

Kapitel 6: Referenzen

- [AA96] J. Ackermann, N. Angert, R. Neumann, C. Trautmann, M. Dischner, T. Hagen, M. Sedlacek: *Ion track diameters in mica studied with scanning force microscopy*, Nuclear Instruments and Methods in Physics Research B **107** (1996), 181.
- [B94] N.A. Burnham: *Accounting for the stiffnesses of the probe and sample in scanning probe microscopy*, Journal of Vacuum Science and Technology B **12** (1994), 2219.
- [B02] M. Beuve, persönliche Mitteilung (2002).
- [BA01] D. Baur, P. Apel, Y.E. Korchev, C. Müller, Z. Siwy, H. Spohr, R. Spohr: *Relevance of surface gels for ion track etching in polymers*, GSI Jahresbericht 2001, 143.
- [BC89] N.A. Burnham, R.J. Colton: *Measuring the nanomechanical properties and surface forces of materials using an atomic force microscope*, Journal of Vacuum Science and Technology A **7** (1989), 2906.
- [BC92] N.A. Burnham, R.J. Colton, H.M. Pollock: *Work-function anisotropies as an origin of long-range surface forces*, Physical Review Letters **69** (1992), 144.
- [BK01] M. Budzanowski, J.L. Kim, Y.M. Nam, S.Y. Chang, P. Bilski, P. Olko: *Dosimetric properties of sintered LiF: Mg, Cu, Na, Si TL detectors*, Radiation Measurements **33** (2001), 537.
- [BP66] R. Balzer, H. Peisl, W. Waidelich: *Nachweis von Frenkeldefekten in röntgenbestrahltem LiF*, Physica Status Solidi **15** (1966), 495.
- [BP93] S. Behler, S.H. Pan, P. Jess, A. Baratoff, H.J. Güntherodt, F. Lévy, G. Wirth, J. Wiesner: *Vortex pinning in ion-irradiated NbSe₂ studied by scanning tunneling microscopy*, GSI Jahresbericht 1993, 215.
- [BP02] K.L. Babcock, C.B. Prater: *Phase imaging: beyond topography*, <http://www.di.com/AppNotes/Phase/PhaseMain.html> (2002).

- [BQ86] G. Binning, C.F. Quate, C. Gerber: *Atomic Force Microscopy*, Physical Review Letters **56** (1986), 930.
- [BS54] D. Binder, W.J. Sturm: *Equivalence of X-Ray Lattice Parameter and Density Changes in Neutron-Irradiated LiF*, Physical Review **96** (1954), 1519.
- [BS55] D. Binder und W.J. Sturm: *Annealing Process in Neutron-Irradiated LiF*, Letters to the editor, Physical Review **99** (1955), 603.
- [BS57] C.V. Briscoe, C.F. Squire: *Elastic Constants of LiF from 4.2°K to 300°K by Ultrasonic Methods*, Physical Review **106** (1957), 1175.
- [BV95] F. Beuneu, P. Vajda: *Radiation-induced defects in CaF₂: An electron-spin resonance and dielectric constant investigation*, Journal of Applied Physics **78** (1995), 6989.
- [BV02] F. Beuneu, P. Vajda, O.J. Zogal: *Li colloids created by electron-irradiation of LiF: a great wealth of properties*, Nuclear Instruments and Methods in Physics Research B (2002), in press.
- [CD97] M.P. Carpenter, R.W. Dunford, D.S. Gemmell, T. Graber, R.V.F. Janssens, E.P. Kanter, J.A Nolen, Jr, Z. Vager: *Coulomb explosion of 173-MeV HeH⁺ ions traversing carbon foils*, Physical Review A **55** (1997), 2090.
- [CM68] Y.H. Chu, R.L. Mieher: *ESR of a (111) Defect in X-Rayed LiF*, Physical Review Letters **20** (1968), 1289.
- [CS72] J.H. Crawford, L.M. Slifkin (Editors): *Point Defects in Solids, Volume 1: General and Ionic Crystals*, Plenum Press (1972).
- [DV97] S. Dongmo, P. Vautrot, N. Bonnet, M. Troyon: *Correction of surface roughness measurements in SPM imaging*, Applied Physics A **66** (1998), S819.

