

Contact

Lehrstuhl für Baustatik und Baudynamik
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Professional Career

- Since 2016 Vice Dean in charge of studies, faculty for civil engineering, RWTH Aachen University, Germany
- Since 2012 Professor (W3) Chair of Baustatik und Baudynamik at RWTH Aachen University, during this time a call for the Chair of Baustatik at KIT.
- 2009 – 2012 Professor (W3) Chair of Statik und Dynamik der Tragwerke at TU Kaiserslautern, during this time a call for the Chair of Mechanik, Statik & Dynamik at TU Dortmund.
- 2008 Visiting professor at ETH Zürich, Institute for Mechanical Systems, Switzerland
- 2002 – 2008 Akademischer Oberrat at Institut für Baustatik, Karlsruhe University
- 2001 – 2002 Research fellow at University of California, Berkeley, USA
- 1995 – 2001 Scientific employee at Institut für Baustatik, Karlsruhe University

Education

- 2007 Habilitation (habil.) in the field of structural analysis at Karlsruhe University
Reviewer: Prof. Dr.-Ing. W. Wagner, Prof. Dr.-Ing. K. Schweizerhof, Prof. Dr.-Ing. J. Schröder.
- 2000 Doctoral thesis (Dr.-Ing.) in the field of structural analysis at Karlsruhe University
Reviewer: Prof. Dr.-Ing. W. Wagner, Prof. Dr.-Ing. F. Gruttmann.
- 1995 Diplom thesis in Civil Engineering at Hannover University

Awards and Distinctions

- 2003 Young Researcher Fellowship Award for exemplary research in computational mechanics. Massachusetts Institute of Technology, Cambridge, USA
- 2001/02 Scholarship of the German Research Foundation (DFG)
- 2000 Promotion mit Auszeichnung

Memberships

- Member of the board and treasurer of German Association of Computational Mechanics (GACM)
- European Mechanics (EUROMECH)
- German Association for Seismic Engineering (DGEB)
- Association for Applied Mathematics und Mechanics (GAMM)
- International Association for Computational Mechanics (IACM)
- Member of scientific board World Congress of Computational Mechanics (WCCM2015)

Activities as a reviewer

Journals International Journal of Solids and Structures (Elsevier), International Journal for Numerical Methods in Engineering (Wiley), Computer Methods in Applied Mechanics and Engineering(Elsevier), Computational Mechanics (Springer), Computational Material Science (Elsevier), International Journal of Intelligent Material Systems & Structures (SAGE), International Journal of Non-Linear Mechanics (Elsevier), International Journal for Computational Methods (Worldscinet),

Research funding

Deutsche Forschungsgemeinschaft (DFG), more than 25 reviews.

