

## CURRICULUM VITAE

**Ergin TÖNÜK, Ph. D.**

**Associate Professor of Mechanical Engineering**

**Adjunct Faculty of Graduate Program of Biomedical Engineering**

**Member of BIOMATEN, Center of Excellence on Biomaterials and Tissue Engineering**

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**Date and Place of Birth** : 31 March 1968, Ankara, TURKEY

**Citizenship** : Turkish

### EDUCATION

1998-2000 Marquette University, Department of Biomedical Engineering, Postdoctoral Fellow.

1992-1998 Middle East Technical University, Department of Mechanical Engineering, Ph. D.

1990-1992 Middle East Technical University, Department of Mechanical Engineering, M. S.

1986-1990 Middle East Technical University, Department of Mechanical Engineering, B. S.

### RESEARCH FIELDS

Kinematic synthesis of mechanisms, dynamics of machinery, application of artificial intelligence and expert systems to mechanism design, vehicle dynamics, dynamic simulation and experimental verification of pneumatic tires, structural analysis via finite element technique (finite deformation), computer aided design and modeling of machinery, computer aided theory of machines education, in vivo determination of soft tissue nonlinear elastic and viscoelastic material properties, non-integer order viscoelasticity, finite element modeling of residual limb-prosthetic socket interactions for trans-tibial amputees, dental biomechanics, biomechanics and design of dental implants, dental implant-bone interactions and bone remodeling due to implant induced stresses, constitutive modeling of nonlinear and non-elastic solids under finite strain, design of orthopaedic implants, experimental gait analysis and mathematical multi-body modeling of kinematics and kinetics of gait, experimental stress analysis via electric resistance strain gauges, railway technology, rigid and flexible multibody simulation of rail vehicle dynamics.

## EXPERIENCE

1. METU, Department of Mechanical Engineering, Associate Professor (2016- )
2. Vice-coordinator of Solid Mechanics Laboratory, Mechanical Engineering Department, METU (2011-2012).
3. Member and Treasurer of Association of Machine Theory-Turkey (2011- ).
4. Board member of the METU-BIOMATEN, Biomaterials and Tissue Engineering Research and Application Center (2011- ).
5. Member of the Consultancy Board of Turkish Clinics Journal of Medical Sciences (2011- ).
6. Member of Biomaterials and Tissue Engineering Society (2011-).
7. Member of Center of Excellence on Biomaterials and Tissue Engineering (2011- ).
8. Member of Graduate Studies Consultancy Committee of Mechanical Engineering Department, METU (2010-2013).
9. Member of Master of Science Consultancy Committee of Mechanical Engineering Department, METU (2009-2010).
10. Organizing Committee Member of Biyomut 2008, Biomedical National Meeting, May 2008.
11. Adjunct Faculty of Graduate Program of Biomedical Engineering, METU (2007-present).
12. Organizing Committee Member of International Railway Symposium 2006, Ankara and İstanbul, December 2006.
13. Technical Consultancy to Turkish State Railways, TCDD (2006).
14. Organizing Committee Member of the Eleventh International Conference on Machine Design and Production, Antalya, Turkey, October 2004.
15. Director of Middle East Technical University (METU), Gait Analysis and Biomechanics Laboratory (2002-present).
16. METU, Department of Mechanical Engineering, Assistant Professor (2001-2016)
17. METU, Department of Mechanical Engineering, ME 200, Orientation Program Coordinator (2001-2009)
18. METU, Department of Mechanical Engineering, Academic Advisor of Production Minor Students, (2001-present).
19. METU, Department of Mechanical Engineering, Instructor (2000-2001).
20. Marquette University (Milwaukee, Wisconsin, U. S. A.), Department of Engineering Mechanics, Lecturer (1999).
21. Marquette University, Department of Biomedical Engineering, Post-Doctoral Fellow (1998-2000).
22. Turkish Chamber of Mechanical Engineers, Transportation and Traffic Symposium Member of Program Committee (1997).
23. METU, Department of Mechanical Engineering Summer Practice, Mechanisms Group Coordinator (1992-1998).
24. METU, Department of Mechanical Engineering, Computer Committee Member (1992-1998).
25. METU, Department of Mechanical Engineering, Educational Computer Laboratory Software and Hardware Maintainer (1993-1996).
26. METU, Department of Mechanical Engineering, Local Area Network Administrator (1992-1993).
27. METU, Department of Mechanical Engineering, Responsible Assistant of Dynamic Systems Laboratory (1992-1995).
28. METU, Department of Mechanical Engineering, academic advisor of 20 to 30 B.S. students, (1991-1998, 2000-2002).

29. METU, Department of Mechanical Engineering, Research and Teaching Assistant, (1990-1998).
30. Management oriented summer internship at Yazar Pump Factory, Ankara Turkey (1989).
31. Production oriented summer internship at Standard Pump Factory, İstanbul Turkey (1988).

### **THESIS STUDIES**

**Ph. D. Thesis:** “Computer Simulation of Dynamic Behavior of Pneumatic Tires” (A Finite Element Computer Model to Estimate the Cornering Force Characteristics of Pneumatic Automobile Tires with Minimum Experimental Data, Construction of a Tire Testing Setup and Experimental Verification of Computer Model Results). Middle East Technical University, Department of Mechanical Engineering, September 1998. (Supervised by Prof. Dr. Y. Samim ÜNLÜSOY).

**MS Thesis:** “Synthesis of Coupler Curves of Mechanisms by Pattern Recognition Techniques”, Middle East Technical University, Department of Mechanical Engineering, 1992. (Supervised by Prof. Dr. Eres SÖYLEMEZ).

### **AWARDS/HONORS**

1. The Scientific and Technical Research Council of Turkey (TÜBİTAK) Münir Bırsel Ph.D. Scholarship (1994-1996).
2. NATO B2 The Scientific and Technical Research Council of Turkey (TÜBİTAK), Post Doctoral Research Scholarship for Vehicle Dynamics Research in the University of Arizona, 1998 (declined).
3. Academic Performance Premium of Middle East Technical University for years between 2002 and 2004 (2005).
4. Supervisor of the Thesis of the Year, 2007, Prof. Dr. Mustafa Parlar Foundation, M. S. Thesis by Osman Kılıç, Biomechanical Modelling of Human Hand, Co-Supervisor: Prof. Dr. S. Turgut Tümer.
5. Supervisor of the Theses of the Year, 2009, METU, M. S. Thesis by Koray S. Erer, Verification and Matlab Implementation of the Inverse Dynamic Model of METU Gait Analysis System, Co-Supervisor: Assoc. Prof. Dr. Sibel Tarı.
6. Supervisor of the Thesis of the Year, 2012, Prof. Dr. Mustafa Parlar Foundation, M. S. Thesis by Ömer Pektaş, Design and Mechanical Analysis of a New Dental Implant that would Mimic Natural Tooth with a Periodontal Ligament.
7. Supervisor of the Thesis of the Year, 2015, Prof. Dr. Mustafa Parlar Foundation, M. S. Thesis by Onur Mert Erkan, Mechanical Design of Modular Orthopedic Implant.