- [DV98] D. Dobrev, J. Vetter, R. Neumann: *Growth of potassium iodide single-crystals using ion track membranes as templates*, Nuclear Instruments and Methods in Physics Research B **146** (1998), 513.
- [EG00] I.V. Ermakov, W. Gellermann, K.K. Pukhov, T.T. Basiev: *Two-photon polarization spectroscopy of F_3^+ and F_2 color centers in LiF crystals*, Journal of Luminescence **91** (2000), 19.
- [EN02] A.S. El-Said, R. Neumann, K. Schwartz, C. Trautmann: *Scanning force microscopy of heavy-ion induced damage in lanthanum fluoride single crystals*, Surface and Coatings Technology (2002), in press.
- [ES36] D.H. Ewing, F. Seitz: *On the Electronic Constitution of Crystals; LiF and LiH*, Physical Review **50** (1936), 760.
- [FB98] B.E. Fischer, J. Barak, E. Adler, S. Metzger: *Computer-forgetfulness, cosmic radiation and an ion-microscope*, Nuclear Instruments and Methods in Physics Research B **146** (1998), 587.
- [FG77] J.R. Fields, P.C. Gibbons, S.E. Schnatterly: *Electronic Excitations in LiF: 10-70 eV*, Physical Review Letters **38** (1977), 430.
- [FP65] R.L. Fleischer, P.B. Price, R.M. Walker: *The ion explosion spike mechanism for formation of charged particle tracks in solids*, Journal of Applied Physics **36** (1965), 3645.
- [FP75] R.L. Fleischer, P.B. Price, R.M. Walker: *Nuclear Tracks in Solids, Principles and Applications*, University of California Press (1975).
- [G74] H. Grupp: *Nachweis statischer elektrischer Feldgradienten von Gitterfehlern im kubischen Kalziumfluorid-Kristall durch ein Kernresonanzexperiment*, Diplomarbeit, Heidelberg 1974.

- [GA94] S. Grafström, J. Ackermann, T. Hagen, R. Neumann, O. Probst: *Analysis of lateral force effects on the topography in scanning force microscopy*, Journal of Vacuum Science and Technology B **12** (1994), 1559.
- [GN93] S. Grafström, M. Neitzert, T. Hagen, J. Ackermann, R. Neumann, O. Probst, M. Wörtge: *The role of topography and friction for the image contrast in lateral force microscopy*, Nanotechnology **4** (1993), 143.
- [H69] H.W. den Hartog: *Color centers in alkaline earth fluorides*, Dissertation (1969), Groningen.
- [HG94] T. Hagen, S. Grafström, J. Ackermann, R. Neumann, C. Trautmann, J. Vetter, N. Angert: *Friction force microscopy of heavy-ion irradiated mica*, Journal of Vacuum Science and Technology B **12** (1994), 1555.
- [HM00] S. Hofmann, G. Münzenberg: *The discovery of the heaviest elements*, Reviews of Modern Physics **72** (2000), 733.
- [I85] J.N. Israelachvili: *Intermolecular and Surface Forces: With Applications to Colloidal and Biological Systems*, Academic Press (1985).
- [J97] B. Jähne: *Digitale Bildverarbeitung*, Springer Verlag (1997).
- [JD98] J. Jensen, A. Dunlop, S. Della-Negra: *Microscopic observations of metallic inclusions generated along the path of MeV clusters in CaF₂*, Nuclear Instruments and Methods in Physics Research B **146** (1998), 399.
- [JK01] O. Jäkel, M. Krämer, C.P. Karger, J. Debus: *Treatment planning for heavy ion radiotherapy: clinical implementation and application*, Physics in Medicine and Biology **46** (2001), 1101.
- [K91] D. Keller: *Reconstruction of STM and AFM images distorted by finite-size tips*, Surface Science **253** (1991), 353.

