



Der Vorsitzende des Promotionsausschusses

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## EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

**Herr M.Sc. Daniel Bruch**  
Intelligente Materialsysteme  
(Prof. Dr.-Ing. Stefan Seelecke)

am

**Mittwoch, 24. Juli 2024, 14:00 Uhr s.t.**

per Videokonferenz; Link für MS Teams: Join Colloquium Now  
Raum für die Prüfung: ZeMA, Eschberger Weg 46, Halle 10, Raum 10.1.09

### Thema der Dissertation:

### **Multifunctional Test Rig for Accelerated Assessment of Electromechanical Characteristics and Failure Mechanisms of Dielectric Elastomer Transducers**

Dielectric elastomer transducers (DETs) enable innovative applications in the field of sensors, actuators, and generators. This dissertation presents the development of a novel multifunctional test rig for accelerated assessment of electromechanical characteristics and failure mechanisms of DETs. The fully automated setup allows for the first time comprehensive, uninterrupted and simultaneous electromechanical testing of multiple DET samples under configurable operating and climatic conditions. The unique design is based on an elaborated concept, incorporating custom developed mechanics, electronics, software and data management. These aspects are comprehensively addressed in the scope of this thesis, followed by a comprehensive general validation of the test rig in terms of functionality and accuracy. Finally, the versatility of the test rig is demonstrated by systematic electromechanical characterizations of a specially developed DET.

Saarbrücken, 10. Juli 2024

Prof. Dr. Uli Kazmaier