### **MEMBERSHIPS**

1. Member of the Editorial Board of Advances in Biomechanics and Applications (2012- ).
2. Member and accountant of Association of Machine Theory-Turkey (2011- ).
3. Member of Biomaterials and Tissue Engineering Society(2011- ).
4. Member of International Society of Biomechanics (2009- )
5. Member of the Editorial Board of the International Journal for Vehicle Systems Modeling and Testing (2004- )
6. American Society of Mechanical Engineers (ASME, ID: 6654503)
7. The Tire Society (Akron, OH, USA)
8. Sigma Xi The Scientific Research Society Full Membership (1999-2000, USA)

9. Turkish Chamber of Mechanical Engineers (1995-2003)
10. Machine Design and Production Society-Turkey, (1995- )
11. The Turkish Foundation for Combating Soil Erosion, Reforestation and Protection of Natural Inhabitants-Turkey (TEMA)
12. Wisconsin Trolley Museum Inc. East Troy Electric Railroad Volunteer (U. S. A.)
13. Foundation for Primary Schools (İLKYAR, Turkey)

#### REFEREED JOURNAL PAPERS:

1. BEKMEZ, Ş, ÜZÜMCÜGİL, A., KALAFAT, E., MERMERKAYA, M. U., DEMİRCİ, N, **TÖNÜK, E.**, LEBLEBİCİOĞLU, G., Passive Mechanical Properties of Skeletal Muscle: Analyzing the Effects of Denervation with Mathematical Modelling in a Rabbit Quadriceps Model, *Acta Medica*, V.3, 68-74, 2014.
2. ASHRAFI, P, **TÖNÜK, E.**, Indentation and Observation of Anisotropic Soft Tissues Using an Indenter Device, Süleyman Demirel University, *Journal of Natural and Applied Sciences V 18*, 10-20, 2014.
3. YOUSEFI, A, **TÖNÜK, E.**, KENTEL, B.B., In Vivo Verification of Different Hip Joint Center Estimation Methods in Gait Analysis For Healthy Subjects, Süleyman Demirel University, *Journal of Natural and Applied Sciences V 18*, 157-166, 2014.
4. PEKTAŞ, Ö., **TÖNÜK, E.**, Mechanical Design, Analysis and Laboratory Testing of a Dental Implant with Axial Flexibility Similar to Natural Tooth with Periodontal Ligament, *Proceedings of The Institution of Mechanical Engineers Part H-Journal of Engineering in Medicine*, v 228, No: 11, pp. 1117-1125 (SCI-Core) DOI: 10.1177/0954411914557713.
5. DEMİRCİ, N., **TÖNÜK, E.**, Non-integer viscoelastic constitutive law to model soft biological tissues to in-vivo indentation, *Acta of Bioengineering and Biomechanics*, v. 16 no: 4 pp: 13-21 (SCI-Expanded). DOI: 10.5277/ABB-00005-2014-03.
6. BOZKURT, M, APAYDIN, N., **TÖNÜK, E.**, IŞIK, Ç., ÇAY, N., KARTAL, G., AÇAR, H. İ., TUBBS, S. R., Impact fo fibular torsion and rotation an chronic ankle instability, *Foot and Ankle Surgery*, v.20, pp. 125-129 (PubMed <http://www.ncbi.nlm.nih.gov/pubmed/24796832>).
7. ESER, A, TÖNÜK, E., AKCA, K., DARD, M.M., CEHRELİ, M. C., Predicting bone remodeling around tissue- and bone-level dental implants used in reduced bone width, *Journal of Biomechanics*, v.46, pp 2250-2257, 2013 (SCI-Core).
8. ÖÇGÜDER, A, GÖK, H., HEYCAN, C., TECİMEL, O., **TÖNÜK, E.**, BOZKURT, M., Effects of custom-made insole on gait pattern of patients with unilateral displaced intra-articular calcaneal fracture: Evaluation with computerized gait analysis, *Acta Orthopaedica et Traumatologica Turcica*, 46 (1) pp. 1-7, 2012 (SCI Expanded).
9. UYSAL, H., BOYRAZ, İ., YAĞCIOĞLU, S., OKTAY, F., KAFALI, P., **TÖNÜK, E.**, Ankle clonus and its relationship with the medium-latency reflex response of the soleus by peroneal nerve stimulation, *Journal of Electromyography and Kinesiology*, v.21, pp.438-444, 2011 (SCI-Core).
10. PETEKKAYA, A. T., **TÖNÜK, E.**, In vivo indenter experiments via Ellipsoid Indenter Tips to Determine the Personal and Local In-Plane Anisotropic Mechanical Behavior of Soft Biological Tissues, *Journal of The Faculty of Engineering and Architecture of Gazi University*, v. 26, n. 1, pp. 63-72, 2011 (*in Turkish* SCI-Expanded).
11. ESER, A., **TÖNÜK, E.**, AKÇA, K., ÇEHRELİ, M. C., Predicting time-dependent remodeling of bone around immediately-loaded dental implants with different designs, *Medical Engineering & Physics*, v.32, n.1, pp. 22-31, 2010.

12. ESER, A., **TÖNÜK, E.**, AKÇA, K., ÇEHRELİ, M. C., Numerical Simulation of Time-Dependent Remodeling of Bone Around Oral Loaded Implants, *The International Journal of Oral & Maxillofacial Implants*, v 24 n 4 pp. 597-608, 2009.
13. PETEKKAYA, A. T., **TÖNÜK, E.**, In vivo indenter experiments to determine soft tissue mechanical properties, *Journal of Mechanical Design and Construction* v. 10, n. 1, 18-31, May 2008 (*in Turkish*).
14. ÜSÜ, K., **TÖNÜK, E.**, Quasi-linear viscoelastic material models for simulation of in vivo soft tissue indenter experiments, *Journal of Mechanical Design and Construction* v. 10, n. 1, 32-40, May 2008 (*in Turkish*).
15. BOZKURT, M., **TÖNÜK, E.**, ELHAN, A., TEKDEMİR, İ., DORAL, M. N., Axial rotation and mediolateral translation of the fibula during passive plantarflexion, *Foot and Ankle International*, v 29, n 5, pp. 502-507, 2008.
16. ÖZLÜGEDİK, S., NAKİBOĞLU, G., SERT, C., ELHAN, A., **TÖNÜK, E.**, AKYAR, S., TEKDEMİR, İ., Numerical Study of the Aerodynamic Effects of Septoplasty and Partial Lateral Turbinectomy, *The Laryngoscope*, v 118, pp. 330-334, 2008.
17. ELHAN, A., TEKDEMİR, İ., CÖMERT, A., BOZKURT, M., **TÖNÜK, E.**, İPEK, G., Design and Application of Electronic Data Acquisition Unit for the Soft and Hard Tissue Testing System. *Journal of Mechanical Design and Construction* v. 9, n. 1, 30-35, May 2007 (*in Turkish*).
18. KAFALI, P., **TÖNÜK, E.**, TÜMER, S. T., Effect of Different Joint Center Estimation Methods on Computed Joint Kinematics in Gait Analysis Applications. *Journal of Mechanical Design and Construction* v. 9, n. 1, 36-48, May 2007 (*in Turkish*).
19. BOZKURT, M., YAVUZER, G., **TÖNÜK, E.**, KENTEL, B. B., Dynamic Function of the Fibula, *Gait Analysis Evaluation of Three Different Parts of the Shank after Fibulectomy-Proximal, Middle and Distal- (Case report)*, *Archives of Orthopaedic and Trauma Surgery*, v. 125, pp. 713-720, 2005.
20. BOZKURT, M., ACAR, H. İ., APAYDIN, N., LEBLEBİCİOĞLU, G., ELHAN, A., TEKDEMİR, İ., **TÖNÜK, E.**, The Annular Ligament: An Anatomic Study, *American Journal of Sports Medicine* v. 33 n. 1, pp. 114-118, 2005.
21. ÇEHRELİ, M. C., AKÇA, K., **TÖNÜK, E.**, Accuracy of a Manual Torque Application Device for Morse-taper Implants: A Technical Note, *International Journal of Oral Maxillofac Implants* v. 19, pp. 743-748, 2004.
22. BOZKURT, M., KENTEL, B. B., YAVUZER, G., ÖÇGÜDER, A., HEYCAN, C., **TÖNÜK, E.**, Functional evaluation of intra-articular severely comminuted fractures of the calcaneus with gait analysis, *The Journal of Foot & Ankle Surgery* v. 43, n. 6, pp. 374-379, 2004.
23. **TÖNÜK, E.**, SILVER-THORN, M. B., “Nonlinear Viscoelastic Material Property Estimation of Lower Extremity Residual Limb Tissues”, *ASME Journal of Biomechanical Engineering* v. 126, pp. 289-300, April 2004
24. BOZKURT, M., ELHAN, A., TEKDEMİR, İ., **TÖNÜK, E.**, “An Anatomic Study of the Menisofibular Ligament”, *Knee Surgery Sports Traumatology Arthroscopy* v. 12, n. 5, pp. 429-433, 2004.
25. **TÖNÜK, E.**, “Design and Construction of a Test System to Investigate the Mechanical Properties of Soft Tissues”. *Journal of Mechanical Design and Production* Vol. 5, No. 1, pp. 42-49, May 2003 (*in Turkish*).
26. **TÖNÜK, E.**, SILVER-THORN, M. B., “Nonlinear Elastic Material Property Estimation of Lower Extremity Residual Limb Tissues”. *IEEE, Transactions on Neural Systems and Rehabilitation Engineering* Vol 11, No 1, pp. 43-53, March 2003.

