References

Abaqus (2010) Theory manual, benchmarks manual, version 6.9. Simulia Dassault Systèmes Simulia Corp, Rhode Island

Abbot B, Refsgaard JC (1996) Distributed hydrological modeling. Kluwer Academic Publishers, Dordrecht

Abrahams M (1967) Mechanical behavior of tendon in vitro. A preliminary report. Med Biol Eng Comput 5:433–443

Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P (2009) Molecular biology of the cell, 5th edn. Garland Science, Taylor and Francis Group, London

Alifanov OM (1994) Inverse heat transfer problems. Springer, Berlin. See also his notes from: (a) Inverse heat conduction problems short course (1992), Michigan State University (b) Thermally loaded structures: Russian space engineering workshop (1993), The University of Alabama

Alizadeh M (2001) Eine Randwertsystematik für Gradientenfluide vom Grade drei auf der Basis von Porösitätstensoren. Dissertation, Technische Universität Berlin

Altenbach J, Altenbach H (1994) Einführung in die Kontinuumsmechanik, Teubner

Arao H, Obata M, Shimada T, Hagisawa S (1998) Morphological characteristics of the dermal papillae in the development of pressure sores. J Tissue Viability 8–3:17–23

Aster RC, Borchers B, Thurber CH (2005) Parameter estimation and inverse problems. Elsevier, London

Attard MM, Hunt GW (2004) Hyperelastic constitutive modeling under finite strain. Int J Solids Struct 41:5327–5350

Babirat D, Küchmeister K, Nagel K (2001) Körpermaße des Menschen. Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Germany

Bader D, Bouten C, Colin D, Oomens C (2005) Pressure ulcer research. Springer, Berlin

Baker M, Ericksen JL (ed) (1954) Inequalities restricting the form of the stress-deformation relations for isotropic elastic solids and reiner-rivlin fluids. J Washington Acad Sci 44:33–35

Ball JM (ed) (1977) Convexity conditions and existence theorems in nonlinear elasticity. Arch Ration Mech Anal 63:337–403

Balzani D, Neff P, Schröder J, Holzapfel GA (eds) (2006) A polyconvex framework for soft biological tissues. Adjustment to experimental data. Int J Solids Struct 43:6052–6070

Balzani D, Neff P, Schröder J, Holzapfel GA (2006b) A polyconvex framework for soft biological tissues. Adjustment to experimental data. Int J Solids Struct 43:6052–6070

Barbucci R (2002) Integrated biomaterials science. Kluwer, New York

Bass MJ, Phillips LG (2007) Pressure sores. Curr Probl Surg 44(2):101–143

Bathe K-J (1996) Finite element procedures. Prentice Hall, Englewood Cliffs

DOI: 10.1007/978-3-642-29003-9, © Springer-Verlag Berlin Heidelberg 2013

Benderoth G (1984) Aspekte der Biomechanik von Hydroskelettkonstruktionen—Phylogenetische Optimierung und Ihre Bedeutung für das Organismusproblem. Diploma thesis, Frankfurt/Main University, Germany

Ben-Israel A, Greville TNE (2003) Generalized inverses. Theory and applications, 2nd edn. Springer, New York

Bennet G, Dealey C, Posnett J (2004) The cost of pressure ulcers in the UK. J Age Ageing 33:230–235

Bertero M, Boccacci P (1997) Introduction in inverse problems in imaging. Taylor and Francis, London

Blatz PJ (1971) On the thermostatic behavior of elastomers. In: Polymer networks, structure and mechanical properties. Plenum Press, New York, pp 23–45

Bliss MR (1993) Aetiology of pressure sores. Rev Clin Gerontol 3:379–397

Boehler JP (1975) Sur les formes invariantes dans le sousgroupe orthotrope de revolution des transformations orthogonales de la relation entre deux tenseurs symétriques du second ordre. ZAMM 55:609–611

Boehler JP (1979) A simple derivation of representations for non-polynomial constitutive equations in some cases of anisotropy. ZAMM 59:157–176

Böl M, Reese S (eds) (2008) Micromechanical modelling of skeletal muscles based on the finite element method. Comput Methods Biomech Biomed Eng 11-5:489–504

