

## Prof. HÜSNÜ DAL

### Personal Information

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### International Researcher IDs

ScholarID: lDoqcAcAAAAJ

ORCID: 0000-0002-2973-3991

Publons / Web Of Science ResearcherID: K-2349-2014

ScopusID: 26031218500

Yoksis Researcher ID: 132615

### Education Information

Post Doctorate, Universitaet Stuttgart, Simulasyon Teknolojileri Mükemmeliyet Merkezi, Hesaplamalı Malzeme Tasarımı, Germany 2012 - 2014

Post Doctorate, Eidgenössische Technische Hochschule, ETHZ (The Federal Institute of Technology, Zürich), Makina Mühendisliği Fakültesi, Mekanik Merkezi, Switzerland 2011 - 2012

Doctorate, Technische Universitaet Dresden, İnşaat Fakültesi, Yapı Mekaniği Ve Yapı Dinamiği Enstitüsü, Germany 2006 - 2011

Doctorate, Leipzig Universität, İnşaat Fakültesi, Yapı Mekaniği Ve Yapı Dinamiği Enstitüsü, Germany 2005 - 2006

Postgraduate, Universitaet Stuttgart, İnşaat Fakültesi, Malzemelerin Ve Yapıların Hesaplamalı Mekaniği, Germany 2003 - 2005

Undergraduate, Middle East Technical University, Faculty of Engineering, İnşaat Mühendisliği, Turkey 1997 - 2001

### Foreign Languages

English, C1 Advanced

German, B2 Upper Intermediate

### Dissertations

Doctorate, Approaches to the Modeling of Inelasticity and Failure of Rubberlike Materials, Technische Universitaet Dresden, İnşaat Fakültesi, Yapı Mekaniği Ve Yapı Dinamiği Enstitüsü, 2011

Postgraduate, Approaches to Modeling of Thermoviscoplastic Behavior of Glassy Polymers, Universitaet Stuttgart, Disiplinlerarası Malzemelerin Ve Yapıların Hesaplamalı Mekaniği Yüksek Lisans Programı, Mühendislik - Disiplinlerarası, 2005

### Research Areas

Mechanical Engineering, Mechanical, Solid Mechanics, Fracture Mechanics, Finite Element Methods, Biomechanics,

Mechanical Testing, Continuous Mechanics, Engineering and Technology

## Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2024 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2018 - 2024

Instructor, Universitaet Stuttgart, İnşaat Fakültesi, İnşaat Mühendisliği, 2012 - 2014

Research Assistant, Eidgenössische Technische Hochschule, ETHZ (The Federal Institute of Technology, Zürich), Makine Fakültesi, Makine Mühendisliği, 2011 - 2011

Research Assistant, Technische Universitaet Dresden, İnşaat Fakültesi, İnşaat Mühendisliği, 2006 - 2011

Research Assistant, Universitaet Leipzig, İnşaat Fakültesi, İnşaat Mühendisliği, 2005 - 2006

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2001 - 2003

## Academic and Administrative Experience

Director of the Center, Middle East Technical University, Presidency Office, CAD/CAM Robotics Center, 2023 - Continues

BAP Scientific Commissioner, Middle East Technical University, Presidency Office, 2017 - Continues

Middle East Technical University, Presidency Office, 2017 - Continues

## Courses

INTRODUCTION TO FINITE ELEMENT ANALYSIS, Undergraduate, 2024 - 2025

INTRODUCTION TO CONTINUUM MECHANICS, Postgraduate, 2024 - 2025

STRENGTH OF MATERIALS, Undergraduate, 2022 - 2023

APPLIED MATH. FOR MECHANICAL ENGINEERS, Undergraduate, 2017 - 2018

STATICS, Undergraduate, 2018 - 2019

## Supervised Theses

Dal H., Failure Analysis of Infrared Sensing Devices due to Cryogenic Cooling, Doctorate, E.CAN(Student), 2023

Dal H., A GENERALIZED PHASE-FIELD APPROACH FOR THE FAILURE OF RUBBER-LIKE MATERIALS, Doctorate, K.AÇIKGÖZ(Student), 2023

Dal H., Computational mechanics for soft biological tissues, Doctorate, C.ALTUN(Student), 2023

Dal H., Hyperelastic Modelling Approaches to Polymeric Foams, Postgraduate, Y.GARGI(Student), 2023

Dal H., Data-driven approach for rubberlike materials, Postgraduate, M.ENİS(Student), 2022

Dal H., Testing, modelling and simulation of linear and circular linear shaped charges, Postgraduate, M.TOP(Student), 2022

Dal H., A comparative study of anisotropic hyperelastic models of biological soft tissues, Postgraduate, A.KAĞAN(Student), 2021