Fonds zur Förderung der wissenschaftlichen Forschung (FWF), Austria

Doctoral thesis reviewer and co-reviewer

- 2019 Weiwei Xing, A scaled boundary Finite Element Based Node-to-Node Scheme for Contact, **UNSW Australia**, Examiners: Prof. Qing Li PhD, Prof. Dr.-Ing. S. Klinkel.
- 2018 Juncho Wang, Integrating CAD Geometry and Scaled Boundary Finite Element Analysis, **UNSW Australia**, Examiners: Prof. Qing Li PhD, Reviewer Prof. Dr.-Ing. S. Klinkel.
- 2018 Jonas Läufer, Entwicklung eines gradientenbasierten Modells zur netzunabhängigen Schädigungssimulation geschichteter Faserverbundstrukturen, **KIT Karlsruhe**, Hauptreferent: Prof. Dr.-Ing. W. Wagner, Korreferent: Prof. Dr.-Ing. S. Klinkel.
- 2017 Srivathsan Ravi, Numerical Modelling of Piezoelectric Energy Harvesting Devices Driven by Flow-Induced Vibrations, **Universität Luxemburg**, Hauptreferent: Prof. Dr.-Ing. A. Zilian, Korreferent Prof. J.-F. Deü, Korreferent Prof. Dr.-Ing. S. Klinkel.
- 2016 Markus Klassen, Numerical Modeling for the Static and Dynamic Analysis of nearly Incompressible Dielectric Elastomers, **TU-Kaiserslautern**, Hauptreferent: Prof. Dr.-Ing. R. Müller, Korreferent Prof. Dr.-Ing. Bai-Xiang Xu, Korreferent Prof. Dr.-Ing. S. Klinkel.
- 2016 Julia Rosin, Seismische Auslegung von Tankbauwerken, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Ao. Prof. Dipl.-Ing. Dr. techn. Rudolf Heuer.
- 2016 Yujie Guo, Isogeometric analysis for thin-walled composite structures, **TU-Delft** Netherlands, doctoral committee: Prof. Dr. C. Bisagni, Prof. Dr. M. Ruess, Prof. Dr. A. Reali, Prof. Dr. L. De Lorenzis, Prof. Dr.-Ing. S. Klinkel, Prof. Dr. C. Vuik.
- 2015 Lin Chen, Numerical Models for the Analysis of Soil, Structure and Their Interaction, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. C. Birk.
- 2015 Albert A. Saputra, A scaled boundary polyhedral element for three-dimensional analyses, **UNSW Australia**, Examiners: Prof. Qing Li PhD, Prof. Dr.-Ing. S. Klinkel.
- 2015 Sandro Zwecker, Nichtlineare Modellierung dielektrischer Elastomere – Analyse und Finite-Element-Schalen-Formulierung, **TU Kaiserslautern**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. R. Müller, Prof. Dr.-Ing. H. Sadegh-Azar.
- 2015 Benedikt Kohlhaas, Ein Finite-Elemente-Modell zur Analyse des Verhaltens von Formgedächtnisfaserkompositen mit beliebiger Mikrostruktur, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. W. Wagner.
- 2015 Wolfgang Dornisch, Interpolation of Rotations and Coupling of Patches in Isogeometric Reissner-Mindlin Shell Analysis, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. M. Bischoff, Prof. Dr.-Ing. F. Gruttmann.
- 2014 Francesca Taddei, Numerical Investigation of Soil-Structure Interaction for Onshore wind Turbines Grounded on a Layered Soil, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. R. Harte.
- 2014 Konstantinos Mykoniou, Dynamic Analysis of Multiple Liquid-Storage Tanks, **RWTH Aachen**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferent: Prof. Dr.-Ing. C. Könke.
- 2014 Stefan Lacher, Duroplastische Kunststoffe mit Elastomerzusätzen – Konstitutive Modellierung und Finite-Elemente-Formulierung, **KIT Karlsruhe**, Hauptreferent: Prof. Dr.-Ing. W. Wagner, Korreferent: Prof. Dr.-Ing. S. Klinkel.
- 2014 Alexander Büschel, Nichtlineare elektromechanisch gekoppelte Viskoelastizität bei großen Verformungen am Beispiel dielektrischer Elastomere – Konstitutive Modellierung und Finite-

- Elemente-Formulierung, **KIT Karlsruhe**, Hauptreferent: Prof. Dr.-Ing. W. Wagner, Korreferenten: Prof. Dr.-Ing. S. Klinkel.
- 2013 Michael Fischer, Finite Element Based Simulation, Design and Control of Piezoelectric and Lightweight Smart Structures, **TU München**, Hauptreferent: Prof. Dr.-Ing. K.-U. Bletzinger, Korreferenten: Prof. Dr.-Ing. E. Rank, Prof. Dr.-Ing. S. Klinkel.
- 2012 Christopher Kessler, Experimentelle Untersuchungen und numerische Simulation des nichtlinearen Tragverhaltens geklebter Stahl-Beton-Verbindungen, **TU Kaiserslautern**, Hauptreferent: Prof. Dr.-Ing. W. Kurz, Korreferenten: Prof. Dr.-Ing. P.L. Geiß, Prof. Dr.-Ing. S. Klinkel.
- 2011 David Schrade, Microstructural Modeling of Ferroelectric Material Behavior, **TU Kaiserslautern**, Prof. Dr.-Ing. R. Müller, Korreferenten: Prof. Dr.-Ing. D. Gross, Prof. Dr.-Ing. S. Klinkel.
- 2011 Dieter Legner, Finite-Element-Formulierung mit abgestimmten Approximationsräumen für die Modellierung piezoelektrischer Stab- und Schalenstrukturen, **KIT Karlsruhe**, Hauptreferent: Prof. Dr.-Ing. W. Wagner, Korreferenten: Prof. Dr.-Ing. S. Klinkel.
- 2010 Katrin Schulz, Theorie und Finite-Elemente-Modellierung geometrisch und materiell nichtlinearer piezoelektrischer Schalenstrukturen, **KIT Karlsruhe**, Hauptreferent: Prof. Dr.-Ing. W. Wagner, Korreferenten: Prof. Dr.-Ing. R. Lammering, Prof. Dr.-Ing. S. Klinkel.
- 2010 Peng Sun, Fluid-Struktur-Wechselwirkungen mit aktiver Schwingungskontrolle durch piezoelektrische Materialien, **TU Braunschweig**, Hauptreferent: Prof. Dr.-Ing. D. Dinkler, Korreferenten: Prof. Dr.-Ing. S. Klinkel.
- 2007 Konrad Linnemann, Magnetostriktive und piezoelektrische Materialien – konstitutive Modellierung und Finite-Element-Formulierung, **Universität Karlsruhe (TH)**, Hauptreferent: Prof. Dr.-Ing. S. Klinkel, Korreferenten: Prof. Dr.-Ing. W. Wagner, PD Dr.-Ing. M. Kamlah.