Boland ED, Matthews JA, Pawlowski KJ, Simpson DG, Wnek GE, Bowlin GL (eds) (2004) Electrospinning collagen and elastin: preliminary vascular tissue engineering. Front Biosci 9:1422–1432

Borges AF (1960) Scar prognosis of wounds. Br J Plast Surg 13(1):47

Bosboom EMH, Hesselink MKC, Oomens CWJ, Bouten CVC, Drost MR, Baaijens FPT (2001) Passive transverse mechanical properties of skeletal muscle under in vivo compression. J Biomech 34:1365–1368

Bouten CVC (1996) Etiology and pathology of pressure sores: a literature review. WFW Report 96–015, Technische Universiteit Eindhoven

Bouten CVC, Knight MM, Lee DA, Bader DL (2001) Compressive deformation and damage of muscle cell subpopulations in a model system. Ann Biomed Eng 29:153–163

Bowen RM (1989) Introduction to continuum mechanics for engineers. Plenum Press, New York

Breuls RGM, Bouten CVC, Oomens CWJ, Bader DL, Baaijens FPT (eds) (2003) Compression induced cell damage in engineered muscle tissue: an in vitro model to study pressure ulcer etiology. Ann Biomed Eng 31:1357–1364

Brosh T, Arcan M (2000) Modeling the body/chair interaction-an integrative experimental-numerical approach. Clin Biomech 15:217–219

Ceelen KK, Stekelenburg A, Loerakker S, Strijkers GJ, Bader DL, Nicolay K, Baaijens FPT, Oomens CWJ (eds) (2008) Compression-induced damage and internal tissue strains are related. J Biomech

Chapman EJ, Chapman R (1986) Treatment of pressure sores: the state of the art. In: Tienery EJ (ed) Clinical nursing practice. Churchill Livingstone, Edinburgh

Ciarlet PG (1988) Mathematical elasticity, vol 1: three-dimensional elasticity. Elsevier Science Publishers, North Holland

Ciarlet PG (1989) Introduction to numerical linear algebra and optimization. Cambridge University Press, Cambridge

Coleman BD, Noll W (1959) On the thermostatics of continuous media. Arch Ration Mech Anal 4:97–128

Comley K, Fleck NA (2010) A micromechanical model for the Young's modulus of adipose tissue. Int J Solids Struct 47(21):2982–2990

Courant R, Hilbert D (1989) Methods of mathematical physics, vol 2. Wiley, London

Daniel RK, Priest DL, Wheatley DC (1981a) Etiologic factors in pressure sores: an experimental model. Arch Phys Med Rehabil 62:492–498