27. **TÖNÜK, E.**, “Studies in Experimental Determination of Soft Tissue Mechanical Properties in Trans Tibial Amputee Residual Limbs”. Engineer and Machinery (Mühendis ve Makina), Vol. 43, No: 511, pp. 43-49, 2002 (*in Turkish*).
28. **TÖNÜK, E., ÜNLÜSOY, Y. S.**, “Prediction of automobile tire cornering force characteristics by finite element modeling and analysis”. Computers and Structures Vol.79, No: 13, pp. 1219-1232.
29. **TÖNÜK, E., ÜNLÜSOY, Y. S.**, “Finite Element Estimation of Cornering Force Characteristics of Pneumatic Automobile Tires”. Engineer and Machinery (Mühendis ve Makina) Vol. 42, No. 494, pp. 16-20. (*in Turkish*).
30. **TÖNÜK, E., ÜNLÜSOY, Y. S.**, “Inflation and Loading Analysis of Pneumatic Automobile Tires Using Finite Element Technique”, Journal of Mechanical Design and Production, v. 3, pp. 30-34, 1995 (*in Turkish*).

#### REFEREED CONFERENCE PAPERS

1. OĞUZ, E., YILDIZ, C., ÖZKAN, H., **TÖNÜK, E.**, PEKTAŞ, Ö., KESKİN, C., ERKAN, O. M., YENİGÜN, Ç., AKPANCAR, S., BAHTİYAR, E. E., Modüler, Multiplanar, Poliaksiyal, Anatomik, Biyolojik, Minimalistik, Kişiyeye Özgü, Yeni Bir Kemik Tesbit İmplantı: “ORTOSTAR – 1”, Bildiri No: 6403, 26. Ulusal Türk Ortopedi ve Travmatoloji Kongresi, Antalya, 2016.
2. BAŞARIR, K., KARACA, M. O., KÜÇÜKKARAPINAR, İ., ERCAN, N., **TÖNÜK, E.**, Trokanterik Osteotomi Sonrası Kablo Gerginliği, Ne Kadar Sıkıyoruz, Tork Kısıtlayıcı Gerekli mi?, Bildiri no: 7731, 26. Ulusal Türk Ortopedi ve Travmatoloji Kongresi, Antalya, 2016
3. SÜMBÜL, E., DEMİR, G. U., **TÖNÜK, E.**, Dinamik Postürografi Cihazının Denge Bozukluğu Üzerindeki Etkileri, VIII Ulusal Biyomekanik Kongresi p. 46, Ankara, 2016.
4. ÇUVALCI, A. U., **TÖNÜK, E.**, Biyomekanik Kullanım Amaçlı Denge Platformu Tasarımı, VIII Ulusal Biyomekanik Kongresi p. 114, Ankara, 2016.
5. ASHRAFI, P., **TÖNÜK, E.**, Indentation and Observation of Anisotropic Soft Tissues Using an Indenter Device, VII. Ulusal Biyomekanik Kongresi, Isparta, 2014.
6. YOUSEFI, A., **TÖNÜK, E.**, KENTEL, B. B. In vivo Verification of Different Hip Joint Center Estimation Methods in Gait Analysis for Healthy Subjects, VII. Ulusal Biyomekanik Kongresi, Isparta, 2014.
7. DEMİRCİ, N., **TÖNÜK, E.**, A Fractional Calculus Based Viscoelastic Material Model for Soft Biological Tissues and Its Finite Element Application, Tenth Tissue Elasticity Conference, Arlington, Texas, USA, 12-15 October 2011.
8. BORA, C., SERİNAGAOĞLU, Y., **TÖNÜK, E.**, Electromechanical Heart Tissue Model Using Cellular Automaton, 2010 15th National Biomedical Engineering Meeting (BIYOMUT 2010), DOI: 10.1109/BIYOMUT.2010.5479738 (*in Turkish*).
9. **TÖNÜK, E.**, Modeling of Soft Tissue Mechanical Behavior on Computer, VIth European Sports Medicine Congress, Antalya, Turkey, 2009, (Abstract Published in Journal of Sports Science & Medicine [SCI-Expanded], v. 8, supp. 11, p. 35).
10. ERER, K.S., **TÖNÜK, E.**, TÜMER, S.T., ACCURACY REQUIREMENTS IN BSIP ESTIMATIONS FOR ANALYSIS OF NORMAL GAIT, ESMAC 2008, 17<sup>th</sup> Annual Meeting of European Society of Movement Analysis for Adults and Children, Antalya, Turkey, 2008 (Gait & Posture [SCI-core] V. 28 Supplement 2 p S81-S82).
11. CİVEK E., **TÖNÜK, E.**, YAVUZER G., TÜMER T., Comparison of Kinematic Results of Middle East Technical University Custom Made KISS and Ankara