- [KB02] H. Khemliche, A.G. Borisov, A. Momeni, P. Roncin: *Exciton and trion formation during neutralization of Ne⁺ at a LiF(001) surface*, Nuclear Instruments and Methods in Physics Research B **191** (2002), 221.
- [KH86] S. Klaumünzer, M.-D. Hou, G. Schumacher: *Coulomb Explosions in a Metallic Glass Due to the Passage of Fast Heavy Ions?*, Physical Review Letters **57** (1986), 850.
- [KK60] Y.W. Kim, R. Kaplan, P.J. Bray: *Electron-Spin Paramagnetic Resonance Studies of Metallic Lithium in Neutron-Irradiated LiF*, Physical Review **117** (1960), 740.
- [KK93] M. Krämer, G. Kraft: *Calculations of heavy-ion track structure*, Radiation and Environmental Biophysics **33** (1994), 91.
- [KK01] E.A. Kotomin, V. Kashcheyevs, V.N. Kuzovkov, K. Schwartz, C. Trautmann: *Modeling of primary defect aggregation in tracks of swift heavy ions in LiF*, Physical Review B **64** (2001), 144108.
- [KL90] R. Katz, K.S. Loh, L. Daling, G.-R. Huang: *An Analytic Representation of the Radial Distribution of Dose from Energetic Heavy Ions in Water, Si, LiF, NaI and SiO₂*, Radiation Effects and Defects in Solids **114** (1990), 15.
- [KP67] W. Kapfhammer, H. Peisl, W. Waidelich: *Gitterkonstanten- und Dichteänderung in neutronenbestrahltem LiF*, Zeitschrift für angewandte Physik **23** (1967), 249.
- [KS54] G.F. Koster, J.C. Slater: *Wave Functions for Impurity Levels*, Physical Review **95** (1954), 1167.
- [KS99] L.B. Kiss, J. Söderlund, G.A. Niklasson, C.G. Granqvist: *New approach to the origin of lognormal size distributions of nanoparticles*, Nanotechnology **10** (1999), 25.
- [KS01] T. Klempt, S. Schweizer, K. Schwartz, O. Kanert, D Suter, U. Rogulis, J.-M. Spaeth: *Magnetic resonance investigation of dynamics of F centers in LiF*, Solid State Communications **119** (2001), 453.

- [L93] P. Legrand: *Étude de l'Endommagement de Cible Métallique par des Ions de Forte Energie: le Cas du Fer, Résultats Expérimentaux et Simulations Numériques*, Dissertation (1993), Paris.
- [L01] M. Lang: *Rasterkraftmikroskopie an natürlichen und Ionen-induzierten Strahlenschäden in Phlogopit*, Diplomarbeit, Heidelberg 2001.
- [LG02] M. Lang, U.A. Glasmacher, B. Moine, C. Müller, R. Neumann, G.A. Wagner: *Artificial ion tracks in volcanic dark mica simulating natural radiation damage: A scanning force microscopy study*, Nuclear Instruments and Methods in Physics Research B **191** (2002), 346.
- [LN01] J. Liu, R. Neumann, C. Trautmann, C. Müller: *Tracks of swift heavy ions in graphite studies by scanning tunneling microscopy*, Physical Review B **64** (2001), 184115.
- [M99] C. Müller: *Untersuchung schwerioneninduzierter Defekte an der Oberfläche von Lithiumfluorid mittels Rasterkraftmikroskopie*, Diplomarbeit, Heidelberg 1999.
- [M99_2] A. Müller: *Rasterkraftmikroskopie an schwerioneninduzierten Materialveränderungen*, Dissertation (1999), Heidelberg.
- [MB91] P. Maivald, H.J. Butt, S.A.C. Gould, C.B. Prater, B. Drake, J.A. Gurley, V.B. Elings, P.K. Hansma: *Using force modulation to image surface elasticities with the atomic force microscope*, Nanotechnology **2** (1991), 103.
- [MB94] A. Meftah, F. Brisard, J.M. Costantini, E. Dooryhee, M. Hage-Ali, M. Hervieu, J.P. Stoquert, F. Studer, M. Toulemonde: *Track formation in SiO₂ quartz and the thermal-spike mechanism*, Physical Review B **49** (1994), 12457.
- [MN98] A. Müller, R. Neumann, K. Schwartz, C. Trautmann: *Scanning force microscopy of heavy-ion tracks in lithium fluoride*, Nuclear Instruments and Methods in Physics Research B **146** (1998), 393.