Daniel RK, Priest DL, Wheatley DC (1981) Etiologic factors in pressure sores: an experimental model. Arch Phys Med Rehabil 62:492–498
Dansereau JG, Conway H (1964) Closure of decubiti in paraplegics Report of 2000 cases. Plast Reconstr Surg 33:474–480
Dantzig GB (ed) (1949) Programming of inter-dependent activities II. Math Model Econometrica 17(3–4):200–211
Dealey C, Lindholm C (2006) Pressure ulcer classification. In: Romanelli M, Clark M, Cherry G (eds) Science and practice of pressure ulcer management. Springer, Berlin
Deutsches Institut für Normung e. V. (2006) DIN-Taschenbuch 390: Körpermaße und Körperkräfte, Beuth Verlag GmbH, ISBN 10: 3-410-16312-3
Dhondt G (2004) The Finite element method for three-dimensional thermomechanical applications. Wiley, London
Dinsdale SM (1974) Decubitus ulcers: role of pressure and friction in causation. Arch Phys Med Rehabil 55(4):147–152
Doll S (1998) Zur numerischen behandlung elasto-viskoplastischer deformationen bei isochor-volumetrisch entkoppeltem stoffverhalten, PhD thesis TH Karlsruhe
Doll S, Schweizerhof K (2000) On the development of volumetric strain energy functions. J Appl Mech 97:17–21
Drucker D (1964) On the postulate of stability of material in the mechanics of continua. Journal de Mécanique, Gauthier-Villars 3(2):235–249
Ehlers W, Markert B (ed) (2003) A macroscopic finite strain model for cellular polymers. Int J Plast 19–7:961–976
Eipper G (1998) Theorie und Numerik finiter elastischer deformationen in fluidgesättigten porösen Festkörpern. Dissertation, Stuttgart University
Epuap-Puclas (2009) Ghent University e.g. at http://www.puclas.ugent.be. Accessed Aug 2009
Eringen AC (1967) Mechanics of continua. Wiley, London
Fung YC (ed) (1979) Pseudoelasticity of arteries and the choice of its mathematical expression. Am J Physiol: Heart Circ Physiol 237:H620–H631
Fung YC (1993) Biomechanics: mechanical properties of living tissues. Springer, New York
Gasser TC, Holzapfel GA, Ogden RW (eds) (2006) Hyperelastic modelling of arterial layers with distributed collagen fibre orientations. J R Soc Interface 3:15–35
Geerligs M, Peters GWM, Ackermans PAJ, Oomens CWJ, Baaijens FPT (2008) Linear viscoelastic behavior of subcutaneous adipose tissue. Biorheology 45:677–688
Geerligs M, Peters GWM, Ackermans PAJ, Oomens CWJ, Baaijens FPT (eds) (2010) Does subcutaneous adipose tissue behave as an (anti-) thixotropic material? J Biomech 43–6:1153–1159
Gefen A, Dilmoney B (2007) Mechanics of the normal woman's breast. J Technol Health Care 15(4):259–271
Gefen A, Gefen N, Linder-Ganz E, Margulies SS (eds) (2005a) In vivo muscle stiffening under bone compression promotes deep pressure sores. J Biomech Eng 127:512–524
Gefen A, Gefen N, Linder-Ganz E, Margulies SS (eds) (2005b) In vivo muscle stiffening under bone compression promotes deep pressure sores. ASME J Biomech Eng
Gibson LJ, Ashby MF (1997) Cellular solids, structure and properties, 2nd edn. Pergamon Press, New York
Gleason RL, Hu J, Humphrey JD (2004) Building a functional artery: issues from the perspective of mechanics. Front Biosci 9:2045–2055
Gordon JE (ed) (1989) Strukturen unter Stress—Mechanische Belastbarkeit in Natur und Technik. Spektrum der Wissenschaft. P 145
Govindjee S, Simo JC (1992) Mullin's effect and the strain amplitude dependence of the storage modulus. Int J Solids Struct 29:1737–1751
Grasselli M, Pelinovsky D (2007) Numerical mathematics. Jones& Bartlett Pub, MA
Green AE, Adkins JE (1970) Large elastic deformations, 2nd edn. Oxford University Press, Oxford

Grisotto PC, Dos Santos AC, Coutinho-Netto J, Cherri J, Piccinato CE (eds) (2000) Indicators of oxidative injury and alterations of the cell membrane in the skeletal muscle of rats submitted to ischemia and reperfusion. J Surg Res 92:1–6

Gurtin ME (1981) An introduction to continuum mechanics. Academic, New York

Haake EM, Brown RW, Thompson MR, Venkatesan R (1999) Magnetic resonance imaging—physical principles and sequence design. Wiley, London

Hadamard J (1903) Leçons sur la Propagation des Ondes et les Équations de l'Hydrodynamique. A. Hermann, Paris

Hadamard J (1923) Lectures on cauchy's problem in linear partial differential equations. Yale University Press, USA

Halboom JRE (2005) Medical perspectives in the 21st century. In: Bader D, Bouten C, Colin D, Oomens C (eds) Pressure ulcer research current and future perspectives. Springer, Berlin

Harchafe A (2010) Finite Elemente Modell eines menschlichen Knies. Diploma thesis, University of Applied Sciences, Frankfurt/Main, Germany

Hartmann S, Neff P (eds) (2003) Polyconvexity of generalized polynomial-type hyperelastic strain-energy functions for near-incompressibility. Int J Solids Struct (40)11:2767–2791

Hartmann S, Tschöpe T, Schreiber L, Haupt P (2003) Finite deformations of a carbon black-filled rubber. Experiment, optical measurement and material parameter identification using finite elements. Eur J Mech-A/Solids 22:309–324

Haslinger J, Mäkinen RAE (2003) Introduction to shape optimization: theory, approximation, and computation. SIAM