Dal H., Finite Element Formulations for Kirchhoff-Love Microplates, Doctorate, M.KANDAZ(Student), 2020

Dal H., A diffusive crack model for fiber reinforced polymer composites, Doctorate, F.AKSU(Student), 2020

Dal H., A comparative study of the fitting performance of hyperelastic constitutive models, Postgraduate, Y.BADIENIA(Student), 2019

Dal H., Non-linear viscoelasticity for epoxy-based polymers : Theoretical modeling and numerical implementation, Postgraduate, A.KORAL(Student), 2019

DAL H., Quasi-incompressible and quasi-inextensible element and material formulation for anisotropic medium, Postgraduate, B.RODOPLU(Student), 2018

DAL H., Design of an inertia measurement device for stores, Postgraduate, B.KILIÇ(Student), 2018

Dal H., Yildırım R. O., Dynamic fracture of explosive bolt, Postgraduate, B.GÖKÇE(Student), 2018

DAL H., Shape optimization of mems switches for miniaturization, Postgraduate, I.AHMED(Student), 2018

DAL H., Investigation of deformation and shape memory characteristics of thermoplastic polymers, Postgraduate, C.YİĞİTBAŞI(Student), 2018

DAL H., A multiobjective optimization toolbox development for parameter identification of elastomers, Postgraduate, T.TEKİN(Student), 2018

DAL H., Finite strain modeling of coupled thermo-mechanical behavior of polycrystalline Ni-Ti shape memory alloys, Postgraduate, V.REZAZADEH(Student), 2017

DAL H., A phase field model for the failure of artery walls: Application to rupture due to Aneurysm, Postgraduate, O.Gültekin(Student), 2014

DAL H., Intercalation induced stress generation in high performance Li-ion battery systems, Postgraduate, C.Mohammad(Student), 2013

DAL H., A Multiscale continuum damage model for cavity growth in rubberlikematerials, Postgraduate, F.Bariş(Student), 2013

## Research Infrastructure Information

Dal H., Kauçuk Araştırma Laboratuvarı, August 2020

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Spatial variation of physical, mechanical, and thermophysical properties of 3D printed concrete across a full-scale wall**  
Bayrak A. T., Shaban N., Seyedian Choubi S., Tuncer E., Yang S., Yılmaz H. D., Alkilani A. Z., Dal H., Unluer C., Gürsel Dino I., et al.  
CONSTRUCTION AND BUILDING MATERIALS, vol.431, 2024 (SCI-Expanded)
- II. **HYPER-DATA: A MATLAB based optimization software for data-driven hyperelasticity**  
DURNA R., AÇAN A. K., Tikenogullari O. Z., DAL H.  
SOFTWAREX, 2024 (SCI-Expanded)
- III. **Data-driven hyperelasticity, Part II: A canonical framework for anisotropic soft biological tissues**  
TİKENOĞULLARI O. Z., AÇAN A. K., Kuhl E., DAL H.  
Journal of the Mechanics and Physics of Solids, vol.181, 2023 (SCI-Expanded)
- IV. **An In Silico-Based Investigation on Anisotropic Hyperelastic Constitutive Models for Soft Biological Tissues**  
DAL H., AÇAN A. K., Durcan C., Hossain M.  
Archives of Computational Methods in Engineering, vol.30, no.8, pp.4601-4632, 2023 (SCI-Expanded)
- V. **Data-driven hyperelasticity, Part I: A canonical isotropic formulation for rubberlike materials**  
Dal H., Denli F. A., Acan A. K., Kaliske M.  
Journal of the Mechanics and Physics of Solids, vol.179, 2023 (SCI-Expanded)
- VI. **A one-pass predictor-corrector algorithm for the inverse Langevin function**  
BAŞDEMİR S., DAL H.  
Mathematics and Mechanics of Solids, vol.28, no.4, pp.920-930, 2023 (SCI-Expanded)
- VII. **Ductile–brittle failure of amorphous glassy polymers: A phase-field approach**  
DAL H., Gültekin O., BAŞDEMİR S., AÇAN A. K.  
Computer Methods in Applied Mechanics and Engineering, vol.401, 2022 (SCI-Expanded)
- VIII. **Temperature-dependent thermoelastic properties of GaSb and InSb semiconductors: Identification**

**through ab initio DFT simulations**

Baloğlu E. C., TOFFOLI H., DAL H.