- University VICON Gait Analysis Systems, ESMAC 2008, 17<sup>th</sup> Annual Meeting of European Society of Movement Analysis for Adults and Children, Antalya, Turkey, 2008 (Gait & Posture [SCI-core] V. 28 Supplement 2 p S99-S100).
12. PETEKKAYA, A. T., **TÖNÜK, E.**, Determination of *in vivo* Anisotropic Material properties of Soft Biological Tissues via Indenter Experiments, National Meeting of Biomedical Engineers, BİYOMUT 2008, Ankara, Turkey, 2008 (*in Turkish*).
  13. ÜSÜ, K., **TÖNÜK, E.**, Soft Tissue Constitutive Equations I: Quasi-linear Viscoelastic Model, National Meeting of Biomedical Engineers BİYOMUT 2008, Ankara, Turkey, 2008 (*in Turkish*).
  14. ÜSÜ, K., **TÖNÜK, E.**, Soft Tissue Constitutive Equations II: Enhanced Quasi-linear Viscoelastic Model, National Meeting of Biomedical Engineers BİYOMUT 2008, Ankara, Turkey, 2008 (*in Turkish*).
  15. KILIÇ, O., **TÖNÜK, E.**, TÜMER, S. T., Biomechanical Modeling of Human Wrist, National Meeting of Biomedical Engineers, BİYOMUT 2007, İstanbul, Turkey, s. 83-85, 2007 (*in Turkish*).
  16. PETEKKAYA, A. T., **TÖNÜK, E.**, Cyclic, Relaxation and Creep Response of Soft Tissue Indenter Experiments, National Meeting of Biomedical Engineers 1, BİYOMUT 2007, İstanbul, Turkey, s. 86-91, 2007 (*in Turkish*).
  17. PETEKKAYA, A. T., **TÖNÜK, E.**, Indenter Tests for Soft Tissue Viscoelastic Property Identification, National Meeting of Biomedical Engineers, BİYOMUT 2007, İstanbul, Turkey, s. 106-111, 2007 (*in Turkish*).
  18. **TÖNÜK, E.**, “A Device for Assessment of Nonlinear Viscoelastic Material Properties of Soft Tissues In Vivo”, Third International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Lake Windermere, Cumbria, United Kingdom, October 17-20, 2004.
  19. **TÖNÜK, E.**, YILDIZ, C., ATEŞALP, A. S., “The Assessment of Nonlinear Viscoelastic Material Properties of Soft Tissues of Residual Limbs of Trans Tibial Amputees”, Third International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Lake Windermere, Cumbria, United Kingdom, October 17-20, 2004.
  20. YILDIZ, C., **TÖNÜK, E.**, ATEŞALP, A. S., DAŞTAN, N., “Assessment of Trans Tibial Amputee Soft Tissue Mechanical Properties via a Soft Tissue Testing System (Initial Results)”, 18th National Turkish Orthopedy and Traumatology Congress in İstanbul in 18-23 October 2003 (*in Turkish*).
  21. APAYDIN, N., ACAR, H. İ., BOZKURT, M., **TÖNÜK, E.**, ELHAN, A., TEKDEMİR, İ., ESMER, A. F., “Anatomy of the annular ligament: cadaveric study”, Presented at First Joint Meeting of the European Association of Clinical Anatomy and the American Association of Clinical Anatomists, Graz, Austria, and abstract published in *Clinical Anatomy* 16:542–564 (2003).
  22. TOYRAN, U. A., **TÖNÜK, E.**, ÜNLÜSOY, Y. S., “Experimental Determination of Rolling Resistance of Automobile Tires According to SAE J1269 and SAE J1270 Standards”, 11th National Machine Theory Symposium in Ankara in September 4-6, 2003, pp. 523-531 (*in Turkish*).
  23. **TÖNÜK, E.**, SILVER-THORN, M. B., “Nonlinear Viscoelastic Material Property Estimation of Lower Extremity Residual Limb Tissues”. The First Joint Meeting of BMES and EMBS in Atlanta in October 13-16, 1999, Vol 1, p. 645.
  24. **TÖNÜK, E.**, SILVER-THORN, M. B., “Effect of Curvature on Lower Extremity Residual Limb Models”. The First Joint Meeting of BMES and EMBS in Atlanta in October 13-16, 1999, Vol 1, p. 639.

25. SILVER-THORN, M. B., **TÖNÜK, E.**, KEMP, J., “In Vivo Indentation of Lower Extremity Limb Soft Tissues”. The First Joint Meeting of BMES and EMBS in Atlanta in October 13-16, 1999, Vol 1, p. 637.
26. SILVER-THORN, M. B., **TÖNÜK, E.**, “A Device for Viscoelastic Assesment of the Residual Limb Bulk Soft Tissue Response to Load”. The First Joint Meeting of BMES and EMBS in Atlanta in October 13-16, 1999 , Vol 1, p. 646.
27. SÖYLEMEZ, E., **TÖNÜK, E.**, “Design of Draft Pipes in Hydroelectric Power Plants”. Presented at the 8<sup>th</sup> International Machine Design and Production Conference held in Ankara, Turkey in September 9-11, 1998 (*in Turkish*).
28. **TÖNÜK, E.**, ÜNLÜSOY, Y. S., “Static Finite Element Modeling of Radial Tires”. Presented at the 17<sup>th</sup> Annual Meeting of the Tire Society in Akron, 1998.
29. **TÖNÜK, E.**, ÜNLÜSOY, Y. S., “Finite Element Modeling of Radial Belted Pneumatic Tires”, Proceedings of the 2<sup>nd</sup> National Computational Mechanics Conference pp. 101-110, 1996 Trabzon, Turkey (*in Turkish*).
30. **TÖNÜK, E.**, ÜNLÜSOY, Y. S., “Simple Analytical Tire Models to Simulate Vehicle Dynamic Behavior, I: Tire Models”, Proceedings of the 7<sup>th</sup>. National Machine Theory Symposium, v. 2, pp. 606-614, 1995 Istanbul, Turkey (*in Turkish*).
31. **TÖNÜK, E.**, ÜNLÜSOY, Y. S., “Simple Analytical Tire Models to Simulate Vehicle Dynamic Behavior, II: Benchmarking”, Proceedings of the 7<sup>th</sup> National Machine Theory Symposium, v. 2, pp. 615-623, 1995 Istanbul, Turkey (*in Turkish*).
32. SÖYLEMEZ, E., **TÖNÜK, E.**, “Design of Piston Driven Six-Link Mechanisms with Large Swing Angle and Optimum Transmission”, IFToMM, SYROM'93 v. 1, pp. 301-308, June 1-5 1993 Bucharest, Romania.
33. **TÖNÜK, E.**, SÖYLEMEZ, E., “Synthesis of Coupler Curves Using Pattern Recognition Techniques”, Proceedings of the 5<sup>th</sup> National Machine Design and Production Symposium, pp. 201-208, September 16-18, 1992, Ankara, Turkey (*in Turkish*).
34. SÖYLEMEZ, E., **TÖNÜK, E.**, “Function Synthesis Design of Spatial Four-Bar Mechanisms with Optimum Force Transmission Characteristics”, Proceedings of the 5<sup>th</sup> National Machine Theory Symposium, pp. 81-87, September 21-22, 1991, Bursa, Turkey (*in Turkish*).
35. SÖYLEMEZ, E., **TÖNÜK, E.**, “Optimum Design of Piston Driven Large Swing Angle Mechanisms”, Proceedings of the 4<sup>th</sup> National Machine Theory Symposium pp. 211-220, September 22-24, 1990, Yalova, Turkey (*in Turkish*).

## CHAPTER IN A BOOK

1. **TÖNÜK, E.**, CHAPTER 8. Strain Measurement and Electric Resistance Strain Gauges, in, Biomechanics of Oral Implants: Handbook of Researchers, Murat Cavit Cehreli (Ed), Nova Publishers, 2012, ISBN: 978-1-62100-780-7.
2. PETEKKAYA, A. T., ÜSÜ, K., **TÖNÜK, E.**, Soft Tissue Mechanical Models, in, Musclo-Skeletal Support System Biomechanics (Kas İskelet Sistemi Biyomekaniği), Akçalı, İ. D., Gülşen, M., Ün, K. (Eds), ISBN 978-975-6813-89-9, v 1, pp. 197-226 (*in Turkish*).
3. **TÖNÜK, E.**, TÜMER, S. T., Gait Analysis, Basic Principles, in, Musclo-Skeletal Support System Biomechanics (Kas İskelet Sistemi Biyomekaniği), Akçalı, İ. D., Gülşen, M., Ün, K. (Eds), ISBN 978-975-6813-89-9, v 2, pp. 1109-1136 (*in Turkish*).



## TRANSLATION

1. Gifford, Clive, Cutaway Cars, Usborne Publishing Ltd., 1994. Translation in Turkish by **TÖNÜK, E.**, The Scientific and Technical Research Council of Turkey, ISBN 975-403-131-2, 1998.

## EDITORSHIP OF TURKISH TRASNLTATIONS

1. En İyi İlacı Ararken: Bir Doktor ve Hastanın Yaşantısından Kesitler (Searching for the Best Medicine) Dr. Arthur Bank, Çeviri M. Ender Arkun, Redaksiyon, **Dr. Ergin Tönük**, Tashih: Sinan Onuş, TÜBİTAK Popüler Bilim Kitapları, 765, Eylül 2015, ISBN: 978-605-312-028-5.
2. Negatif Matematik, Matematik Kurallarını Olumlu Anlamda Nasıl Bükebiliriz (Negative Math - How Mathematical Rules Can Be Positively Bent) Alberto A. Martínez, Turkish Translation E. Sezer, TÜBİTAK Popüler Bilim Kitapları (in press).