-
- [MN98_2] A. Müller, R. Neumann, K. Schwartz, T. Steckenreiter, C. Trautmann: *Heavy-ion induced modification of lithium fluoride observed by scanning force microscopy*, Applied Physics A **66** (1998), S1147.
- [N67] J. Nahum: *Optical Properties and Mechanism of Formation of Some F-Aggregate Centers in LiF*, Physical Review **158** (1967), 814.
- [N99] R. Neumann: *Scanning Probe Microscopy of ion-irradiated materials*, Nuclear Instruments and Methods in Physics Research B **151** (1999), 42.
- [NA96] R. Neumann, J. Ackermann, N. Angert, C. Trautmann, M. Dischner, T. Hagen, M. Sedlacek: *Ion tracks in mica studied with scanning force microscopy using force modulation*, Nuclear Instruments and Methods in Physics Research B **116** (1996), 492.
- [NB92] K. Neu, H. Baumann, K. Bethge, K. Leible, D. Rück, N. Angert: *Hardness Improvement of Titanium by Nitrogen-Implantation*, GSI Jahresbericht 1992, 264.
- [NO00] H.S. Nagaraja, F. Ohnesorge, D.K. Avasthi, R. Neumann, P. Mohan Rao: *Scanning force microscopy of ion-irradiated organic single crystals of benzoyl glycine*, Applied Physics A **71** (2000), 337.
- [ON00] F. Ohnesorge, R. Neumann: *Scanning force microscopy corrected for nm-scale sample elasticity on single heavy-ion tracks in polymers*, Europhysics Letters **50** (2000), 742.
- [P02] H. Paul, persönliche Mitteilung (2002).
- [PB90] A. Perez, E. Balanzat, J. Dural: *Experimental study of point-defect creation in high-energy heavy-ion tracks*, Physical Review B **41** (1990), 3943.
- [PK98] M. Pütz, A. Kolb: *Optimization techniques for parallel molecular dynamics using domain decomposition*, Computer Physics Communications **113** (1998), 145.
- [R94] N. Reber: *Aufbau einer Leitwertmeßapparatur, Stromcharakteristik einer mit responsivem Gel gepfropften Ionenspur*, Diplomarbeit, Frankfurt 1994.

- [RH86] D. Rieger, F.J. Himpsel, U.O. Karlsson, F.R. McFeely, J.F. Morar, J.A. Yarmoff: *Electronic structure of the $\text{CaF}_2/\text{Si}(111)$ interface*, Physical Review B **34** (1986), 7295.
- [RO58] P.J. Ring, J.G. O'Keefe, P.J. Bray: *Li^7 and F^{19} Nuclear Magnetic Resonances in Neutron Irradiated LiF* , Physical Review Letters **1** (1958), 453.
- [RV99] P. Roncin, J. Villette, J.P. Atanas, H. Khemliche: *Energy Loss of Low Energy Protons on $\text{LiF}(100)$: Surface Excitation and H Mediated Electron Emission*, Physical Review Letters **83** (1999), 864.
- [S90] R. Spohr: *Ion Tracks and Microtechnology. Basic Principles and Applications*, Vieweg Verlagsgesellschaft (1990), Braunschweig.
- [S91] D. Sarid: *Scanning force microscopy; with applications to electric, magnetic and atomic forces*, Oxford University Press (1991).
- [S00] A. Shukla: *Ab initio Hartree-Fock Born effective charges of LiH , LiF , LiCl , NaF , and NaCl* , Physical Review B **61** (2000), 13277.
- [SB01] K. Schwartz, A. Benyagoub, M. Toulemonde, C. Trautmann: *Effect of Temperature on Track Formation by Energetic Heavy Ions in Lithium Fluoride*, Radiation Effects and Defects in Solids **155** (2001), 127.
- [SE01] A.S. Shalabi, A.M. El-Mahdy, M.A. Kamel, H.Y. Ammar: *Properties of F^+ , F , and F^- electron centers and adsorptivity of atomic H on LiF and NaH isoelectric crystals: an ab initio study*, Physica B **304** (2001), 444.
- [SF86] L.J. Schowalter, R.W. Fathauer: *Molecular beam epitaxy growth and applications of epitaxial fluoride films*, Journal of Vacuum Science and Technology A **4** (1986), 1026.