Physica B: Condensed Matter, vol.643, 2022 (SCI-Expanded)

- IX. **Electro-chemo-mechanical induced fracture modeling in proton exchange membrane water electrolysis for sustainable hydrogen production**  
Aldakheel F., Kandekar C., Bensmann B., DAL H., Hanke-Rauschenbach R.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.400, 2022 (SCI-Expanded)
- X. **On the Performance of Isotropic Hyperelastic Constitutive Models for Rubber-Like Materials: A State of the Art Review**  
DAL H., AÇIKGÖZ K., Badienia Y.  
APPLIED MECHANICS REVIEWS, vol.73, no.2, 2021 (SCI-Expanded)
- XI. **An extended eight-chain model for hyperelastic and finite viscoelastic response of rubberlike materials: Theory, experiments and numerical aspects**  
DAL H., Gültekin O., AÇIKGÖZ K.  
Journal of the Mechanics and Physics of Solids, vol.145, 2020 (SCI-Expanded)
- XII. **A quasi-incompressible and quasi-inextensible finite element analysis of fibrous soft biological tissues**  
Gultekin O., Rodoplu B., DAL H.  
BIOMECHANICS AND MODELING IN MECHANOBIOLOGY, vol.19, no.6, pp.2357-2373, 2020 (SCI-Expanded)
- XIII. **A phase-field model for fracture of unidirectional fiber-reinforced polymer matrix composites**  
Denli F. A., Gultekin O., Holzapfel G. A., DAL H.  
COMPUTATIONAL MECHANICS, vol.65, no.4, pp.1149-1166, 2020 (SCI-Expanded)
- XIV. **Computational modeling of progressive damage and rupture in fibrous biological tissues: application to aortic dissection**  
Gultekin O., Hager S. P., DAL H., Holzapfel G. A.  
BIOMECHANICS AND MODELING IN MECHANOBIOLOGY, vol.18, no.6, pp.1607-1628, 2019 (SCI-Expanded)
- XV. **On the quasi-incompressible finite element analysis of anisotropic hyperelastic materials**  
Gultekin O., DAL H., Holzapfel G. A.  
COMPUTATIONAL MECHANICS, vol.63, no.3, pp.443-453, 2019 (SCI-Expanded)
- XVI. **A quasi-incompressible and quasi-inextensible element formulation for transversely isotropic materials**  
Dal H.  
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, vol.117, pp.118-140, 2019 (SCI-Expanded)
- XVII. **A three-scale compressible microsphere model for hyperelastic materials**  
Dal H., CANSIZ B., MIEHE C.  
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, vol.116, no.6, pp.412-433, 2018 (SCI-Expanded)
- XVIII. **A comparative study of modified strain gradient theory and modified couple stress theory for gold microbeams**  
KANDAZ M., DAL H.  
ARCHIVE OF APPLIED MECHANICS, vol.88, no.11, pp.2051-2070, 2018 (SCI-Expanded)
- XIX. **Computational cardiology: the bidomain based modified Hill model incorporating viscous effects for cardiac defibrillation**  
CANSIZ B., DAL H., KALISKE M.  
COMPUTATIONAL MECHANICS, vol.62, no.3, pp.253-271, 2018 (SCI-Expanded)
- XX. **An affine microsphere approach to modeling strain-induced crystallization in rubbery polymers**  
NATEGHİ A., DAL H., Keip M. -, MIEHE C.  
CONTINUUM MECHANICS AND THERMODYNAMICS, vol.30, no.3, pp.485-507, 2018 (SCI-Expanded)
- XXI. **Numerical aspects of anisotropic failure in soft biological tissues favor energy-based criteria: A rate-dependent anisotropic crack phase-field model**