Helbig K, Jürgens HW (1977) Entwicklung einer praxisgerechten Körperumrissschablone des sitzenden Menschen. Bundesanstalt für Arbeitsschutz und Unfallforschung, Dortmund, Forschungsbericht Nr. 187

Hill R (1970) Constitutive inequalities for isotropic elastic solids under finite strain. Proc R Soc-A, London 314:457–472

Hill R (1978) Aspects of invariance in solid mechanics. Adv Appl Mech 18:1–72

Hillebrands B, Ounadjela K (2002) Spin dynamics in confined magnetic structures-I. Springer, Berlin

Hillebrands B, Ounadjela K (2003) Spin dynamics in confined magnetic structures-II. Springer, Berlin

Holzapfel GA (1996) On large strain viscoelasticity: continuum formulation and finite element applications to elastomeric structures. Int J Numer Meth Eng 39:3903–3926

Holzapfel GA, Weizsäcker HW (1998) Biomechanical behavior of the arterial wall and its numerical characterization. Comput Biol Med 28:377–392

Holzapfel GA, Eberlein R, Wriggers P, Weizsäcker HW (1996) Large strain analysis of soft biological membranes: formulation and finite element analysis. Comput Methods Appl Mech Eng 132:45–61

Hooke R, Jeevest TA (1961) Direct search solution of numerical and statistical problems. J Assoc Comput Mach 8:212–229

Husain T (1953) An experimental study on some pressure effects on tissue with reference to the bed sore problem. J Pathol Bacteriol 66:347–358

Ide (2009) Diploma Thesis. University of Applied Sciences, Frankfurt, Germany

Sachse A (estimated completion in 2012) In vivo-messungen am oberarm zur Charakterisierung des mechanischen Verhaltens des Bizeps. Bachelor thesis, University of Applied Sciences Frankfurt/Main, Germany

Israel Institute of Technology (2009) http://www.technion.ac.il/~mdcourse/274203/lect8.html and http://www.technion.ac.il/~mdcourse/274203/lect13.html. Accessed Aug 2009

James AG, Green A (eds) (1975) Strain-energy functions of rubber II. The characterization of filled vulcanisates. J Appl Polym Sci 19:2033–2058

Jastrow H (2009) www.staff.uni-mainz.de/jastrow. Accessed Aug 2009

Kampandji IA (2001) Funktionelle anatomie der gelenke, 4th edn. Georg Thieme Verlag, Stuttgart