## PROJECTS INVOLVED

1. Postür Bozukluklarının İncelenebilmesi için Tasınabilir, Altı Eksenli bir Kuvvet Ölçer Yüzey Tasarım ve Üretimi, ODTÜ-BAP-03-02-2016-001 (2016)
2. Patient-specific orthopedic implant design and production with tissue engineering method, TUBİTAK 1003, 213M708 (2014-2016).
3. Multiplanar Internal and External Bone Fixation Implant, TUBİTAK 1003, 113S103 (2013-2016).
4. Foundation of Biomaterials and Tissue Engineering Research and Application Center (ODTÜ-BİOMATEN BAP.08-11 DPT 2011 K 120350, 2011-2015).
5. Renovation of Current Indenter Device for the Purpose of Determining Biological Soft Tissue Material Law In Vivo using Inverse Finite Element Method (METU BAP 03-2010-02, 2010-2011).
6. Experimental Setup Preperation for Undergraduate and Graduate Students using Tequipment SM 100 Universal Materials Testing Machine (METU BAP-2008-03-02-02, August 2008-December 2010).
7. Experimental determination and computer modelling of mechanical behavior of bulk soft tissues (METU BAP-2006-07-02-00-01, March 2006-September 2008).
8. Electronic data acquisiton system integration to the existing soft and hard tissue testing setup, Researcher (TÜBİTAK SBAG-AYD-479, February 2005-February 2006).
9. Experimental Investigation of Soft Tissue Mechanical Properties of Trans-Tibial Amputee Residual Limbs, Principal Investigator (METU BAP-2003-07-02-00-06, April 2003-April 2005).
10. The Measurement Method of the Fibular Torsion and Exposition of the Clinical Importance of the Fibular Torsion, Researcher (TÜBİTAK SBAG-2592 , August 2002-August 2005).
11. Improvement of METU Tire Testing Setup Facility, Principal Investigator (TÜBİTAK MİSAG-A-65, August 2002-January 2003).
12. An Indenter for the Investigation of Soft Tissue Mechanical Properties of Trans Tibial Prosthesis Users, Principal Investigator (TÜBİTAK MİSAG-183, August 2001-June 2004)
13. Investigation of Bulk Soft Tissue of Trans-Tibial Amputees, Researcher (The Whitaker Foundation, USA, October 1998- May 2000).
14. Finite Element Analysis of Çamlıca Dam Pipes, Researcher (January 1997)

15. Finite Element Modeling of Pneumatic Automobile Tires, Researcher (TÜBİTAK MİSAG-86 July 1996- September 1998)
16. Finite Element Modeling of Pneumatic Automobile Tires, Researcher (METU AFP-96-03-02-01 June 1996-September 1998)

## **PATENT**

Flexible Dental Implant, Patent No: TR 2013 07609 Y.

## **THESES SUPERVISED**

1. Toyran, Uğur Ahmet, Experimental Analysis and Comparison of Rolling Resistance of Passenger Car Tires, co-supervised by Prof. Dr. Y. Samim Ünlüsoy, December 2002, METU.
2. Civek, Ezgi, Comparison of Kinematic Results between METU-Kiss and Ankara University-Vicon Gait Analysis Systems, co-supervised by Prof. Dr. S. Turgut Tümer, December 2006, METU.
3. Kafalı, Pınar, Evaluation of Sensitivity of METU Gait Analysis System, May 2007, co-supervised by Prof. Dr. S. Turgut Tümer, May 2007.
4. ESER, Atılım, Finite Element Investigation of Mechanical Interaction of Dental Implants with Bone, co-supervised by Assoc. Prof. Dr. Kıvanç Akça (Hacettepe University, Faculty of Dentistry), July 2007.
5. Kılıç, Osman, Biomechanical Modelling of Human Hand, co-supervised by Prof. Dr. S. Turgut Tümer, September 2007 (*Prof. Dr. Mustafa N. Parlar Foundation Thesis of the Year Award*).
6. Erer, Koray S., Verification and Matlab Implementation of Inverse Dynamics Model of the METU Gait Analysis System, co-supervised by Dr. Sibel Tarı, February 2008 (*METU Thesis of the Year Award*).
7. Petekkaya, Ali Tolga, Finite Element Modeling of Soft Biological Tissues, September 2008.
8. Üsü, Kerem, Computer Simulation of Mechanical Behavior of Soft Biological Tissues by Inverse Finite Element Method, September 2008.
9. Bora, Ceren, Electromechanical Modeling of the Heart, supervised by Yeşim Serinağaoğlu Doğrusöz in Biomedical Engineering, September 2010.
10. Demirci, Nagehan, Formulation and Implementation of a Fractional Order Viscoelastic Material Model into Finite Element Software and material Model Parameter Identification Using In-Vivo Indenter Experiments for Soft Biological Tissues, February 2012.
11. Pektaş, Ömer, Design and Mechanical Analysis of a New Dental Implant that would Mimic Natural Tooth with a Periodontal Ligament, February 2012 (Supported by Ministry of Industry and Trade 00627.STZ.2010-1 (SANTEZ) Grant), (*Prof. Dr. Mustafa N. Parlar Foundation Thesis of the Year Award*).
12. Avgin, M. Atacan, Evolutionary Structural Optimization of Multiple Load Case Generic Aircraft Components, July 2012.
13. Yousefi, Abdollah, In Vivo Verification of Different Hip Joint Center Estimation Methods in Gait Analysis for Healthy Subjects, January 2014.
14. Ashrafi, Parinaz, In-vivo Testing of Biological Soft Tissues by a Non-axisymmetric Tip Indenter Using Displacement and Force Control, co-supervised by Prof. Dr. Murat Bozkurt, in Biomedical Engineering, February 2015.
15. Erkan, Onur Mert, Mechanical Design of Modular Orthopedic Implant, August 2015 (TÜBİTAK 1003, 113S103 support) (*Prof. Dr. Mustafa N. Parlar Foundation Thesis of the Year Award*).

16. Yenigün, Çağrı, Mechanical Design and Analysis of a Novel Fixation Device for Human Bone Fractures, co-supervised by Prof. Dr. Erbil Oğuz, in Biomedical Engineering, February 2016.