- Gueltekin O., DAL H., Holzapfel G. A.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.331, pp.23-52, 2018 (SCI-Expanded)
- XXII. **Micro-sphere based viscoplastic constitutive model for uncured green rubber**  
DAL H., ZOPF C., Kaliske M.  
INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES, vol.132, pp.201-217, 2018 (SCI-Expanded)
- XXIII. **Computational cardiology: A modified Hill model to describe the electro-visco-elasticity of the myocardium**  
CANSIZ B., DAL H., KALISKE M.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.315, pp.434-466, 2017 (SCI-Expanded)
- XXIV. **A phase-field model for chemo-mechanical induced fracture in lithium-ion battery electrode particles**  
MIEHE C., DAL H., SCHAENZEL L. -, RAINA A.  
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING, vol.106, no.9, pp.683-711, 2016 (SCI-Expanded)
- XXV. **An orthotropic viscoelastic material model for passive myocardium: theory and algorithmic treatment**  
CANSIZ F. B. C., Dal H., KALISKE M.  
COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING, vol.18, no.11, pp.1160-1172, 2015 (SCI-Expanded)
- XXVI. **Computational electro-chemo-mechanics of lithium-ion battery electrodes at finite strains**  
Dal H., Miehe C.  
COMPUTATIONAL MECHANICS, vol.55, pp.303-325, 2015 (SCI-Expanded)
- XXVII. **A fully implicit finite element method for bidomain models of cardiac electromechanics**  
Dal H., Goektepe S., Kaliske M., Kuhl E.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.253, pp.323-336, 2013 (SCI-Expanded)
- XXVIII. **A constitutive model for finite deformation of amorphous polymers**  
FLEISCHHAUER R., Dal H., KALISKE M., SCHNEIDER K.  
INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES, vol.65, no.1, pp.48-63, 2012 (SCI-Expanded)
- XXIX. **Characterization of fracture processes by continuum and discrete modelling**  
KALISKE M., Dal H., FLEISCHHAUER R., JENKEL C., NETZKER C.  
COMPUTATIONAL MECHANICS, vol.50, no.3, pp.303-320, 2012 (SCI-Expanded)
- XXX. **A fully implicit finite element method for bidomain models of cardiac electrophysiology**  
Dal H., GÖKTEPE S., KALISKE M., Kuhl E.  
COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING, vol.15, no.6, pp.645-656, 2012 (SCI-Expanded)
- XXXI. **An endochronic plasticity formulation for filled rubber**  
NETZKER C., Dal H., KALISKE M.  
INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES, vol.47, pp.2371-2379, 2010 (SCI-Expanded)
- XXXII. **Bergstrom-Boyce model for nonlinear finite rubber viscoelasticity: theoretical aspects and algorithmic treatment for the FE method**  
Dal H., KALISKE M.  
COMPUTATIONAL MECHANICS, vol.44, no.6, pp.809-823, 2009 (SCI-Expanded)
- XXXIII. **A micro-continuum-mechanical material model for failure of rubber-like materials: Application to ageing-induced fracturing**  
Dal H., KALISKE M.  
JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, vol.57, no.8, pp.1340-1356, 2009 (SCI-Expanded)
- XXXIV. **Fracture mechanical behaviour of visco-elastic materials: application to the so-called dwell-effect**  
NAESER B., KALISKE M., Dal H., NETZKER C.  
ZAMM-ZEITSCHRIFT FÜR ANGEWANDTE MATHEMATIK UND MECHANIK, vol.89, no.8, pp.677-686, 2009 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Growth-induced instabilities for transversely isotropic hyperelastic materials**  
Altun C., Gürses E., Dal H.  
Mechanics of Soft Materials, vol.5, no.7, pp.1-22, 2023 (Peer-Reviewed Journal)
- II. **Finite Element Analyses of the Modified Strain Gradient Theory Based Kirchhoff Microplates**  
Kandaz M., DAL H.  
SURFACES, vol.4, no.2, pp.115-156, 2021 (ESCI)
- III. **ANALYSIS OF GOLD MICRO-BEAMS WITH MODIFIED STRAIN GRADIENT THEORY**  
DAL H.  
Anadolu Üniversitesi Bilim Ve Teknoloji Dergisi A - Uygulamalı Bilimler ve Mühendislik, vol.18, pp.663-681, 2017 (Peer-Reviewed Journal)

## Books

- I. **Macroscopical Modeling and Numerical Simulation for the Characterization of Crack and Durability Properties of Particle-Reinforced Elastomers**  
Behnke R., DAL H., Geissler G., Naeser B., Netzker C., Kaliske M.  
in: Fracture Mechanics and Statistical Mechanics of Reinforced Elastomeric Blends, Grellmann, Wolfgang and Heinrich, Gert and Kaliske, Michael and Klüppel, Manfred and Schneider, Konrad and Vilgis, Thomas, Editor, Springer Berlin Heidelberg, pp.70-167, 2013

## Refereed Congress / Symposium Publications in Proceedings

- I. **A comparative case study for fatigue lifetime predictors on EPDM rubber**  
Tanış B. E., Başdemir S., DAL H., Bilal H.  
13th European Conference on Constitutive Models for Rubber, ECCMR 2024, İstanbul, Turkey, 26 - 28 June 2024, pp.255-261
- II. **Constitutive modelling of amplitude dependent dynamic response of rubber-like materials**  
Yayla A. U., DURNA R., DAL H.  
13th European Conference on Constitutive Models for Rubber, ECCMR 2024, İstanbul, Turkey, 26 - 28 June 2024, pp.72-78
- III. **A stochastic phase-field approach for the failure of rubberlike materials**  
AÇIKGÖZ K., Efe Tanış B., DAL H.  
13th European Conference on Constitutive Models for Rubber, ECCMR 2024, İstanbul, Turkey, 26 - 28 June 2024, pp.211-216
- IV. **A data-driven constitutive model for compressible polymeric foams**  
AÇAN A. K., Gargı Y., Başdemir S., DAL H.  
13th European Conference on Constitutive Models for Rubber, ECCMR 2024, İstanbul, Turkey, 26 - 28 June 2024, pp.31-37
- V. **Coupled thermo-viscoplastic fracture model for ductile-brittle failure of amorphous glassy polymers with phase-field approach**  
Dal H., Başdemir S., Gültekin O.  
92nd Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Aachen, Germany, 15 - 19 August 2022, vol.22, pp.1-6
- VI. **Dispersion-type Anisotropic Viscoelasticity: Model Validation for Myocardium**  
Açan A. K., Altun C., Dal H.  
92nd Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Aachen, Germany, 15 - 19 August 2022, vol.23, no.1, pp.1-6