Klein J, Permana PA, Owecki M, Chaldakov GN (2007) What are subcutaneous adipocytes really good for? Exp Dermatol 16:45–70
Kolda TG, Lewis RM, Torczon V (2003) Optimization by direct search: new perspectives on some classical and modern methods. SIAM Rev 45(3):385–482
Kosiak M (1959) Etiology and pathology of ischemic ulcers. Arch Phys Med Rehabil 40:62–69
Kosiak M (1961) Etiology of decubitus ulcers. Arch Phys Med Rehabil 42:19–29
Kraissl CJ, Conway H (1949) Excision of small tumours of the skin of the face with special reference to the wrinkle lines. Surgery 4:592
Krouskop A (1983) A Synthesis of the factors that contribute to pressure sore formation. Med Hypothesis 11:255–267
Kurth A (2009) www.uni-mainz.de. Accessed Aug 2009
Landis EM (1930) Micro-injection studies of capillary blood pressure in human skin. Heart 15:209
Langer K (1861) Zur Anatomie und Physiologie der Haut: Über die Spaltbarkeit der Cutis. Sitzungsbericht der Mathematisch-naturwissenschaftlichen Classe der Kaiserlichen Academie der Wissenschaften. Cl. 43:233
Larsen B, Holstein P, Lassen NA (eds) (1979) On the Pathogenesis of bed sores. Scand J Plast Reconstr Surg 13:347–350
Lazarus (2009) Diploma thesis. University of Applied Sciences, Frankfurt, Germany
Lee EH (1969) Elastic-plastic deformation at finite strains. J Appl Mech 36:1–6
Leffmann C, Andres J, Heinemann A, Leutenegger M, Pröfener F (2002) Dekubitus. Issue 12. Robert Koch-Institut (RKI), Gesundheitsberichterstattung, Statistisches Bundesamt, Bonn, Germany
Lewis RM, Torczon V, Trosset MW (eds) (2000) Direct search methods: then and now. J Comput Appl Math 124(1):191–207(17)
Lim D, Lin F, Hendrix RW, Makhsous M, (2006) Finite element analysis for evaluation of internal mechanical responses in buttock structure in a true sitting posture: development and validation. RESNA 29th international conference
Lim D, Lin F, Hendrix RW, Moran B, Fasanati C, Makhsous M (2007) Evaluation of a new sitting concept designed for prevention of pressure ulcer on the buttock using finite element analysis. Med Biol Eng Comput 45–11:1079–1084
Linder-Ganz E, Gefen A (eds) (2004) Mechanical compression-induced pressure sores in rat hindlimb: muscle stiffness, histology, and computational models. J Appl Physiol 96:2034–2049
Linder-Ganz E, Gefen A (eds) (2007) Assessment of mechanical conditions in sub-dermal tissues during sitting: a combined experimental-MRI and finite element approach. J Biomech
Linder-Ganz E, Engelberg S, Scheinowitz M, Gefen A (eds) (2006) Pressure-time cell death threshold for albino rat skeletal muscles as related to pressure sore biomechanics. J Biomech 39:2725–2732
Lion A (1996) A constitutive model for carbon black filled rubber: experimental investigations and mathematical representation. Continuum Mech Thermodyn 8–3:153–169
Loocke M, Lyons CG, Simms CK (eds) (2006) A validated model of passive muscle in compression. J Biomech 39(16):2999–3009
Loocke M, Lyons CG, Simms CK (eds) (2008) Viscoelastic properties of passive skeletal muscle in compression: stress-relaxation behaviour and constitutive modelling. J Biomech 41(7):1555–1566
Luenberger DG (1984) Linear and Nonlinear Programming. 2nd Edition, Wesley, Reading
Mahnken R (2004) Identification of material parameters for constitutive equations. Encyclopaedia Comput Mech 2:637–655 (Wiley)
Marsden JE, Hughes TJR (1983) Mathematical foundations of elasticity. Prentice-Hall, Englewood Cliffs
Mase GE (1970) Theory and problems of continuum mechanics. McGraw-Hill, New York