Publication index from July 2019

Google: h-index =21
 Scopus: h-index =19
 Web of science: h-index =18

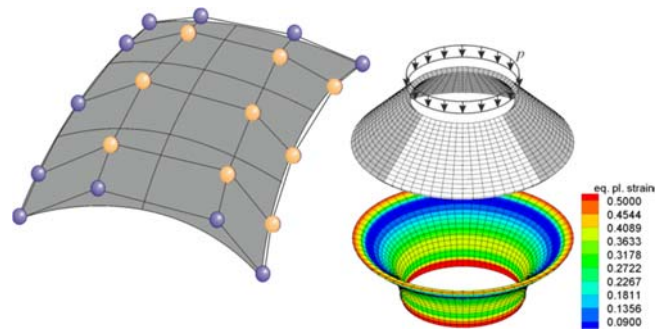
5 most important publication

- Klinkel S, Gruttmann F, Wagner W; A robust non-linear solid shell element based on a mixed variational formulation, *Computer Methods in Applied Mechanics and Engineering* <http://dx.doi.org/10.1016/j.cma.2005.01.013>, **195**, 179 – 201, 2006
- Klinkel S; A phenomenological constitutive model for ferroelastic and ferroelectric hysteresis effects in ferroelectric ceramics, *International Journal of Solids and Structures*, <http://dx.doi.org/10.1016/j.ijsolstr.2006.03.008>, **43**(22-23), 7197 – 7222, 2006
- Dornisch W, Klinkel S, Simeon B; Isogeometric Reissner-Mindlin shell analysis with exactly calculated director vectors, *Computer Methods in Applied Mechanics and Engineering*, <http://dx.doi.org/10.1016/j.cma.2012.09.010>, **253**, 491-504, 2013
- Klinkel S, Chen L, Dornisch W; A NURBS based hybrid collocation – Galerkin method for the analysis of boundary represented solids, *Computer Methods in Applied Mechanics and Engineering*, [doi:10.1016/j.cma.2014.10.029](https://doi.org/10.1016/j.cma.2014.10.029), **284**, 689–711, 2015
- Klinkel S, Reichel R; A finite element formulation in boundary representation for the analysis of nonlinear problems in solid mechanics, *Computer Methods in Applied Mechanics and Engineering*, <http://dx.doi.org/10.1016/j.cma.2018.12.020>, **347**, 295-315, 2019

Research interests

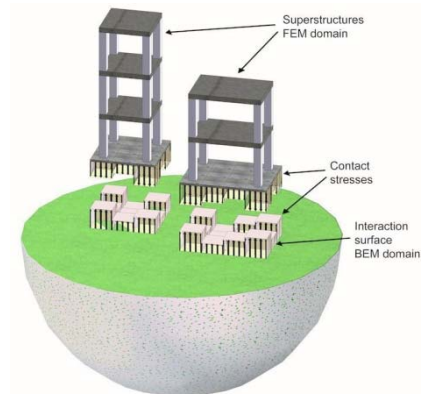
Numerical structural analysis

Nowadays computational analysis is basic tool in structural engineering. In the last decades several numerical methods have been developed. It turns out that for cutting edge applications and high performance computing the computational cost is a bottleneck. This motivates the Chair of Structural Analysis and Dynamics to deal with computational modelling and numerical methods for structural analysis. The aim is to enhance existing or to develop new methods to improve the analysis of spatial thin structures, like shell and beam structures. Here, the Finite Element Method and the Isogeometric Analysis are in the focus of research.