- VII. **Extruder Design of Printable Composites**  
Hashemzadeh A., Tunçer E., Yaman U., Dal H., Meral Akgül Ç.  
Additive Manufacturing Conference, Aydın, Turkey, 6 - 08 October 2022, pp.76-77
- VIII. **Two novel Kirchhoff plate finite elements for the modified strain gradient theory**  
Kandaz M., DAL H.  
90th Annual Meeting of the Gesellschaft für Angewandte Mathematik und Mechanik (GAMM), 18 - 22 February 2019, vol.19
- IX. **A Quasi-Incompressible and Quasi-Inextensible Finite Element Implementation of Fibrous Soft Biological Tissues**  
Gültekin O., Rodoplu B., Dal H.  
Beyond 2019: Computational Science and Engineering Conference, Ankara, Turkey, 9 - 11 September 2019, pp.35
- X. **A Crack Phase-field Model to Analyze Aortic Dissections**  
Holzapfel G. A., Gültekin O., Hager S. P., Dal H.  
COMPLAS 2019 15th International Conference on Computational Plasticity–Fundamentals and Applications, Barcelona, Spain, 3 - 05 September 2019, pp.1
- XI. **A phase-field approach to viscoelastic fracture in rubbery polymers**  
Denli F. A., Gültekin O., Dal H.  
IWPDF 2019 1st International Workshop on Plasticity, Damage and Fracture of Engineering Materials, Ankara, Turkey, 22 - 23 August 2019, pp.1
- XII. **Phase-field approach to model fracture in human aorta**  
Gültekin O., Holzapfel G. A., Dal H.  
IWPDF 2019 1st International Workshop on Plasticity, Damage and Fracture of Engineering Materials, Ankara, Turkey, 22 - 23 August 2019, pp.1
- XIII. **Nonlinear compressible finite viscoelasticity of epoxy-based polymers**  
Dal H., Welschinger F., Gromala P. J., Han B.  
11th European Conference on Constitutive Models for Rubber, 2019, Nantes, France, 25 - 27 June 2019, pp.335-340
- XIV. **A comparative study on hyperelastic constitutive models on rubber: State of the art after 2006**  
Dal H., Badienia Y., Acikgoz K., Denli F. A.  
11th European Conference on Constitutive Models for Rubber, 2019, Nantes, France, 25 - 27 June 2019, pp.239-244
- XV. **A Comparative Study on the Hyperelastic Constitutive Models for Rubber**  
Dal H.  
Workshop on "Plasticity, Damage and Fracture of Engineering Materials", Ankara, Turkey, 25 October 2018, pp.9
- XVI. **Numerical Modeling of Rupture in Human Arterial Walls**  
Gültekin O., Dal H., Holzapfel G. A.  
WCB 2018 8th World Congress of Biomechanics, Dublin, Ireland, 8 - 12 July 2018, pp.1-2
- XVII. **A Phase-field Approach to Model Aortic Dissections**  
Gültekin O., Dal H., Holzapfel G. A.  
ESMC 2018 10th European Solid Mechanics Conference, Bologna, Italy, 2 - 06 July 2018, pp.1
- XVIII. **MÜHİMMAT SİSTEMLERİ İÇİN KÜTLE ÖZELLİKLERİ ÖLÇÜMÜ YAPAN TEST DÜZENEGİ TASARIMI**  
Kılıç B., Dal H., Tüzün A.  
SAVTEK 9. Savunma Teknolojileri Kongresi, Ankara, Turkey, 27 - 29 June 2018
- XIX. **A rate dependent phase field approach for the failure of rubberlike materials**  
Aksu Denli F., Dal H.  
6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) (ECCM 6) and the 7th European Conference on Computational Fluid Dynamics (ECFD 7), Glasgow, United Kingdom, 11 - 15 June 2018, pp.1
- XX. **Affine Full Network Model for Strain-Induced Crystallization in Rubbery Polymers**  
NATEGHİ A., DAL H., KEİP M. A., Miehe C.  
Proceedings of the 7th GACM Colloquium on Computational Mechanics for Young Scientists from Academia and