Miller GE, Seale J (eds) (1981) Lymphatic clearance during compressive loading. lymphology 14:161–166
Mills NJ (ed) (2000) Micromechanics of polymeric foams. In: Proceedings of the 3rd Nordic meeting on materials and mechanics, Aalborg, Denmark 45–76
Mooney M (ed) (1940) A theory of large elastic deformation. J Appl Phys (11):582–592
Morrey CBJ (ed) (1952) Quasi-convexity and the lower semicontinuity of multiple integrals. Pac J Math 2:25–53
Mullins L (1969) Softening of rubber by deformation. Rubber Chem Technol 42:339–362
Nanakawa S, Mori M (eds) (2005) Pressure ulcer as an ischemia reperfusion injury. Jpn J Press Ulcers 7(1):93–98
Nash JC (1990) Compact numerical methods for computers. Adam Hilger
Nelder JA, Mead RA (eds) (1965) A simplex method for function minimization. Comput J 7:308–313
Nocedal J, Wright SJ (1999) Numerical optimization. Springer, New York
Ogden RW (1972a) Large deformations isotropic elasticity—on the correlation of theory and experiment for compressible rubberlike solids. Proc R Soc London A326:565–584
Ogden RW (1972b) Large deformations isotropic elasticity: on the correlation of theory and experiment for incompressible rubberlike solids. Proc R Soc London A328:567–583
Ogden RW (1984) Nonlinear elastic deformations. Ellis Horwood and Wiley, Chichester
Oomens CWJ, Bressers OFJT, Bosboom EMH, Bouten CVC (2001) Deformation analysis of a supported buttock contact. Bioengineering conference BED-vol 50, ASME
Oomens CWJ, Bressers OFJT, Bosboom EMH, Bouten CVC, Bader DL (2003a) Can loaded interface characteristics influence strain distributions in muscle adjacent to bony prominences? Comput Methods Biomech Biomed Eng 6(3)
Oomens CWJ, Bressers OFJT, Bosboom EMH, Bouten CVC, Bader DL (2003b) Can loaded interface characteristics influence strain distributions in muscle adjacent to bony prominences? Comput Methods Biomech Biomed Eng 6(3):171–180
Otto F (1985) Natürliche Konstruktionen. Sonderforschungsbereich 230 des DFG, Project C1, vol 8 of Konzepte, Leicht. SFB 230
Oyen ML, Cook RF, Stylianopoulos T, Barocas VH, Calvin SE, Landers DL (eds) (2005) Uniaxial and biaxial mechanical behavior of human amnion. J Mater Res 20(11):2902–2909
Palevski A, Glaich I, Portnoy S, Linder-Ganz E, Gefen A (2006a) Stress relaxation of porcine gluteus muscle subjected to sudden transverse deformation as related to pressure sore modeling. J Biomech Eng 128–5:782–787
Palevski A, Glaich I, Portnoy S, Linder-Ganz E, Gefen A (2006b) Stress relaxation of porcine gluteus muscle subjected to sudden transverse deformation as related to pressure sore modeling. J Biomech Eng
Parisch H (2003) Festkörper-Kontinuumsmechanik. Vieweg-Teubner
Park JB (1984) Biomaterials science and engineering. Plenum Press, New York
Peirce SM, Skalak TC, Rodeheaver GT (2000) Ischemia-reperfusion injury in chronic pressure ulcer formation: a skin model in the rat. Wound Repair Regen 8(1):68–76(9)
Perry J (2003) Ganganalyse norm und pathologie des gehens, 1st edn. Urban & Fischer Verlag, Germany
Peters TM, Williams JC, Bates HT (1998) The fourier transform in biomedical engineering. Birkhäuser, Bosten
Prometheus (2005) Allgemeine anatomie und bewegungssystem. Georg Thieme Verlag, Stuttgart
Quintavalle PR, Lyder CH, Mertz PJ, Phillips-Jones C, Dyson M (2006) Use of high-resolution, high-frequency diagnostic ultrasound to investigate the pathogenesis of pressure ulcer development. Skin and Wound Care
Ragen R, Kernozek TW, Bidar M, Matheson JW (2002) Seat-interface pressures on various thicknesses of foam wheelchair cushions: a finite modeling approach. Arch Phys Med Rehabil 83–6:872–875