## COURSES OFFERED

- ENME 020 Dynamics (*Fall-1999 at Marquette University, Milwaukee, Wisconsin, U. S. A. )*  
*Contents:* Fundamentals of motion of particles and rigid bodies. Application of Newton's laws. Principles of position, velocity and acceleration. Use of work-energy and impulse-momentum methods.  
*Textbook:* Beer, Ferdinand Pierre and Johnston, Elwood Russel Jr., Vector Mechanics for Engineers: Dynamics, Sixth Edition, McGraw-Hill, 1997. TA352.B39 1997 (ISBN 0-07-912637-5).
- ME 205 Statics (*Fall-2000, Spring-2001, Summer-2001, Fall-2011, Fall-2016*)  
*Contents:* Fundamentals of mechanics. Important vector quantities. Equivalent force systems. Equations of equilibrium. Structural mechanics. Frictional forces. Method of virtual work. Method of minimum potential energy. Properties of surfaces.  
*Textbook:* I. H. Shames, Engineering Mechanics, Statics, John Wiley, 1980 for 2000-2001 and R. C. Hibbeler, Engineering Mechanics, Statics, Twelfth Edition in SI Units, Pearson, 2010 for 2011.
- ME 206 Strength of Materials (*Fall-2001, Summer-2002, Fall-2004, Fall-2005, Fall-2006, Summer-2006, Fall-2008*)  
*Contents:* Concepts: normal and shear stress, strain. Materials, factor of safety, stress concentration. Pressurized thin walled cylinders. Simple loading tension, torsion and bending. Deflections with simple loadings, superposition techniques. Statically indeterminate members, thermal stresses. Combined stresses, Mohr's circle, combined loadings. Buckling. Energy methods.  
*Textbook:* P. Beer and E.R. Johnston, Mechanics of Materials, McGraw-Hill International Book Company, 1992
- ME 208 Dynamics (*Spring-2001, Spring-2003, Spring-2005, Fall-2005, Spring-2005, Fall-2007, Fall-2009, Spring-2010, Spring-2011, Spring-2012, Spring 2013, Spring-2017*)  
*Contents:* Kinematics and kinetics of particles and system of particles. Plane kinematics and kinetics of rigid bodies. Newton's second law of motion. Methods of work energy and impulse-momentum.  
*Textbook:* J.L. Meriam and L.G. Kraige, Engineering Mechanics, Dynamics, John Wiley, 1993
- ME 301 Theory of Machines I (*Fall-2000, Fall-2002, Fall-2003, Fall-2004, Fall-2008, Fall-2009, Fall-2010, Fall-2012, Fall-2014, Fall-2015, Fall-2016*)  
*Contents:* Introduction to mechanisms: basic concepts, mobility, basic types of mechanisms. Position, velocity and acceleration analysis of linkages. Cam mechanisms. Gear trains. Static and dynamic force analysis of mechanisms.  
*Textbook:* E. Söylemez, Mechanisms, METU Publication No.64, 1999 and 2009).
- ME 302 Theory of Machines II (*Spring-2002, Spring-2004, Spring 2007, Spring-2008, Spring-2009, Spring-2010, Spring-2011, Fall-2011, Spring-2012, Spring-2013, Spring-2014, Spring-2015, Spring-2016*)  
*Contents:* Virtual work method. Driving torque characteristics and machine-prime mover interactions. Modelling and elements of vibratory systems. Free and forced vibrations of single degree-of-freedom systems. Introduction to multi degree-of-freedom systems. Vibration control. Critical speeds of shafts. Balancing of rotating machinery.  
*Textbook:* S.G. Kelly, Fundamentals of Mechanical Vibrations, International Edition, McGraw-Hill, 1993.
- ME 307 Machine Elements I (*Fall-2002, Fall-2003*)  
*Contents:* Stress analysis in 3-D. Tolerances and allowances. Static design criteria; stress concentration, factor of safety, theories of failure for ductile and brittle materials. Fatigue design criteria under mean and combined stresses. Design of shafts. Design of permanent joints; riveted joints, welded joints. Design of detachable joints, bolted joints, power screws, keys, splines, pins, rings. Design of springs.  
*Textbook:* J.E. Shigley, Mechanical Engineering Design, Metric Edition, McGraw-Hill, 1986.
- ME 410 Mechanical Engineering Systems Laboratory, Theoretical Background of Experiment 5, Stress Analysis by Using Strain Gages (*Fall-2006, Spring-2007, Fall-2007, Spring-2008, Fall-2008, Spring-2009, Fall-2010, Spring 2011, Fall-2011, Spring 2012, Fall-1012, Spring 2013, Fall-2013, Spring-2014*)  
*Contents:* The need for experiments. Experimental procedure. Professional safety. Generalized measurement system. Report writing. Error treatment. Uncertainty. Frequency distribution. Expected value, standart deviation. Presentation of experimental results. Plotting data. Curve fitting, linear regression. Non-linear relationships. Dimensional analysis. Laboratory experiments.

- ME 418 Dynamics of Machinery (*Spring-2016*)  
*Contents:* Kinematic influence coefficients. Equation of motion and dynamic response of single degree-of-freedom machines: analytical and numerical solution methods. Shaking forces and moments. Balancing of a four-bar linkage. Dynamically equivalent mass systems. Analysis of unbalance in multi-cylinder engines. Kinetostatics: effects of dry friction, power flow in simple and planetary gear trains. Jump phenomenon in rigid cam-follower systems.
- ME 431 Kinematic Synthesis of Mechanisms (*Fall-2013, Fall-2014, Spring-2017*)  
*Contents:* Introduction to synthesis, graphical and analytical methods in dimensional synthesis. Two, three and four positions of a plane. Correlation of crank angles. Classical transmission angle problem. Optimization for the transmission angle. Chebyshev theorem. Current topics in mechanism synthesis.
- ME 547 Introduction to Continuum Mechanics (*Spring-2008, Spring-2009, Fall-2010, Fall-2012, Fall-2013*)  
*Contents:* General aspects, basic assumptions. Development of mathematical tools. Kinematics of a continuum. Stress. General principles. Theory of constitutive equations. Basic material laws. Curvilinear coordinate systems.  
*Textbooks:* Y. C. Fung, *A First Course in Continuum Mechanics, Third Edition, Prentice-Hall, 1994.*, L. E. Malvern, *Introduction to the Mechanics of a Continuous Medium, Prentice Hall, 1969.*
- ME 200 Mechanical Engineering Orientation, Coordinator (*2001-2009*)
- ME 590 Thesis Seminar, Coordinator (*2001-2002 and 2008-2009 academic years and 2013 spring semester*)
- ES 541 Introduction to Biomechanics, *Guest Lecturer, An Introduction to Linear Viscoelastic Materials (Fall-2005, Fall-2006, Fall-2007)*
- BME 501 Introduction to Biomedical Engineering, *Biomechanics Section (Spring-2008, Spring-2009, Spring-2010, Spring-2011, Spring-2012, Spring 2013, Spring-2015).*
- MDM 521 Kinematic Synthesis of Mechanisms (*Spring-2017*)  
*Contents:* Introduction to synthesis, graphical and analytical methods in dimensional synthesis. Two, three and four positions of a plane. Correlation of crank angles. Classical transmission angle problem. Optimization for the transmission angle. Chebyshev theorem. Current topics in mechanism synthesis.
- MDM 526 Machine Dynamics (*Spring 2016*)  
*Contents:* Kinematic influence coefficients. Equation of motion and dynamic response of single degree-of-freedom machines: analytical and numerical solution methods. Shaking forces and moments. Balancing of a four-bar linkage. Dynamically equivalent mass systems. Analysis of unbalance in multi-cylinder engines. Kinetostatics: effects of dry friction, power flow in simple and planetary gear trains. Jump phenomenon in rigid cam-follower systems.