Industry, 11 - 13 October 2017

- XXI. **A Novel Parameter Identification Toolbox for the Selection of Hyperelastic Constitutive Models from Experimental Data**  
DAL H., BADIENIA Y., AÇIKGÖZ K., AKSU DENLİ F.  
Proceedings of the 7th GACM Colloquium on Computational Mechanics for Young Scientists from Academia and Industry, 11 - 13 October 2017
- XXII. **CRACK PHASE-FIELD MODELING OF ANISOTROPIC RUPTURE IN FIBROUS SOFT TISSUES**  
GUELTEKIN O., DAL H., HOLZAPFEL G. A.  
14th International Conference on Computational Plasticity - Fundamentals and Applications (COMPLAS), Barcelona, Spain, 5 - 07 September 2017, pp.139-150
- XXIII. **A quasi-inextensible and quasi-incompressible finite element formulation for transversely anisotropic hyperelastic solids and soft biological tissues**  
DAL H., RODOPLU B.  
XIV International Conference on Computational Plasticity. Fundamentals and Applications, 5 - 07 September 2017
- XXIV. **Analysis of Gold Microbeams with Higher Order Continuum Theories**  
KANDAZ M., DAL H., ÜNLÜ M.  
88th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Weimar, Germany, 6 - 10 March 2017
- XXV. **Phase-Field Models for the Failure of Anisotropic Continua**  
DAL H., GÜLTEKİN O., AKSU DENLİ F., HOLZAPFEL G.  
88th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Weimar, Germany, 6 - 10 March 2017
- XXVI. **Electro Chemo Mechanics and Fracture of Li Ion Battery Electrodes**  
DAL H.  
Multiscale phenomena in electrochemical and porous systems, 14 - 16 June 2016
- XXVII. **A PHASE FIELD APPROACH TO MODEL FRACTURE OF ARTERIAL WALLS**  
GÜLTEKİN O., DAL H., HOLZAPFEL G. A.  
European Congress on Computational Methods in Applied Sciences and Engineering, GİRİT, Greece, 5 - 10 June 2016
- XXVIII. **A quasi inextensible element formulation for anisotropic continuum**  
DAL H.  
European Congress on Computational Methods in Applied Sciences and Engineering, GİRİT, Greece, 5 - 10 June 2016
- XXIX. **Computational Modeling of Multi physics Phenomena in Lithium Ion Battery Electrodes**  
DAL H.  
EUROPEAN CONFERENCE ON NUMERICAL MATHEMATICS AND ADVANCED APPLICATIONS, Ankara, Turkey, 14 - 18 September 2015
- XXX. **Fully Coupled Cardiac Electromechanics with Orthotropic Viscoelastic Effects**  
CANSIZ B., DAL H., KALISKE M.  
IUTAM/EUROMECH Symposium Dynamics of Capsules, Vesicles and Cells in Flow (DYNACAPS), Compiègne, France, 15 - 19 July 2014, pp.124-133
- XXXI. **Computational modeling of cardiac tissue with strongly coupled electromechanics and orthotropic viscoelastic effects**  
Cansiz B., DAL H., Kaliske M.  
GAMM Annual Scientific Conference, 10 - 14 March 2014, vol.14, pp.119-120
- XXXII. **Coupled chemomechanics and phase field modeling of failure in electrode materials of Li ion batteries**  
DAL H., Miehe C.  
GAMM Annual Scientific Conference, 18 - 22 March 2013, vol.13, pp.207-208
- XXXIII. **On Micromechanically Based Approaches to Failure in Polymers**  
SCHÄNZEL L., DAL H., Miehe C.



GAMM Annual Scientific Conference, 18 - 22 March 2013, vol.13, pp.557-560

**XXXIV. Phase field modeling of fracture in rubbery polymers**

Schaenzel L., DAL H., Miehe C.

8th European Conference on Constitutive Models for Rubbers (ECCMR), San Sebastian, Spain, 25 - 28 June 2013, pp.335-341

**XXXV. A Multiscale continuum damage model for cavity growth in rubberlike materials**

DAL H., Cansiz B., Miehe C.

8th European Conference on Constitutive Models for Rubbers (ECCMR), San Sebastian, Spain, 25 - 28 June 2013, pp.183-189

**XXXVI. Numerical aspects on computational homogenization of epoxy glass composites**

FLEISCHHAUER R., DAL H., Kaliske M.

