

Andreas Warkentin

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Employment

- 02.2024 – 11.2025 PostDoc, University of Kassel
Institute of Mechanics, Engineering Mechanics/ Continuum Mechanics
- 2018 – 01.2024 Research Associate, University of Kassel
Institute of Mechanics, Engineering Mechanics/ Continuum Mechanics

Education

- 2018 – today PhD Candidate at University of Kassel
Institute of Mechanics, Engineering Mechanics/ Continuum mechanics
PhD supervisor: Prof. Andreas Ricoeur
- 2017 – 2018 M.Sc. Mechanical Engineering, University of Kassel
Thesis: *Erweiterung der Kondensierten Methode zur numerischen Analyse polykristalliner Ferroelektrika durch Berücksichtigung nichtlinearer bilateraler kalorisch-elektromechanischer Kopplungen*
- 2014 – 2017 B.Eng. Mechanical Engineering, University of Applied Sciences Gießen
Thesis: *Experimentelle und numerische Untersuchung des Wedge-Impact-Peel-Versuchs unter Berücksichtigung des Temperatureinflusses auf ein zähmodifiziertes Klebstoffsystem*

Scientific Publications

- 2023 European Journal of Mechanics and Solids – A/ Solids
Scale transition and residual fields in modeling of polycrystalline ferroelectrics based on the internal energy potential and a Voigt-Reuss approximation
- 2022 Smart Materials and Structures
Model-based investigations of ferroelectric energy harvesting with regard to an improvement of life span and operability
- 2022 Proceedings in Applied Mathematics and Mechanics
Hybrid modeling of viscoelastic and switching-induced heating in ferroelectrics
- 2021 Smart Materials and Structures
Exploiting ferroelectric and ferroelastic effects in piezoelectric energy harvesting: theoretical studies and parameter optimization
- 2021 Proceedings in Applied Mathematics and Mechanics
Experimental investigations of viscoelastic and ferroelastic heating in PZT-5H

- 2020 **International Journal of Solids and Structures**
A semi-analytical scale bridging approach towards polycrystalline ferroelectrics with mutual nonlinear caloric-electromechanical couplings
- 2019 **Proceedings in Applied Mathematics and Mechanics**
Nonlinear bilateral caloric–electromechanical couplings in polycrystalline ferroelectrics
- 2019 **Proceedings of 8th GACM Colloquium on Computational Mechanics**
Transient dissipation heating in polycrystalline ferroelectrics accounting for mutual nonlinear couplings

Work Experience

- 2018 – today **Research Associate at Institute of Mechanics, University Kassel**
- Ferroelectric Energy Harvesting
 - Microphysical modeling of smart materials: Hybrid modeling of viscoelastic and switching-induced heating in ferroelectrics
 - Coupled problems: thermo-electro-mechanical couplings in smart materials
 - Multiscale modeling: semi-analytical scale bridging (condensed method)
- 2018 **Student Assistant at Institute of Mechanics, University Kassel**
FEM simulation of hollow punch rivet
- 2015 – 2016 **Tutor at Institute of Mathematics, University of Applied Science Gießen**
Giving exercises in undergraduate courses: Mathematics I, II
- 2011 – 2014 **Vocational training at Goodyear Dunlop, Hanau**
Process Technician for Plastics and Rubber Engineering, Focus: Multi-Layered Rubber Parts

Skills

Scientific programming

- Matlab/Simulink: object orientated programming
- Python: basic coding skills, neural networks (gensim)

Technical programming

- Shell scripts/Linux

Languages

- German (native)
- English (fluent)

Memberships, Awards & Certificates

- 2024 **Gamm Jniors Speaker**
- 2022 – today **Member of the GAMM**

- 2022 – 2024 Elected as GAMM Junior (for excellent junior scientists)
- 2021 Learning How to Learn: powerful mental tools to help you master tough subjects
McMaster University, University of California San Diego
- 2013 MINT Trainee Mentor