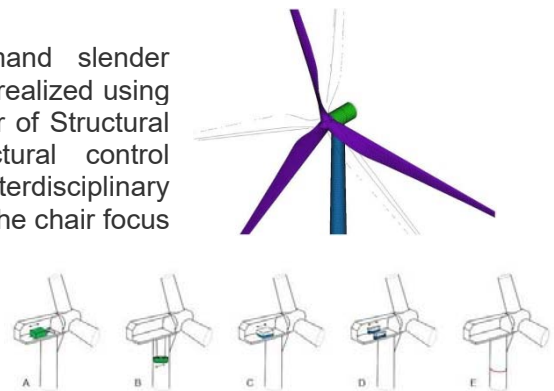
Earthquake engineering

For more than 15 years, the Chair of Structural Analysis and Dynamics is addressing intensively diverse research topics in the field of earthquake engineering. In the framework of numerous projects of fundamental as well as application-related research scientists of the LBB have investigated the seismic behavior of different types of structures and developed innovative design concepts. Due to active participation of members of the LBB in standardization committees the research findings were taken into account in national guidelines for the seismic design of buildings and structures.



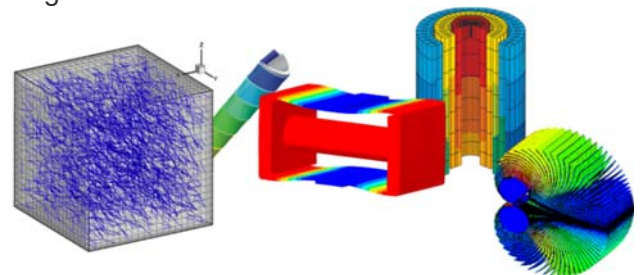
Structural dynamics

Architectural trends and economic challenges demand slender structures, which are prone to vibrations and cannot be realized using conventional construction methods. Therefore, the Chair of Structural Analysis and Dynamics researches for new structural control methods and develops intelligent damper systems in interdisciplinary cooperation with other institutes. The research works of the chair focus especially on wind energy turbines, as these structures are dynamically excited by wind, waves and earthquake. In order to improve the structural stability and extend the service life the Chair of Structural Analysis and Dynamics develops new measures for the vibration mitigation of wind energy turbines.



Modelling of functional materials and adaptive structures

Many devices for adaptive systems employ multi-functional materials. These materials take advantage of a thermo-mechanical, electro-mechanical, or magneto-mechanical material behavior. The Chair of Structural Analysis and Dynamics is concerned with the analysis of coupled problems. In particular, two topics are in the scope of the current research. The first one is the development of constitutive models for the multifunctional materials. The second one is to enhance existing or to develop new methods to improve the analysis of smart structures, which are often shell and beam structures.