GAMM Annual Scientific Conference, 26 - 30 March 2012, vol.12, pp.425-426

**XXXVII. A new continuum approach to the coupling of shear yielding and crazing with fracture in glassy polymers**

SCHANZEL L., DAL H., Miehe C.

GAMM Annual Scientific Conference, 26 - 30 March 2012, vol.12, pp.337-338

**XXXVIII. An extended tube model for thermo viscoelasticity of rubberlike materials Theory and numerical implementation**

Behnke R., DAL H., Kaliske M.

European Conference on Constitutive Models for Rubber VII, 20 - 23 September 2011, pp.87-92

**XXXIX. A three field bi domain based approach to the strongly coupled electromechanics of the heart**

DAL H., GÖKTEPE S., Kaliske M., Kuhl E.

GAMM Annual Scientific Conference, 18 - 21 April 2011, vol.11, pp.931-934

**XL. An extended tube model for thermo viscoelasticity of rubberlike materials Parameter identification and examples**

BEHNKE R., DAL H., Kaliske M.

GAMM Annual Scientific Conference, 18 - 21 April 2011, vol.11, pp.353-354

**XLI. Thermoviscoelasticity of fibre reinforced rubbery polymers**

DAL H., Kaliske M., HICKMANN R., CHERIF C., JURK R., HEINRICH G.

GAMM Annual Scientific Conference, 22 - 26 March 2010, vol.10, pp.287-288

**XLII. Micromechanical modelling and two scale simulation of epoxy glass composites with interphases and interfaces**

Fleischhauer R., DAL H., Kaliske M.

GAMM Annual Scientific Conference, 22 - 26 March 2010, vol.10, pp.407-408

**XLIII. A micro-continuum-mechanical material model for failure of rubber-like materials**

DAL H., Kaliske M., Nasdala L.

6th European Conference on Constitutive Models for Rubber, Dresden, Germany, 7 - 10 September 2009, pp.401-402

**XLIV. A micro macro approach to the failure of rubber like materials**

DAL H., Kaliske M.

GAMM Annual Scientific Conference, 31 March - 04 April 2008, vol.8, pp.10413-10414

**XLV. Computational aspects of Bergstrom-Boyce finite viscoelasticity model**

DAL H., Kaliske M., Nasdala L.

5th European Conference on Constitutive Models for Rubber, Paris, France, 4 - 07 September 2007, pp.241-242

**XLVI. Fracture of viscoelastic materials**

Kaliske A., Naeser B., DAL H.

5th European Conference on Constitutive Models for Rubber, Paris, France, 4 - 07 September 2007, pp.185-186

**XLVII. Fracture mechanical behaviour of visco elastic materials**

NAESER B., DAL H., Kaliske M.

Sixth International Congress on Industrial Applied Mathematics (ICIAM07) and GAMM Annual Meeting, 26 - 30 March 2007, vol.7, pp.1090103-1090104

## XLVIII. An Approach to the Modeling of Physical Ageing in Rubbery Polymers

DAL H., Kaliske M.

GAMM Annual Scientific Conference, 27 - 29 March 2006, vol.6, pp.363-364

### Supported Projects

ERTEKİN BOLELLİ Ş., AKAR G., EREN P. E., GÜRBÜZ T., AÇIKGÖZ K., YAMAN U., DAL H., Project Supported by Higher Education Institutions, Towards Digital Transformation: AI Assisted Smart Flexible Manufacturing, 2024 - Continues  
AKGÜL Ç., ANKARALI M. M., DAL H., Project Supported by Higher Education Institutions, P3DPC Effective digital printing of sustainable concretes considering printing delay time and speed, 2022 - Continues

DAL H., AÇIKGÖZ K., AÇAN A. K., Project Supported by Higher Education Institutions, KISA LİFLERLE TAKVİYE EDİLMİŞ POLİMERİK MALZEMELERİN YIRTIлма ÖZELLİKLERİNİN DENEYSEL VE HESAPLAMALI OLARAK İNCELENMESİ, 2021 - Continues

TİKENOĞULLARI O. Z., DAL H., TUBITAK Project, Data-Driven Biomechanics: An Anisotropic Hyperelastic Model for Soft Biological Tissues, 2022 - 2023

Dal H., Company, Yapıştırıcı FEM Modelleme, 2021 - 2022

Dal H., Company, Kauçuk Türü Malzemelerin Karakterizasyonu ve Sanal Benzetim Yöntemlerinin Geliştirilmesi, 2021 - 2022

DAL H., AÇIKGÖZ K., AKSU DENLİ F., HASHEM ZADEH A. A., Project Supported by Higher Education Institutions, Kauçuk Türü Malzemelerin Elastik Olmayan ve Yırtılma Davranışının Deneysel İncelenmesi, 2020 - 2022