## CITATIONS

1. TÖNÜK, E., ÜNLÜSOY, Y. S., “Prediction of automobile tire cornering force characteristics by finite element modeling and analysis”. *Computers and Structures* Vol.79, No: 13, pp. 1219-1232, May 2001.
  - 1.1. Massera, CM; Terra, MH; Wolf, DF, *Guaranteed Cost Model Predictive Control-based Driver Assistance System for Vehicle Stabilization Under Tire Parameters Uncertainties, 2016 IEEE 19TH INTERNATIONAL CONFERENCE ON INTELLIGENT TRANSPORTATION SYSTEMS (ITSC), 322-327; 2016 (Conference).*
  - 1.2. Ballo, F; Gobbi, M; Mastinu, G; Previati, G; Zerboni, R, *MOTORCYCLE TIRE MODELING, INTERNATIONAL DESIGN ENGINEERING TECHNICAL CONFERENCES AND COMPUTERS AND INFORMATION IN ENGINEERING CONFERENCE, 2015, VOL 3, 2016, ASME (Conference).*
  - 1.3. Ballo, F; Gobbi, M; Mastinu, G; Previati, G, *Motorcycle Tire Modeling for the Study of Tire-Rim Interaction, JOURNAL OF MECHANICAL DESIGN, 138 (5):10.1115/1.4032470 MAY 2016 (SCI-Expanded).*
  - 1.4. Baranowski, P; Malachowski, J; Mazurkiewicz, L., *Numerical and experimental testing of vehicle tyre under impulse loading conditions, INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, 106 346-356; FEB 2016 (SCI-Core).*
  - 1.5. Silva, LCA; Dedini, FG; Correa, FC; Eckert, JJ; Becker, M, *Measurement of wheelchair contact force with a low cost bench test, MEDICAL ENGINEERING & PHYSICS, 38 (2):163-170; 10.1016/j.medengphy.2015.11.014 FEB 2016 (SCI-Core).*
  - 1.6. Gutierrez-Lopez, MD; de Jalon, JG, *A NOVEL METHOD FOR PRODUCING LOW COST DYNAMOMETRIC WHEELS, PROCEEDINGS OF THE ASME INTERNATIONAL DESIGN ENGINEERING TECHNICAL CONFERENCES AND COMPUTERS AND INFORMATION IN ENGINEERING CONFERENCE, 2013, VOL 1, 2014.*
  - 1.7. Kim, SJ; Kim, KS; Yoon, YS, *Development of a tire model based on an analysis of tire strain obtained by an intelligent tire system, INTERNATIONAL JOURNAL OF AUTOMOTIVE TECHNOLOGY, 16 (5):865-875; OCT 2015 (SCI-Expanded).*

- 1.8. Gutierrez-Lopez, MD; de Jalon, JG; Cubillo, A, *A novel method for producing low cost dynamometric wheels based on harmonic elimination techniques*, *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*, 52-53 577-599; FEB 2015 (SCI-Expanded).
- 1.9. Varela, CA; Sierra, FZ, *Cyclic strain rate in tyres as power source to augment automobile autonomy*, *INTERNATIONAL JOURNAL OF VEHICLE DESIGN*, 65 (2-3):270-285; 2014 (SCI-Expanded).
- 1.10. Cueto, OG; Coronel, CEI; Morfa, CAR; Sosa, GU; Gomez, LHH; Calderon, GU; Suarez, MH, *Three dimensional finite element model of soil compaction caused by agricultural tire traffic*, *COMPUTERS AND ELECTRONICS IN AGRICULTURE*, 99 146-152; NOV 2013 (SCI-Expanded).
- 1.11. Bolarinwa, EO; Mahadevaiah, U; Marzougui, D; Opiela, KS, *The development of an enhanced finite element tire model for roadside safety hardware assessment*, *PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART K-JOURNAL OF MULTI-BODY DYNAMICS*, 226 (K3):206-219; 2012 (SCI-Expanded).
- 1.12. Ju, J; Kim, DM; Kim, K, *Flexible cellular solid spokes of a non-pneumatic tire*, *COMPOSITE STRUCTURES*, 94 (8):2285-2295; 2 JUL 2012 (SCI-Expanded).
- 1.13. Korunovic, N; Trajanovic, M; Stojkovic, M; Mistic, D; Milovanovic, J, *Finite Element Analysis of a Tire Steady Rolling on the Drum and Comparison with Experiment*, *STROJNISKI VESTNIK-JOURNAL OF MECHANICAL ENGINEERING*, 57 (12):888-897, DEC 2011 (SCI-Expanded).
- 1.14. Alkan, V.; Karamihas, S. M.; Anlas, G., *Finite element modeling of static tire enveloping characteristics*, *INTERNATIONAL JOURNAL OF AUTOMOTIVE TECHNOLOGY* 12 (4): 529-535 AUG 2011 (SCI-Expanded).
- 1.15. Cerit, M, *Numerical simulation of dynamic side impact test for an aluminium alloy wheel*, *SCIENTIFIC RESEARCH AND ESSAYS* 5 (18): 2694-2701 SEP 18 2010 (SCI-Expanded).
- 1.16. Slade, J; El-Gindy, M; Lescoe, R; Ojier, F; Trivedi, M; Johansson, I, *OFF-ROAD TIRE-SOIL MODELING USING FINITE ELEMENT ANALYSIS TECHNIQUE*, *DETC2009: PROCEEDINGS OF THE ASME INTERNATIONAL DESIGN ENGINEERING TECHNICAL CONFERENCES/COMPUTERS AND INFORMATION IN ENGINEERING CONFERENCE* : 815-829 2010 (Proceedings).
- 1.17. Neves, R. R. V.; Micheli, G. B.; Alves, M., *An experimental and numerical investigation on tyre impact*, *INTERNATIONAL JOURNAL OF IMPACT ENGINEERING* 37 (6): 685-693 Sp. Iss. SI JUN 2010 (SCI-Core).
- 1.18. Mohsenimanesh, A, Ward, SM; Gilchrist, MD, *Stress analysis of a multi-laminated tractor tyre using non-linear 3D finite element analysis*, *MATERIALS & DESIGN* 30 (4): 1124-1132 APR 2009 (SCI-Expanded).
- 1.19. Liu, H.H., *Load and inflation effects on force and moment of passenger tires using explicit transient dynamics*, *Tire Science and Technology* 35 (1), pp. 41-55, 2007.
- 1.20. Rao, K.V.N., Kumar, R.K., *Simulation of tire dynamic behavior using various finite element techniques*, *International Journal of Computational Methods in Engineering Science and Mechanics* 8 (5), pp. 363-372, 2007.
- 1.21. K. V. Narasimha Rao, R. Krishna Kumar, R. Mukhopadhyay, and V. K. Misr, *A study of the relationship between Magic Formula coefficients and tyre design attributes through finite element analysis*, *Vehicle System Dynamics*, Vol. 44, No. 1, January 2006, 33-63 (SCI-expanded).
- 1.22. Li, L., Wang, F.-Y., Zhou, Q., *A watch in developments of intelligent tire inspection and monitoring*, 2005 IEEE International Conference on Vehicular Electronics and Safety Proceedings 2005, art. no. 1563668, pp. 333-338, 2005.
- 1.23. Cho, J. R., Shin, S. W., Yoo, W. S., *Crown shape optimization for enhancing tire wear performance by ANN*. *Computers and Structures* 83 (12-13), 920-933, 2005 (SCI-core).
- 1.24. Wideberg JP *Simplified method for evaluation of the lateral dynamic behaviour of a heavy vehicle* *HEAVY VEH SYST* 11 (2): 195-207 2004 (SCI-expanded)
- 1.25. Olatunbosun, O. A., Bolarinwa, O. *FE simulation of the effect of tire design parameters on lateral forces and moments* *Tire Science and Technology* 32 (3), 146-163, 2004.
- 1.26. Mackerle, J., *Rubber and rubber-like materials, finite-element analyses and simulations, an addendum: a bibliography (1997-2003)*, *Modelling and Simulation in Materials Science and Engineering* 12 (5): 1031-1053 SEP 2004.
- 1.27. Wideberg JP *A graphical user interface for the learning of lateral vehicle dynamics*, *European Journal of Engineering Education* v. 28, n. 2, pp. 225-235, 2003.
- 1.28. Rao, K., Kumar, R., Bohara, P., *Transient finite element analysis of tire dynamic behavior*, *Tire Science and Technology* 31 (2), pp. 104-127, 2003.

## 2. TÖNÜK, E., SILVER-THORN, M. B., “Nonlinear Elastic Material Property Estimation of Lower Extremity Residual Limb Tissues”. IEEE, Transactions on Rehabilitation Engineering Vol 11, No 1, pp. 43-53, March 2003.