List of publications

Peer-reviewed journals

- [1] Praster, M, Klassen, M, Klinkel S; An adaptive FE² approach for fiber-matrix composites, *Computational Mechanics*, **63**(6): 1333-1350, 2019.
- [2] Arioli C, Shamanskij A, Klinkel S, Simeon B; Scaled boundary parametrizations in isogeometric analysis, *Computer Methods in Applied Mechanics and Engineering*, **349**: 576-594, 2019.
- [3] Schuß S, Dittmann M, Wohlmuth B, Klinkel S, Hesch C; Multi-patch isogeometric analysis for Kirchhoff-Love shell elements, *Computer Methods in Applied Mechanics and Engineering*, **349**: 91-116, 2019.
- [4] Klassen M, Klinkel S, Müller, R; Shape optimization of material inclusions in dielectric elastomer composites, *Archive of Applied Mechanics*, **89**(6): 1141-1156, 2019.
- [5] Kikis G, Dornisch W, Klinkel S; Adjusted approximation spaces for the treatment of transverse shear locking in isogeometric Reissner-Mindlin shell analysis, *Computer Methods in Applied Mechanics and Engineering*, **354**: 850-870, 2019.
- [6] Klinkel S, Reichel R; A finite element formulation in boundary representation for the analysis of nonlinear problems in solid mechanics, *Computer Methods in Applied Mechanics and Engineering*, **347**: 295-315, 2019.
- [7] Altay O, Klinkel S; A semi-active tuned liquid column damper for lateral vibration control of high-rise structures: Theory and experimental verification. *Structural Control and Health Monitoring*, **25**(12), e2270, 2018.
- [8] Altay O, Klinkel S; Semi-aktiver Flüssigkeitssäulendämpfer zur Reduktion lateraler Schwingungen von Hochbauten. *Bauingenieur*, **93**(Fachteil D-A-CH): S11 –S18, 2018.
- [9] Chasapi M, Klinkel S. A scaled boundary isogeometric formulation for the elasto-plastic analysis of solids in boundary representation, *Computer Methods in Applied Mechanics and Engineering*, **333**:475–496, 2018.
- [10] Michel P, Butenweg C, Klinkel S; Pile-grid foundations of onshore wind turbines considering soil-structure-interaction under seismic loading, *Soil Dynamics and Earthquake Engineering*, **109**: 299–311, 2018.
- [11] Schatten H, Holtschoppen B, Michel Ph, Klinkel S; Soil dynamic effects in the designing of bulk material foundations of tank structures filled with liquids under seismic load, *Bauingenieur* **92**, 435-443, 2017.
- [12] Sobota P, Dornisch W, Müller R, Klinkel S; Implicit dynamic analysis using an isogeometric Reissner-Mindlin shell formulation, *International Journal for Numerical Methods in Engineering*, <http://dx.doi.org/10.1002/nme.5429>, **110**(9), 803-825, 2017.
- [13] Altay o, Nolteernsting F, Stemmler S, Abel D, Klinkel S; Investigations on the Performance of a Novel Semi-active Turned Liquid Column Damper. *Procedia Engineering* 199, 1580-1585, 2017
- [14] Rosin J, Butenweg C, Klinkel S; Stabilitätsnachweis für seismisch belastete Tankbauwerke nach dem LBA/MNA-Konzept, *Bauingenieur*, **91**, 518-526, 2016.
- [15] Sobota P, Dornisch W, Klinkel S; An isogeometric Reissner-Mindlin shell element for dynamic analysis considering geometric and material nonlinearities. *Journal of Physics: Conference Series* **734**(3), 032063, 2016.
- [16] Mykoniou K, Butenweg C, Holtschoppen B, Klinkel S; Seismic response analysis of adjacent liquid-storage tanks, *Earthquake Engineering and Structural Dynamics* **45**(11) 1779-1796, 2016.
- [17] Chen L, Dornisch W, Klinkel S; Hybrid collocation-Galerkin approach for the analysis of surface represented 3D-solids employing SB-FEM, *Comp. Meth. Appl. Mech. Engrg*, [doi:10.1016/j.cma.2015.07.004](https://doi.org/10.1016/j.cma.2015.07.004), **295**, 268–289, 2015.
- [18] Klinkel S, Chen L, Dornisch W; A NURBS based hybrid collocation-Galerkin method for the analysis of boundary represented solids, *Comp. Meth. Appl. Mech. Engrg*, <http://doi.org/10.1016/j.cma.2014.10.029>, **284**, 689–711, 2015.
- [19] Kohlhaas B, Klinkel S; A FE² model for the nonlinear response analysis of shape memory alloy fiber-composites, accepted in *Computational Mechanics*, <http://link.springer.com/article/10.1007/s00466-014-1112-3>, **55**, 421-437, 2015.
- [20] Dornisch W, Vitucci G, Klinkel S; The weak substitution method – An application of the mortar method for patch coupling in NURBS-based isogeometric analysis, accepted in *International Journal for Numerical Methods in Engineering*, 2015.
- [21] Dornisch W, Klinkel S; Treatment of Reissner-Mindlin shells with kinks without the need for drilling rotation stabilization in an isogeometric framework, *Comp. Meth. Appl. Mech. Engrg*, <http://doi.org/10.1016/j.cma.2014.03.017>, **276**, 35-66, 2014.