DAL H., GÜLTEKİN O., Project Supported by Higher Education Institutions, Epoksi Tabanlı Kalıp Bileşiklerinin Termo-visko-elastik Davranışının Deneysel ve Sayısal Analizi, 2019 - 2022

Dal H., Project Supported by Other Private Institutions, SOĞUTMALI KIZILÖTESİ SENSÖR TERMO-MEKANİK GERİNİM OPTİMİZASYONU VE ÖMÜR TESTLERİNE GİRDİ SAĞLAYACAK AR-GE PROJESİ, 2019 - 2020

DAL H., TUBITAK Project, Nems Ve Mems Mikroyapılar İçin Yüksek Mertebe Davranış Modeli Geliştirilmesi, 2017 - 2020

Dal H., Project Supported by Other Private Institutions, Hiperelastik Malzemelerin Farklı Yükler Altında Karakterizasyonu AR-GE Projesi, 2018 - 2019

Dal H., Ünlü M., TUBITAK Project, Terahertz Frekansları İçin Ayarlanabilir Yüzey Plazmon Polariton Dalga Kılavuzlarının Geliştirilmesi,, 2016 - 2019

Dal H., Technopark, Extension of Bergström-Boyce Model to take into account volumetric viscoelastic effects, 2018 - 2018

DAL H., TUBITAK Project, Kauçuk Türü Malzemeler İçin Inelastik Yırtılma Ve Kaviteasyon Modeli Geliştirilmesi, 2016 - 2018

DAL H., TUBITAK Project, Anizotropik Malzemeler için Faz Alanı Yaygın Catlak Modeli, 2014 - 2016

### Memberships / Tasks in Scientific Organizations

Gesellschaft für Allgemeine Mathematik und Mechanik, Member, 2012 - Continues, Germany

### Scientific Refereeing

ACTA MECHANICA, SCI Journal, August 2023

COMPUTATIONAL MECHANICS, SCI Journal, April 2023

JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, SCI Journal, March 2023

INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES, SCI Journal, December 2020

CONTINUUM MECHANICS AND THERMODYNAMICS, SCI Journal, November 2020

COMPUTATIONAL MECHANICS, SCI Journal, October 2020

JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, SCI Journal, September 2020

CONTINUUM MECHANICS AND THERMODYNAMICS, SCI Journal, July 2020  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, SCI Journal, July 2020  
JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, SCI Journal, May 2020  
COMPUTATIONAL MECHANICS, SCI Journal, January 2020  
Construction And Building Materials, Journal Indexed in SCI-E, December 2019  
JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, SCI Journal, October 2019  
Mechanics Of Materials, SCI Journal, October 2019  
Journal Of The Mechanics And Physics Of Solids, SCI Journal, July 2019  
EUROPEAN JOURNAL OF MECHANICS A-SOLIDS, SCI Journal, January 2019  
Applied Computing and Informatics, Other journals, November 2018  
EUROPEAN JOURNAL OF MECHANICS A-SOLIDS, Journal Indexed in SSCI, October 2018  
CONTINUUM MECHANICS AND THERMODYNAMICS, SCI Journal, August 2018  
JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS, SCI Journal, July 2018  
Journal Of The Mechanics And Physics Of Solids, SCI Journal, April 2018  
ADVANCED COMPOSITE MATERIALS, Journal Indexed in SCI-E, February 2018

### **Tasks In Event Organizations**

Yalçinkaya T., Dal H., Gürses E., 1st International Workshop on Plasticity, Damage and Fracture of Engineering Materials, Scientific Congress, Ankara, Turkey, Ağustos 2019  
Dal H., 11th European Conference on Constitutive Models for Rubber, Scientific Congress, France, Haziran 2019  
Dal H., Ekip M. A., Kuhn C., PHASE-FIELD MODELS FOR CRACKING IN COMPLEX MATERIALS, Scientific Congress, United Kingdom, Haziran 2018

### **Metrics**

Publication: 87  
Citation (WoS): 1099  
Citation (Scopus): 1202  
H-Index (WoS): 19  
H-Index (Scopus): 20

### **Invited Talks**

Computational mechanics of polymeric materials across the scales, Seminar, Universitaet Stuttgart, Germany, July 2019

### **Non Academic Experience**

ANOVA MÜHENDİSLİK, Danışmanlık  
KARA HARP OKULU MAKİNE MÜHENDİSLİĞİ BÖLÜMÜ, Okutmanlık  
Stuttgart Üniversitesi, Doktora sonrası Araştırmacı - Okutma  
ETH Zurich, Doktora sonrası Araştırmacı