Rao SS (2009) Engineering optimization: theory and practice. Wiley, London
Reddy NP, Cochran G, Krouskop TA (1981) Interstitial fluid flow as a factor in decubitus ulcer formation. J Biomech 14–12:879–881
Reese S (1994) Theorie und Numerik des Stabilitätsverhaltens hyper-elastischer Festkörper. Dissertation, Technische Universität Darmstadt
Reichel SM (ed) (1958) Shearing force as a factor in decubitus ulcers in paraplegics. J Am Med Assoc 166:762–763
Reswick J, Rogers J (1976) Experience at rancho los amigos hospital with devices and techniques to prevent pressure sores. In: Kenedi RM, Cowden JM (eds) Bedsore biomechanics. University Park Press, Baltimore, pp 301–310
Rivlin RS (1948) Large elastic deformations of isotropic materials. IV. Further developments of the general theory. Philos Trans R Soc London A 241:379–397
Rivlin RS (1980) Some thoughts on material stability. In: Proceedings of the IUTAM symposium on finite elasticity, Lehigh University. Also in: Collected Papers of Rivlin RS vol 1. Springer, Berlin, pp 817–834
Rivlin RS (1984) Large elastic deformations of isotropic materials I, II, III. Philos Trans R Soc London 240-A:459–525
Rivlin RS (2004) Restrictions on the strain-energy function for an elastic material. Math Mech Solids 9–2:131–140
Romanov KI (2001) The drucker stability of a material. J Appl Math Mech 65(1):155–162(8)
Rubín LR (1948) Langer's lines and facial scars. Plast Reconstr Surg 3(2):147
Ryder P (2007) Classical mechanics. Shaker Verlag GmbH, Germany
Salcido R, Donofrio JC, Fisher SB, Le Grand EK, Dickey K, Carney JM, Schosser R, Liang R (1994) Histopathology of pressure ulcers as a result of sequential computer-controlled pressure sessions in a fuzzy rat model. Adv Wound Care 7–5:23–28
Saleeb AF, Chang TYP, Arnold SM (1992) On the development of explicit robust chemes for implementation of a class of hyperelastic models in large-strain analysis of rubbers. Int J Numer Methods Eng 33:1237–1249
Samani A, Zubovit J, Plewes D (2007) Elastic moduli of normal and pathological human breast tissues: an inversion-technique-based investigation of 169 samples. Phys Med Biol 52(6):1565–1576
Santamarina JC, Fratta D (2005) Discrete signals and inverse problems. Wiley, London
Schäffler A, Schmidt S (1995) Mensch Körper Krankheit. Jungjohann Verlag, Neckarsulm, 2nd edn
Schrodt M (2006) Experimentelle und numerische Untersuchungen zur Dekubitusproblematik am Beispiel des Fersen-Schaumstoff-Kontaktbereiches. Dissertation, University of Berlin
Schrodt M, Benderoth G, Kühhorn A, Silber G (2005a) Hyperelastic description of polymer soft foams at finite deformations. Technische Mechanik 25 3–4:162–173
Schrodt M, Benderoth G, Kuhhorn A, Silber G (2005b) Hyperelastic description of polymer soft foams at finite deformations. In: Technische Mechanik 25, vol 3–4:162–173
Schumann J (2012) In vivo-verifizierung fazialer hautspannungslinien, Bachelor thesis. University of Applied Sciences Frankfurt/Main, Germany
Schwefel HP (1994) Evolution and optimum seeking. Wiley, London
Shea JD (1975) Pressure sores: classification and management. Clin Orthop Relat Res 112:89–100
Shelton F, Lott JW (2003a) Conducting and interpreting interface pressure evaluations of clinical support surfaces. Geriatric Nurs 24–4:222–227
Shelton F, Lott JW (2003b) Conducting and Interpreting Interface Pressure Evaluations of Clinical Support Surfaces. Geriatr Nurs 24–4:222–227
Silber G (1986) Eine systematik nichtlokaler kelvinhafter fluide vom grade drei auf der basis eines klassischen kontinuummodelles. Series 18: Mechanik/Bruchmechanik, vol 26, VDI-Verlag, Germany