- [22] Taddei F, Butenweg C, Klinkel S; Parametric Investigation of the soil-structure interaction effects on the dynamic behavior of a wind turbine considering a layered soil, *Wind Energ.* <http://doi.org/10.1002/we.1703>, 2014.
- [23] Legner D, Wackerfuß J, Klinkel S, Wagner W; An advanced finite element formulation for piezoelectric beam structures, *Computational Mechanics*, <http://dx.doi.org/10.1007/s00466-013-0879-y>, **52**, 1331-1349, 2013.
- [24] Gerzen N, Barthold FJ, Klinkel S, Wagner W, Materna D; Variational sensitivity analysis of a non-linear solid shell element, *International Journal for Numerical Methods in Engineering*, <http://dx.doi.org/10.1002/nme.4545>, **96**, 29-42, 2013.
- [25] Dornisch W, Klinkel S, Simeon B; Isogeometric Reissner-Mindlin shell analysis with exactly calculated director vectors, accepted in *Computer Methods in Applied Mechanics and Engineering*, <http://dx.doi.org/10.1016/j.cma.2012.09.010>, **253**, 491-504, 2013.
- [26] Klinkel S, Zwecker S, Müller R; A solid shell finite element formulation for dielectric elastomers, *Journal of Applied Mechanics*, <http://dx.doi.org/10.1115/1.4007435>, **80**, 21026.1-11, 2013
- [27] Legner D, Klinkel S, Wagner W; An advanced finite element formulation for piezoelectric shell structures, *International Journal for Numerical Methods in Engineering*, <http://dx.doi.org/10.1002/nme.4521>, **95**, 901-927, 2013.
- [28] Legner D, Wackerfuß J, Klinkel S, Wagner W; An advanced finite element formulation for piezoelectric beam structures, *Computational mechanics*, <http://dx.doi.org/10.1007/s00466-013-0879-y>, **52**, 1331-1349, 2013.
- [29] Büschel A, Klinkel S, Wagner W; Dielectric elastomers – numerical modeling of nonlinear visco-electroelasticity, *International Journal for numerical Methods in Engineering*, <http://dx.doi.org/10.1002/nme.4409>, **93**, 834–856, 2013.
- [30] Klassen M, Xu B X, Klinkel S, Müller R; Material modeling and microstructural optimization of dielectric elastomers, *Technische Mechanik*, **32**, 38-52, 2012.
- [31] Klinkel S, Kohlhaas B; Modellierung und Anwendung von Formgedächtnislegierungen im Bauwesen, *Bauingenieur, VDI-Bautechnik Jahressausgabe 2011/2012*, Springer VDI Verlag, **84**, 101-110, 2011.
- [32] Schulz K, Klinkel S, Wagner W; A Finite element formulation for piezoelectric shell structures considering geometrical and material nonlinearities, *International Journal for Numerical Methods in Engineering*, **87**, 491-520, 2011.
- [33] Müller R, Bai-Xiang Xu, Gross D, Lyschik M, Schrade D, Klinkel S; Deformable dielectrics - optimization of heterogeneities, *International Journal of Engineering Science*, **48**, 647-657, 2010.
- [34] Linnemann K, Klinkel S, Wagner W; A constitutive model for magnetostrictive and piezoelectric materials, *International Journal of Solids and Structures*, **46**, 1149–1166, 2009.
- [35] Butz A, Klinkel S, Wagner W; A piezoelectric 3D-beam finite element formulation accounting for geometrical and material nonlinearities, *International Journal for Numerical Methods in Engineering*, **76**, 601-635, 2008.
- [36] Klinkel S, Gruttmann F, Wagner W; A Mixed Shell Formulation Accounting for Thickness Strains and Finite Strain 3d-Material Models, *International Journal for Numerical Methods in Engineering* **74**, 945 – 970, 2008.
- [37] Klinkel S, Wagner W; A Piezoelectric Solid Shell Element based on a Mixed Variational Formulation for Geometrically Linear and Nonlinear Applications, *Computers & Structures* **86**, 38 – 46, 2008.
- [38] Klinkel S; A Phenomenological Constitutive Model for Ferroelastic and Ferroelectric Hysteresis Effects in Ferroelectric Ceramics, *International Journal of Solids and Structures*, **43**(22-23), 7197 – 7222, 2006.
- [39] Klinkel S; A Thermodynamic Consistent 1D Model for Ferroelastic and Ferroelectric Hysteresis Effects in Piezoceramics, *Communications in Numerical Methods in Engineering*, **22**(7), 727 – 739, 2006 .
- [40] Klinkel S, Wagner W; A Geometrically Non-linear Piezoelectric Solid Shell Element based on a Mixed Multi-Field Variational Formulation, *International Journal for Numerical Methods in Engineering* **65**, 349 – 382, 2006.
- [41] Klinkel S, Gruttmann F, Wagner W; A Robust Non-linear Solid Shell Element Based on a Mixed Variational Formulation, *Computer Methods in Applied Mechanics and Engineering* **195**, 179 – 201, 2006.
- [42] Govindjee S, Klinkel S; Mechanical Coupling in Single Crystal Silicon for MEMS Design, *Journal of Microelectromechanical Systems* **14**(4), 864 – 871, 2005.
- [43] Klinkel S, Sansour C, Wagner W; An Anisotropic Fibre-Matrix Material Model at Finite Elastic-Plastic Strains, *Computational Mechanics* **35**, 409 – 417, 2005.
- [44] Klinkel S, Govindjee S; Anisotropic Bending-Torsion Coupling for Warping in a Non-Linear Beam, *Computational Mechanics* **31**, 78 – 87, 2003.