- [ST98] K. Schwartz, C. Trautmann, T. Steckenreiter, O. Geiß, M. Krämer: *Damage and track morphology in LiF crystals irradiated with GeV ions*, Physical Review B **58** (1998), 11232.
- [T95] T.A. Tombrello: *Damage in metals from MeV heavy ions*, Nuclear Instruments and Methods in Physics Research B **95** (1995), 501.
- [T99] C. Trautmann, persönliche Mitteilung (1999).
- [T99_2] T. Tsuboi: *Laser oscillation by the F_3^- and F_2^- color centers in LiF crystal at room temperature*, Applied Physics B **69** (1999), 81.
- [T00] T. Tsuboi: *Laser oscillation by the F_2^+ and F_2^- color centers in LiF crystals*, Nuclear Instruments and Methods in Physics Research B **166-167** (2000), 804.
- [T00_2] T. Tsuboi: *Amplified spontaneous emission of F_2^- color center in LiF crystal*, Applied Physics B **70** (2000), 175.
- [TA02] M. Toulemonde, W. Assmann, C. Trautmann, F. Grüner: *Jetlike Component in Sputtering of LiF Induced by Swift Heavy Ions*, Physical Review Letters **88** (2002), 57602-1.
- [TB93] C. Trautmann, A. Blankenburg, N. Betz, A. Le Moël, R. Spohr: *Etching of Ion Tracks in PVDF Membranes*, GSI Jahresbericht 1993, 200.
- [TM95] H. Tatewaki, E. Miyoshi: *The surface and bulk excitons of crystalline LiF. $Li^{n+}F^{m-}$ cluster embedded in an ionic cage*, Surface Science **327** (1995), 129.
- [TP96] M. Toulemonde, J.M. Costantini, C. Dufour, A. Meftah, E. Paumier, F. Studer: *Track creation in SiO_2 and $BaFe_{12}O_{19}$ by swift heavy ions: a thermal spike description*, Nuclear Instruments and Methods in Physics Research B **116** (1996), 37.
- [TR88] R.M. Tromp, M.C. Reuter: *Structure of the Si(111)- CaF_2 Interface*, Physical Review Letters **61** (1988), 1756.

- [TR96] K. Tinschert, D.M. Rück, H. Emig, K. Leible, N. Angert: *Ion irradiation facility for materials research at the 1.4 MeV/u high-charge state injector of GSI*, Nuclear Instruments and Methods in Physics Research B **113** (1996), 59.
- [TW96] M. Toulemonde, C. Dufour, Z. Wang, E. Paumier: *Atomic and cluster ion bombardment in the electronic stopping power regime: A thermal spike description*, Nuclear Instruments and Methods in Physics Research B **112** (1996), 26.
- [U97] H.M. Urbassek: *Molecular-dynamics simulation of sputtering*, Nuclear Instruments and Methods in Physics Research B **122** (1997), 427.
- [UK94] H.M. Urbassek, H. Kafemann, R.E. Johnson: *Atom ejection from a fast-ion track: A molecular-dynamics study*, Physical Review B **49** (1994), 786.
- [V54] J.H.O. Varley: *A mechanism for the displacement of ions in an ionic lattice*, Nature **174** (1954), 886.
- [VS98] J. Vetter, R. Scholz, D. Dobrev, L. Nistor: *HREM investigation of latent tracks in GeS and mica induced by high energy ions*, Nuclear Instruments and Methods in Physics Research B **141** (1998), 747.
- [WH86] M.P.R. Waligorski, R.N. Hamm, R. Katz: *The Radial Distribution of Dose Around the Path of a Heavy Ion in Liquid Water*, Nuclear Tracks and Radiation Measurements **11** (1986), 309.
- [WW93] J. Wiesner, G. Wirth, H. Fueß, P. Wagner, F. Hillmer, H. Adrian, E. Jäger, E. Schimpf: *Enhancement of Transport Critical Current Density in Bi-22/2 Superconducting Thin Films by Heavy-Ion Irradiation*, GSI Jahresbericht 1993, 212.
- [Z02] J.F. Ziegler: "www.srim.org" (2002).
- [ZB85] J.F. Ziegler, J.P. Biersack, U. Littmark: *The stopping and ranges of ions in solids*, Pergamon Press (1985).