Silber G (1988) Aggregate isotroper Tensoren zur Darstellung hyperelastischer anisotroper Stoffe. ZAMM 68:39–45
Silber G (1990) Darstellungen höherstufig-tensorwertiger isotroper Funktionen. ZAMM 70:381–393
Silber G, Steinwender F (2005) Bauteilberechnung und optimierung mit der FEM. BG Teubner, Wiesbaden
Silver-Thorn MB, Tonuk E, Kemp J (1999) In vivo indentation of lower extremity limb soft tissues. IEEE Trans Rehabil Eng
Simo JC (1987) On a fully three-dimensional finite-strain viscoelastic damage model: formulation and computational aspects. Comput Methods Appl Mech Eng
Smith GF (1964) On isotropic integrity bases. Arch Rat Mech Anal 17:282–284
Sobotta J (2007) Anatomie des Menschen. Elsevier, New York
Spall JC (2003) Introduction to stochastic search and optimization. Wiley, London
Spencer AJM (1965) Isotropic integrity bases for vectors and second-order tensors. Arch Rat Mech Anal 18:51–82
Spendley W, Hext GR, Himsworth FR (1962) Application of simplex designs in optimization and evolutionary operation. Techno-metrics 4:441–461
Stekelenburg A, Strijkers GJ, Parusel H, Bader DL, Nicolay K, Oomens CWJ (eds) (2007) The role of ischemia and deformation in the onset of compression-induced deep tissue injury: mri-based studies in a rat model. J Appl Physiol 102–5:2002–2011
Storåkers B (1986) On the material representation and constitutive branching in finite compressible elasticity. J Mech Phys Solids 34:125–145
Sun Q, Lin F, Al-Saeede S, Ruberte L, Nam E, Hendrix R, Makhsous M (2005) Finite element modeling of human buttock-thigh tissue in a seated posture. Bioengineering Conference, Colorado
Sun Q, Lin F, Al-Saeede S, Ruberte L, Nam E, Hendrix R, Makhsous M (2005) Soft tissue stress in buttock-thigh of a seated individual elucidated by a 3D FE Model. RESNA 28th international conference
Tarantola A (2004) Inverse problem theory and methods for model parameter estimation. Soc Ind Appl Math (SIAM)
Then C, Menger J, Benderoth G, Alizadeh M, Vogl TJ, Hubner F, Silber G (2008) Analysis of mechanical interaction between human gluteal soft tissue and body supports. Technol Health Care 16:61–76
Thews G (2007) Anatomie, Physiologie, Pathologie des Menschen. Wissenschaftliche Verlagsgesellschaft
Tierärztliche Hochschule Hannover (2009) www.tiho-hannover.de. Accessed Aug 2009
Todd BA, Thacker JG (1994a) Three-dimensional computer model of the human buttocks in vivo. J Rehabil Res Dev 31(2):111
Todd BA, Thacker JG (1994b) Three-dimensional computer model of the human buttocks. J Rehabil Res Dev 31–2:111–119
Treloar LRG (1943) The elasticity of a network of long-chain molecules (I and II). Trans Faraday Soc 39:241–246
Treloar LRG (2005) The physics of rubber elasticity. Oxford University Press, Oxford
Trostel R (1985) Gedanken zur Konstruktion mechanischer Theorien Beiträge zu den Ingenieurwissenschaften. University library, TU Berlin
Trostel R (1988) Gedanken zur Konstruktion mechanischer Theorien II. Beiträge zu den Ingenieurwissenschaften University library, TU Berlin
Truesdell C, Noll W (1965) The non-linear field theories of mechanics. Handbuch der Physik, vol III/3. Flügge, Berlin
Trumble HC (ed) (1930) The skin tolerance for pressure and pressure sores. Med J Aust 724
Turchin VF, Kozlov VP, Malkevich MS (1971) The use of mathematical-statistics methods in the solution of incorrectly posed problems. Sov Phys Uspekhi 13–6:681–703
University of Central Florida (2009) http://biology.ucf.edu. Accessed Aug 2009

University of Western Australia (2009) www.lab.anhb.uwa.edu.au. Accessed Aug 2009
van den Bogert PAJ, de Borst R (1994) On the behaviour of rubberlike materials in compression and shear. Appl Mech 64:136–146
Veronda DR, Westmann RA (eds) (1970a) Mechanical characterization of skin-finite deformations. J Biomech 3–1:111–124
Veronda DR, Westmann RA (1970b) Mechanical characterization of skin-finite deformations. J Biomech 3–1:111–124
Wainwright SA, Gosline JM, Biggs WD (1982) Mechanical design in organisms. Princeton University Press, Princeton
Walter FH, Parker LR, Morgan SL, Deming SN (1991) Sequential simplex optimization. CRC Press, Boca Raton
Wang W-C (1969) On representations for isotropic functions, Part I, Isotropic functions of symmetric tensors and vectors. Arch Rat Mech Anal 33:249–267
Wikipedia (2009) http://de.wikipedia.org/wiki/collagen. Accessed Aug 2009
Wood MK, Dantzig GB (1949) Programming of inter-dependent activities I, general discussion. Econometrica 17 3–4:193–199
Wriggers P (2008) Non-linear finite element methods. Springer, Berlin
Wrobel P (2011) Mechanische charakterisierung des menschlichen oberarm-Bizeps, Diploma thesis. University of Applied Sciences Frankfurt/Main, Germany
Yeoman MP, Hardy AG (1954) The pathology and treatment of pressure sores in paraplegics. Br J Plast Surg 7:179–192
Zhang JD, Mak AFT, Huang LD (1997) A large deformation biomechanical model for pressure ulcers. J Biomech Eng 119:406–408
Zhu HX, Mills NJ, Knott JF (1997) Analysis of high strain compression of open-cell foams. J Mech Phys Solids 45:1875–1899
Zienkiewicz OJ, Taylor RL (2000a) The finite element method, volume 1: the basis. Butterworth-Heinemann, Oxford
Zienkiewicz OJ, Taylor RL (2000b) The finite element method, volume 2: solid mechanics. Butterworth-Heinemann, Oxford

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