- [45] Klinkel S, Govindjee S; Using Finite Strain 3D-Material Models in Beam and Shell Elements, *Engineering Computations* 19(8), 902–921, 2002.
- [46] Wagner W, Klinkel S, Gruttmann F; Elastic and Plastic Analysis of Thin-Walled Structures Using Hexahedral Elements, *Computers & Structures* 80, 857–869, 2002.
- [47] Klinkel S, Gruttmann F, Wagner W; A Continuum Based 3D-Shell Element for Laminated Structures, *Computers & Structures* 71, 43–62, 1999.
- [48] Klinkel S; A Continuum Based 3D-Shell Element for Thin Shell Structures, *Zeitschrift für angewandte Mathematik und Mechanik* 79, 553–554, 1999.
- [49] Klinkel S; An Effective Geometrical Non-linear 3D-Element with Anisotropic Composite Material, *Zeitschrift für angewandte Mathematik und Mechanik* 98, 541–542, 1998.
- [50] Klinkel S, Wagner W; A Geometrical Non-linear Brick Element Based on the EAS-Method, *International Journal for Numerical Methods in Engineering* 40, 4529–4545, 1997.
- [51] Gruttmann F, Klinkel S, Wagner W; A Finite Rotation Shell Theory with Application to Composite Structures, *European Journal of Finite Elements* 4, 597–631, 1995.

Invited contributions

- [52] Chasapi M, Arioli C, Simeon B, Klinkel S; Boundary oriented methods for modeling of non-linear problems in solid mechanics, *German Association for Computational Mechanics GACM Report* 10, 2018
- [53] Klinkel, S, Wagner W; Numerische Modellierung elektromechanisch gekoppelter Probleme in der Strukturmechanik, *GAMM Rundbrief* 2, 6-12, 2013
- [54] Klinkel S; Computational Modeling of Smart Structures and Materials, *German Association for Computational Mechanics GACM Report* 5, 12-18, 2008

Books

- [55] Altay O, Taddei F, Butenweg C, Klinkel S; Vibration Mitigation of Wind Turbine Towers with Tuned Mass Dampers, in *Wind Turbine Control and Monitoring Advances in Industrial Control*, Editors Ningsu Luo, Yolanda Vidal, Leonardo Acho, 337-373, Springer 2014, ISBN: 978-3-319-08412-1 (Print) 978-3-319-08413-8 (Online)
- [56] Klinkel S, Butenweg C, Holtschoppen B; *Seismic design of industrial facilities*, Springer Vieweg, 2014, ISBN 3-658028-09-2
- [57] Butenweg C, Klinkel S, *Dynamisches Verhalten von Stahlbetonplatten unter Impact-Belastung*, in *Massivbau im Wandel, Festschrift zum 60. Geburtstag Prof. Josef Hegger*, 369-380, Ernst & Sohn, 2014, ISBN: 3-939051-20-9

Conferences and Proceedings

Not listed