- 2.1. Dickinson, AS; Steer, JW; Worsley, PR, *Finite element analysis of the amputated lower limb: A systematic review and recommendations*, *MEDICAL ENGINEERING & PHYSICS*, 43 1-18; 10.1016/j.medengphy.2017.02.008 MAY 2017 (SCI-Core).
- 2.2. Zheng, YP; Huang, YP, *Measurement of Soft Tissue Elasticity in Vivo: Techniques and Applications*, CRC PRESS-TAYLOR & FRANCIS GROUP, 6000 BROKEN SOUND PARKWAY NW, STE 300, BOCA RATON, FL 33487-2742 USA, ISBN: 978-1-4665-7629-2; 978-1-4665-7628-5 (Book).
- 2.3. Witzenburg, CM; Barocas, VHA *nonlinear anisotropic inverse method for computational dissection of inhomogeneous planar tissues*, *COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING*, 19 (15):1630-1646; 10.1080/10255842.2016.1176154 2016 (SCI-Expanded).
- 2.4. Sengeh, DM; Moerman, KM; Petron, A; Herr, H, *Multi-material 3-D viscoelastic model of a transtibial residuum from in-vivo indentation and MRI data*, *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*, 59 379-392; 10.1016/j.jmbbm.2016.02.020 JUN 2016(SCI-Expanded).
- 2.5. Affagard, J. -S.; Feissel, P.; Bensamoun, S. F., *Measurement of the quadriceps muscle displacement and strain fields with ultrasound and Digital Image Correlation (DIC) techniques*, *IRBM Volume: 36 Issue: 3 Pages: 170-177* Published: JUN 2015 (SCI-Expanded).
- 2.6. Sangpradit, K; Liu, HB; Dasgupta, P; Althoefer, K; Seneviratne, LD, *Finite-Element Modeling of Soft Tissue Rolling Indentation*, *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*, 58 (12):3319-3327; Part 1, DEC 2011 (SCI-Core).
- 2.7. Diehm, N; Sin, S; Hoppe, H; Baumgartner, I; Buchler, P, *Computational Biomechanics to Simulate the Femoropopliteal Intersection During Knee Flexion: A Preliminary Study*, *JOURNAL OF ENDOVASCULAR THERAPY* 18 (3): 388-396 JUN 2011 (SCI-Core).

- 2.8. Petekkaya, AT; Tönük, E, IN VIVO INDENTER EXPERIMENTS VIA ELLIPSOID INDENTER TIPS TO DETERMINE THE PERSONAL AND LOCAL IN-PLANE ANISOTROPIC MECHANICAL BEHAVIOR OF SOFT BIOLOGICAL TISSUES, JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY 26 (1): 63-72 MAR 2011 (SCI-Expanded).
  - 2.9. Gabbadini, S; Colombo, G; Facoetti, G; Rizzi, C, KNOWLEDGE MANAGEMENT AND CUSTOMISED 3D MODELLING TO IMPROVE PROSTHESIS DESIGN, ASME INTERNATIONAL DESIGN ENGINEERING TECHNICAL CONFERENCES AND COMPUTERS AND INFORMATION IN ENGINEERING CONFERENCE, PROCEEDINGS, VOL 2, PTS A AND B : 625-633 2010 (Conference paper).
  - 2.10. Bradley and Russel, *Mechatronics in Action, Case Studies in Mechatronics, Application and Education* (book), in "Force Sensing in Medical Robotics" by Althoefer, Liu, Puangmali, Zybszewski, Noonan, Seneviratne, pp. 157-172, Springer 2010.
  - 2.11. Mak, AFT; Zhang, M; Tam, EWC, Biomechanics of Pressure Ulcer in Body Tissues Interacting with External Forces during Locomotion, ANNUAL REVIEW OF BIOMEDICAL ENGINEERING, VOL 12 12: 29-53 2010 (SCI-Core).
  - 2.12. Colombo, G; Filippi, S; Rizzi, C; Rotini, F, A new design paradigm for the development of custom-fit soft sockets for lower limb prostheses, COMPUTERS IN INDUSTRY 61 (6): 513-523 Sp. Iss. SI AUG 2010 (SCI-Expanded).
  - 2.13. Namani, R; Simha, N, Inverse finite element analysis of indentation tests to determine hyperelastic parameters of soft-tissue layers, JOURNAL OF STRAIN ANALYSIS FOR ENGINEERING DESIGN 44 (5): 347-362 Sp. Iss. SI JUL 2009 (SCI-Core).
  - 2.14. Woo, S. S. M.; Yew, K. S. A.; Toh, S. L.; Goh, J. C. H.; Lee, P. V. S., Mechanical Characterisation of Bulk Soft Tissue for Intelligent CAD-FEA Prosthetics Application, WORLD CONGRESS ON MEDICAL PHYSICS AND BIOMEDICAL ENGINEERING 2006, VOL 14, PTS 1-6 14: 2804-2806 Part 1-6 2007 (Conference Proceeding).
  - 2.15. Misra, S; Ramesh, KT; Okamura, AM, Modeling of tool-tissue interactions for computer-based surgical simulation: A literature review, PRESENCE-TELEOPERATORS AND VIRTUAL ENVIRONMENTS 17 (5): 463-491 OCT 2008 (SCI-core).
  - 2.16. Al-Ja'afreh, T; Zweiri, Y; Seneviratne, L; Althoefer, K, A new soft-tissue indentation model for estimating circular indenter 'force-displacement' characteristics, PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART H-JOURNAL OF ENGINEERING IN MEDICINE 222 (H5): 805-815 JUL 2008 (SCI-core)
  - 2.17. Kang, I; Panneerselvam, D; Panoskaltis, VP; Eppell, SJ; Marchant, RE; Doerschuk, CM, Changes in the hyperelastic properties of endothelial cells induced by tumor necrosis factor-alpha, BIOPHYSICAL JOURNAL 94 (8): 3273-3285, 2008 (SCI-core).
  - 2.18. Samur, E., Sedef, M., Basdogan, C., Avtan, L., Duzgun, O., A robotic indenter for minimally invasive measurement and characterization of soft tissue response, Medical Image Analysis 11 (4), pp. 361-373, 2007 (SCI-core).
  - 2.19. Bliss, C.L., Szivek, J.A., Tellis, B.C., Margolis, D.S., Schnepf, A.B., Ruth, J.T., Sensate scaffolds can reliably detect joint loading, Journal of Biomedical Materials Research - Part B Applied Biomaterials 81 (1), pp. 30-39, 2007 (SCI-core).
  - 2.20. Portnoy, S; Yarnitzky, G; Yizhar, Z; Kristal, A; Oppenheim, U; Siev-Ner, I; Gefen, A, Real-time patient-specific finite element analysis of internal stresses in the soft tissues of a residual limb: A new tool for prosthetic fitting, ANNALS OF BIOMEDICAL ENGINEERING 35 (1): 120-135 JAN 2007 (SCI-core).
  - 2.21. Amy Elizabeth Kerdok, *Characterizing the Nonlinear Mechanical Response of Liver to Surgical Manipulation*, Ph. D. Dissertation, Engineering Sciences, Harvard University, Cambridge, MA, USA, May 25, 2006.
  - 2.22. Li, Z., Kim, J.-E., Davidson, J.S., Eberhardt, A.W., Finite element modeling of the human pelvis in experimental side impacts, Proceedings of the 2005 Summer Bioengineering Conference 2005, pp. 1232-1233, 2005.
  - 2.23. Howell, E.B., Klute, G., Devasia, S., Passive and active shock absorbing prostheses for lower limb amputees, American Society of Mechanical Engineers, Dynamic Systems and Control Division (Publication) DSC 74 DSC (1 PART A), pp. 627-636, 2005.
  - 2.24. Huang YP, Zheng YP, Leung SF Quasi-linear viscoelastic properties of fibrotic neck tissues obtained from ultrasound indentation tests in vivo CLINICAL BIOMECHANICS 20 (2): 145-154 FEB 2005 (SCI-core)
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