless steel and aluminium alloys by plasma immersion ion implantation, Surface and Coatings Technology 128-129 (2000) 21-27
- /Ryss 90/ Ryssel: Vorlesungskript Ionenimplantation; Universität Nürnberg, WS 1990/91
- /Sama 93/ Samandi, M.; Shedden, B.A.; Smith, D.I.: Microstructure, corrosion and tribological behaviour of plasma immersion ion-implanted austenitic stainless steel; Surf. Coat. Technol. 59 (1993) 261-266
- /Scha 81/ Schatt, W.: Einführung in die Werkstoffwissenschaft; VEB-Verlag, Leipzig (1981)
- /Scha 47/ Schäffler, A.L.: Weld. Res. 1947, S.601 ff.
- /Sama 94/ Samandi, M.; Shedden, B.A.; Bell, T.; Collins, G.A.; Hutchings, R.; Tendys, J.: Significance of nitrogen mass transfer mechanism on the nitriding behaviour of austenitic stainless steel; J. Vac. Sci. Technol. B, Vol. 12, No. 2, Mar/Apr 1994, 935
- /Sche 98/ Schell, S.: Ionenstrahlnitrierung von austenitischen Edelstählen bei erhöhter Temperatur zur Verbesserung der tribologischen Eigenschaften bei gleichzeitiger hoher Korrosionsbeständigkeit im Vergleich mit der Plasmanitrierung von austenitischen Edelstählen und deren Tribologischen- und Korrosionseigenschaften
- /Schn 94/ Schneeweiß, M; Kipp, S.; Lacmann, R.: Rastersondenmikroskopie; Mitteilungen der TU Braunschweig, Jahrgang XXIX, Heft II/1994 S.28
- /Shu 78/ Shu, W.: Backscattering Spectrometry; New York, Academic Press (1978)
- /Shul 99/ Shulov, V.A.; Nochovnaya, N.A.: Crater formation on the surface of metals and alloys during high power ion beam processing; Nucl. Instr. Meth. in Physics Research B 148 (1999) 154-158
- /Sigm 69/ Sigmund, P.: Physical Research 184 (1969) 383
- /Stinn 94/ Stinnett, R.W.; Buchheit, R.G.; Greulich, F.A.; Hilss, C.R.; Kilgo, A.C.; McIntyre, D.C.; Greenly, J.B.; Thompson, M.O.; Johnston, G.P.; Rej, D.J.: Thermal Surface Treatment Using Intense, Pulsed Ion Beams; Mat. Res. Soc. Symp. Proc. Vol. 316 (1994) 521-532
- /Stra 20 / Strauss, B.; Maurer, E.: Kruppsche Mh. 1 (1920), S. 129 ff.
- /Terw 89/ Terwagne, G.; Möller, W.; Materials Science and Engineering, A 115 (1989)

- /Tesm 95/ Tesmer, J.R.; Nastasi, M.: Handbook of Modern Ion Beam Materials Analysis; Pennsylvania, Materials Research Society (1995)
- /Uglo 99/ Uglov, V.V.; Rusalsky, D.P.; Khodasevich, V.V.; Kholmetskii, A.L.; Wei, R.; Vaja, J.J.; Rumyanceva, I.N.; Wilbur, P.J.: Modified layer formation by means of high current density nitrogen and boron implantation
- /Vere 85/ Verein Deutscher Eisenhüttenleute (Hrsg), Werkstoffkunde Stahl, Verlag Stahleisen, Düsseldorf (1985)
- /Webe 95/ Weber, T.; de Wit, L.; Saris, F.W.; Königer, Rauschenbach, B.; Wolf, G.K.; Krauss, S.: Hardness and corrosion resistance of single-phase nitride and carbide on iron, Materials Science and Egeneering, A 199 (1995) 205-210
- /Wei 91/ Wei, R.; Wilbur, P.J.; Williamson, D.L.: Journal of Tribology, Vol. 112 (1991)
- /Wei 96/ Wei, R.; Vajo, J.J.; Matossian, J.N.; Wilbur, P.J., Davis, J.A.; Williamson, D.L.; Collins, G.A.: A comparative study of beam ion nitriding, plasma ion implantation and nitriding of AISI 304 stainless steel; Surf. Coat. Technol. 83 (1996) 235-242
- /Weil 89/ Weiler, W.; Behncke, H.H.: Anforderungen an Eindringkörper für die Universalhärteprüfung; Werksbericht der Firma Fischer, Sindelfingen (1989)
- /Wern 98/ Werner, Z.; Piekoszewski, J.; Walis, L.: Modification of the surface properties of materials by pulsed plasma beams; Surf. Coat. Technol. 106 (1998) 228-233
- /Will 91/ Williamson, D.L.; Ozturk, O.; Wie, R.; Wilbur, P.J.; Nucl. Instrum. Methods, B59/60 (1991) 737-741
- /Will 94/ Williamson, D.L.; Ozturk, O.; Wei, R.; Wilbur, P.J.: Metastable phase formation and enhanced diffusion in fcc alloys under high dose, high flux nitrogen implantation at high and low ion energies; Surf. Coat. Technol. 65 (1994) 15-23
- /Will 98/ Williamson, D.L.; Davis, J.A.; Wilbur, P.J.: Effect of stainless steel composition on low-energy, high-flux, nitrogen ion beam processing, Surf. Coat. Technol. 103-104 (1998) 178-184
- /Wolf 88/ Wolf, G.K.; Ballhaus, P.; König, U.; Weist, C.; Westheide, H.: Verschleissverhalten von Werkzeugen aus Stahl und Hartmetall nach Ionenimplantation; Tribologie, Band 12, Springer, Berlin (1988) S. 463-489
- /Wolf 89/ Wolf, G.K.; Barth, M.; Ensinger, W: Ion Beam Assisted Deposition for Metal Finishing; Nucl. Instr. Meth. in Physics Research B 37/38 (1989) 682-687.
- /Xiao 00/ Xiaoyun, L.; Sha, Y.; Weijiang, Z.; Baoxi, H.; Yugang, W.; Jianming, X.: Computer simulation of thermal-mechanical effects of high intensity pulsed ion beams on a metal surface; Surf. Coat. Technol. 128-129 (2000) 381-386
- /Zhan 85/ Zhang, Z.L.; Bell, T.; Surface Engeneering Vol. 1 (1995) 131
- /Zieg 85/ Ziegler, J.F.; Biersack, J.P.; Littmark, U.: The Stopping Power of Ions in Solids, Vol.1 Pergamon New York (1985)